

Pages 1 to 122

BASED ON TYPE T807,

FREQUENCY RANGE 4.0 - 140MHZ

ESCC Detail Specification No. 3501/011

(Follow-up specification to ESCC Detail Specification Nos. 3501/001 and 3501/008.)

ISSUE 3 March 2010





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DOCUMENTATION CHANGE NOTICE

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DCR No.	CHANGE DESCRIPTION
552	Specification upissued to incorporate technical and editorial changes per DCRs.
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1.1 SCOPE

This specification details the values, physical and electrical characteristics, test and inspection data for Crystal Units in Metal Holder, based on Type T807, Frequency Range 4.0 - 140MHz.

It shall be read in conjunction with ESCC Generic Specification No. 3501, the requirements for which are supplemented herein.

This is a follow-up specification to ESCC Detail Specification Nos. 3501/001 and 3501/008. ESCC 3501/001 and 3501/008 should also be consulted by:-

- (a) Users seeking information concerning the availability of variants additional to those listed in this specification.
- (b) Manufacturers before requesting the introduction of a new variant in accordance with the requirements of Para. 1.2 of this specification.

1.2 COMPONENT TYPE VARIANTS

A list of the type variants of the crystal units specified herein, which are also covered by this specification, is given in "Table 1(a) - Type Variant Summary".

For each type variant, the full electrical and physical characteristics are given in individual Tables 1(a) - "Type Variant Detailed Information" at the end of this specification.

The contents of the individual Tables 1(a) shall be as shown in Table 1(c) and the characteristics therein listed shall relate to the design parameters of the individual crystal units, optimised for the intended application.

The specific characteristics shall be negotiated between the Manufacturer and the Orderer. The Manufacturer shall then apply to the ESCC Secretariat for a type variant number for each individual crystal unit concerned, by sending a finalised Table 1(a) which shall also be copied to the ESCC Executive.

1.3 MAXIMUM RATINGS

The maximum ratings, which shall not be exceeded at any time during use or storage, applicable to the crystal units specified herein, are as scheduled in Table 1(b).

1.4 PHYSICAL DIMENSIONS

The physical dimensions of the crystal units specified herein are shown in Figure 2.

1.5 FUNCTIONAL DIAGRAM

The functional diagram showing lead identification of the crystal units specified herein is shown in Figure 3.



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TABLE 1(a) - TYPE VARIANT SUMMARY

N.B. For additional information concerning Type Variants, see Para. 1.1.

Variant	Resonance Frequency (MHz)	Load Capacitance (C _L pF)	Reference Temp. (T ₀ °C)	Operating Temp. Range (T _{op} °C)	Intend. Applica- tion	Figure
01	79.916667	00	+ 65	-20 to +80	OCXO	2(a)
02	16.777216	15	+ 25	-40 to +90	ХО	2(a)
03	98.5	. 00	+ 65	-20 to +60	XO	2(a)
04	127.33	00	+ 65	-20 to +60	ХО	2(a)
05	45.576238	∞	+ 25	-20 to +70	TCXO	2(a)
06	60.409942	∞	+ 25	-20 to +70	TCXO	2(a)
07	60.424365	. ∞	+ 25	-20 to +70	TCXO	2(a)
08	75.778688	∞	+ 25	-20 to +70	TCXO	2(a)
09	75.79918	∞	+ 25	-20 to +70	TCXO	2(a)
10	70.392385		+ 25	-20 to +70	TCXO	2(a)
11	16.0	30	+ 25	-50 to +100	XO	2(a)
12	45.576921	∞	+ 25	-25 to +70	TCXO	2(a)
13	47.477737	∞	+ 25	-25 to +70	TCXO	2(a)
.14	47.484316	∞	+ 25	-25 to +70	TCXO	2(a)
15	53.844019	∞	+60	-20 to +80	TCXO	2(a)
16	60.101563	∞	+ 60	-20 to +80	TCXO	2(a)
17	54.665417	∞	+60	-20 to +80	TCXO	2(a)
18	96.115384	∞	+ 75	-20 to +80	осхо	2(a)
19	99.933333	∞	+ 75	-20 to +80	осхо	2(a)
20	47.377026	∞	+ 25	-20 to +80	TCXO	2(a)
21	47.383605	∞	+ 25	-20 to +80	TCXO	2(a)
22	39.781202	∞	+ 25	-20 to +80	TCXO	2(a)
23	96.250	∞	+ 75	-20 to +80	осхо	2(a)
24	96.428571	∞	+ 75	-20 to +80	осхо	2(a)
25	97.380752	∞	+ 75	-20 to +80	осхо	2(a)
26	97.826087	∞	+ 75	-20 to +80	осхо	2(a)
27	97.916667	∞	+ 75	-20 to +80	ocxo	2(a)
28	98.750	∞	+ 75	-20 to +80	OCXO	2(a)
29	65.016606	∞	+ 25	-20 to +80	TCXO	2(a)
30	100.833333	∞	+ 75	-20 to +80	OCXO	2(a)
31	36.966600	∞	+25	-20 to +80	TCXO	2(a)
32	101.136363	∞	+ 75	-20 to +80	OCXO	2(a)
33	20.0	∞	+ 25	-20 to +80	XO	2(a)
34	36.916667	∞	+ 25	-20 to +80	TCXO	2(a)
35	16.0	30	+ 25	-40 to +90	XO	2(a)
36	56.288799	∞	+70	-20 to +80	TCXO	2(a)

NOTES: See Page 8.



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TABLE 1(a) - TYPE VARIANT SUMMARY (CONTINUED)

Variant	Resonance Frequency (MHz)	Load Capacitance (C _L pF)	Reference Temp. (T ₀ °C)	Operating Temp. Range (T _{op} °C)	Intend. Applica- tion	Figure
37	56.298413	∞	+ 70	-20 to +80	TCXO	2(a)
38	60.0	. ∞	+ 25	-50 to +100	XO	2(a)
39	89.066666	12	+ 25	-20 to +80	VCXO	2(b)
40	56.283991	· ∞	+ 65	-20 to +80	OCXO	2(a)
41	56.264760	∞	+ 65	-20 to +80	OCXO	2(a)
42	49.760	∞	+ 75	-20 to +80	OCXO	2(a)
43	83.333333	∞	+ 70	-20 to +80	осхо	2(a)
44	43.214457	∞	+ 65	-20 to +80	осхо	2(a)
45	49.982342	∞	+ 65	-20 to +80	ocxo	2(a)
46	56.240721	80	+ 65	-20 to +80	осхо	2(a)
47	58.913814	∞	+ 65	-20 to +80	OCXO	2(a)
48	47.023950	∞	+ 65	-20 to +80	осхо	2(a)
49	49.974902	000	+ 65	-20 to +80	OCXO	2(a)
50	49.998712	∞	+ 65	-20 to +80	OCXO	2(a)
51	60.388308	00	+ 25	-20 to +80	OCXO	2(a)
52	64.850955	∞	+ 25	-20 to +80	OCXO	2(a)
53	74.632	∞	+ 25	-20 to +80	осхо	2(a)
54	65.703227	∞	+ 25	-20 to +80	осхо	2(a)
55	65.005242	. ∞	+ 25	-20 to +80	осхо	2(a)
56	21.0	30	+ 25	-40 to +85	TCXO	2(a)
57	82.407407	∞	+ 70	-20 to +80	OCXO	2(a)
58	83.333333	∞	+70	-20 to +80	OCXO	2(a)
59	82.407407	∞	+ 70	-20 to +80	OCXO	2(a)
60	44.806526	8	+ 25	-20 to +80	OCXO	2(a)
61	59.717665	∞	+ 65	-20 to +80	OCXO	2(a)
62	100.0	∞	+ 75	-20 to +80	осхо	2(a)
63	103.500	∞	+ 75	-20 to +80	OCXO	2(a)
64	99.023438	∞	+ 75	-20 to +80	OCXO	2(a)
65	76.0	∞	+ 75	-20 to +80	осхо	2(a)
66	55.057968	∞	+ 75	-20 to +80	осхо	2(a)
67	53.836808	∞	+ 75	-20 to +80	осхо	2(a)
68	65.708909	∞	+ 25	-20 to +80	осхо	2(a)
69	101.500	∞	+ 75	-20 to +80	ОСХО	2(a)
70	50.0	∞	+ 75	-20 to +80	TCXO	2(a)
71	83.353825	∞	+ 25	-20 to +80	ОСХО	2(a)
72	83.360656	∞	+ 25	-20 to +80	OCXO	2(a)

NOTES: See Page 8.



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TABLE 1(a) - TYPE VARIANT SUMMARY (CONTINUED)

		i .				
Variant	Resonance Frequency (MHz)	Load Capacitance (C _L pF)	Reference Temp. (T _o °C)	Operating Temp. Range (T _{op} °C)	Intend. Applica- tion	Figure
73	66.034769	00	+ 25	-20 to +80	OCXO	2(a)
74	70.358731	8	+ 25	-20 to +80	OCXO	2(a)
75	37.833333	8	+25	-20 to +80	OCXO	2(a)
76	37.483333	8	+ 25	-20 to +80	OCXO	2(a)
77	37.950	∞	+ 25	-20 to +80	OCXO	2(a)
78	32.0	30	+ 25	-55 to +105	хо	2(a)
79	74.637682	∞	+ 25	-20 to +80	OCXO	2(a)
80	74.654	00	+25	-20 to +80	OCXO	2(a)
81	75.0	∞	+ 75	-20 to +80	OCXO	2(a)
82	45.238276	00	+65	-20 to +80	OCXO	2(a)
83	54.807966	∞	+ 65	-20 to +80	осхо	2(a)
84	60.340231	∞	+ 25	-20 to +80	OCXO	2(a)
85	100.084340	· ∞	+ 25	-25 to +75	TCXO	2(a)
86	62.350	∞	+ 75	-20 to +80	осхо	2(a)
87	67.998154	œ	+ 25	-20 to +80	осхо	2(a)
88	61.290031	∞	+60	-20 to +80	OCXO	2(a)
89	56.259952	00	+60	-20 to +80	осхо	2(a)
90	56.283270	∞	+60	-20 to +80	OCXO	2(a)
91	37.753122	; ∞	+ 25	-20 to +80	ocxo	2(a)
92	37.140272	· ∞	+ 25	-20 to +80	OCXO	2(a)
93	47.373737	∞	+ 25	-20 to +80	осхо	2(a)
94	80.562500	. ∞	+ 75	-20 to +80	OCXO	2(a)
95	100.646340	. ∞	+ 25	-25 to +75	TCXO	2(a)
96	100.783130	∞	+25	-25 to +75	TCXO	2(a)
97	60.281611	00	+60	-20 to +80	осхо	2(a)
98	60.284015	00	+60	-20 to +80	осхо	2(a)
99	55.850279	00	+60	-20 to +80	осхо	2(a)

^{1.} Full electrical and physical characteristics are given in the individual Tables 1(a) at the end of this specification.



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TABLE 1(b) - MAXIMUM RATINGS

No.	Characteristic	Symbol	Values	Unit	Remarks
1	Nominal Frequency Range	f	4.0 to 140	MHz	Note 1
2	Drive Level Range	Р	Note 1	mW	Note 1
3	Operating Temperature Range	T _{op}	-	°C :	Note 2
4	Storage Temperature Range	T _{stg}	-65 to +125	°C	Note 3
5	Soldering Temperature	- T _{sol}	+ 260	°C	Note 4

NOTES

1.

Fundamental and Overtone Order	Approx. Frequency Range (MHz)	Drive Level
Fundamental	4 - 35	0.05 to 0.02
3	30 - 100	0.05 to 0.25
5	80 - 140	0.05 to 0.25

- 2. See Table 1(a).
- 3. The duration at maximum storage temperature shall not exceed 16 hours.
- 4. Duration 10 seconds maximum at a distance of not less than 3.0mm from the device body and the same lead shall not be resoldered until 3 minutes have elapsed.



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TABLE 1(c) - FORMAT FOR INDIVIDUAL TABLES 1(a) TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION TYPE VARIANT NO.

			Lim	its		·	
No.	Characteristic	Symbol	Min.	Max	Unit	Remarks	
1	Resonance Frequency	f _r or f _L			MHz	Note 1	
2	Reference Temperature	To			°C	Note 2	
3	Overtone Order	- Dipag	in habe at	- 1- pr 11-1	where the street	e esta entif	1000
4	Load Capacitance	CL			pF	Note 3	
5	Rated Drive Level	P _o			mW	Note 4	· į
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$			10-6	At T _o °C Note 5	ý.
7	Resonance Resistance	R _r or R _L			Ω	At To °C Note 6	
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	÷		10 ⁻⁹	From frequency measured at T _o °C Note 7	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R			%	From resistance measured at T ₀ °C Note 7	
10	Operating Temperature Range	T _{op}			°C		
11	Frequency variation with Drive Level	∆ f f		* 1.	10-6	to	mW mW
12	Resistance variation with Drive Level	<u>∆ R</u> R			%	to	mW mW
13	Motional Inductance	L ₁			mH	Notes 9 and 10	
14	Motional Capacitance	C ₁			fF	Note 9	
15	Static Capacitance	Co			pF	Note 9	
16	Q Factor	Q			-	Notes 9 and 11	
17	Ratio of unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R				In the frequency range: f - to f +	kHz kHz
18	Ageing	∆ f f			10-6	Note 13	
19	Physical Dimensions	-			-	Note 14	
20	Intended Application					Note 16	

NOTES: See Pages 11 and 12.



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NOTES TO TABLE 1(c)

- 1. (a) If C_L is not specified, Symbol and measurement shall be f_r.
 - (b) If C_L is specified, Symbol and measurement shall be f_L.

2. Reference Temperature To

- (a) For a crystal unit functioning in a non-controlled temperature environment, the reference temperature is normally +25 ±2 °C.
- (b) For a crystal unit functioning in a controlled temperature environment, the reference temperature shall normally be the mid-point of the temperature range of the controlled environment.

3. Load Capacitance CL

- (a) When a crystal unit must function at its series resonance frequency, C_L shall be infinite.
- (b) When a crystal must function with a load capacitance, the C_L value shall be specified. The standard values of load capacitance are as follows:
- Fundamental Frequency Operation: 20pF, 30pF, 50pF and 100pF.
- Overtone Operation: 8pF, 12pF, 15pF, 20pF and 30pF.

N.B

The tolerance on the load capacitance shall be that value which results in a frequency change not exceeding 10% of the frequency tolerance at T_0 or 1% of the nominal load capacitance, whichever is smaller.

Rated Drive Level Po

The rated drive level shall be selected from the standard drive levels specified below:

- Preferred values: 2mW, 1mW, 0.5mW, 0.2mW, 0.1mW, 0.05mW, 0.02mW, 0.01mW, 0.001mW or 0.0001mW at ±20%.
- Non-preferred values: 10mW, 5mW and 4mW all at ±20%.

5. Frequency Adjustment Tolerance

- (a) When a crystal must function at its series resonance frequency, the standard value of the adjustment tolerance shall be $\pm 10 \times 10^{-6}$.
- (b) When a crystal has to function with a load capacitance, the standard value of the adjustment tolerance shall also be ±10 x 10⁻⁶. However, if the load capacitance is adjustable, it is preferable to specify that the nominal frequency be obtained with a load capacitance value between the minimum and maximum value when the crystal is functioning in its fundamental mode.

6. Resonance Resistance

- (a) Generally, the maximum value only is specified.
- (b) R_L may be calculated by R_L = R_r $\left(1 + \frac{C_0}{C_L} \right)^2$

7. Frequency and Resistance Variation with Temperature

These values shall be specified such that they are consistent with the operating temperature range.

8. Frequency and Resistance Variation with Drive Level

These limits and the Drive Level range (PS1 to PS2) shall be specified for very special crystals only (i.e. crystals used in very high stability oscillators).



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NOTES TO TABLE 1(c) (Continued)

9. Electrical Values

The electrical values shall be specified only when required for the correct functioning of the equipment in which the crystal is used.

10. Motional Inductance L₁

Because the inductance value may be restricted by other chosen parameters, the Manufacturer shall propose the value of L_1 in accordance with the Customer's requirements.

11. 'Q' Factor

If 'R' and 'L' have been already specified, it will not be necessary to specify the minimum value of the 'Q' factor.

The maximum value of the 'Q' factor is never specified.

12. Ratio of Unwanted Response Resistance to Resonance Resistance

The standard minimum value is 2, but it is possible to obtain higher values.

The frequency range within which the minimum value of the ratio is required shall also be specified.

13. Ageing

Specify limits under appropriate column and ageing period under "Remarks".

14. Physical Dimensions

The applicable Figure Number is to be specified.

15. Not applicable Items

For all items where limits are not specified, "Not applicable" shall be entered in the Limits column.

16. Intended Application

For definitions of the selected symbol to be added, see ESCC Generic Specification No. 3501, Para. 3.



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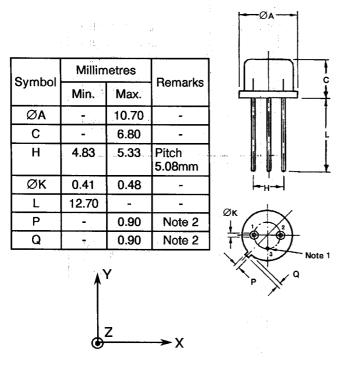
FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

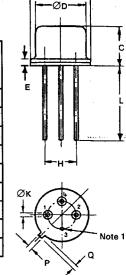
FIGURE 2 - PHYSICAL DIMENSIONS

FIGURE 2(a) - 3-PIN PACKAGE

FIGURE 2(b) - 4-PIN PACKAGE



	300		$\mu \approx 3078$
Symbol	Millim	etres	Remarks
Cymbol	Min.	Max.	nemarks
ØA	8.51	10.70	-
С	6.10	6.90	_
ØD	7.75	8.50	
E	0.25	1.00	-
Н	4.93	5.23	-
ØK	0.41	0.48	-
L	12.70	-	-
Р	-	0.90	Note 2
Q	-	0.90	Note 2



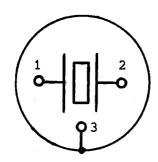
ØA

NOTES

- 1. Lead No. 3 is grounded to case.
- 2. The tag's position or presence is optional.

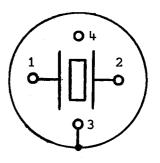
FIGURE 3 - FUNCTIONAL DIAGRAM

FIGURE 3(a) - 3-PIN PACKAGE



(Bottom View)

FIGURE 3(b) - 4-PIN PACKAGE



(Bottom View)



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2. APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:-

(a) ESCC Generic Specification No. 3501 for Quartz Crystal Units.

3. TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply. In addition, the following symbols are used:-

Resonance Frequency $= f_r$ Load Resonance Frequency $= f_L$ Reference Temperature $= R_r$ Resonance Resistance = R_L Load Resonance Resistance Rated Drive Level $= P_o$ Static Capacitance $= C_o$ Load Capacitance $= C_L$ Motional Capacitance $= C_1$ Motional Inductance $= L_1$ Response Resistance $= R_P$ Response Impedance $= |Z_{P}|$ Insulation Resistance = Ri

4. REQUIREMENTS

4.1 GENERAL

The complete requirements for procurement of the crystal units specified herein shall be as stated in this specification and ESCC Generic Specification No. 3501 for Quartz Crystal Units. Deviations from the Generic Specification applicable to this specification only, are detailed in Para. 4.2.

Deviations from the applicable Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirements and do not affect the components' reliability, are listed in the appendices attached to this specification.

4.2 <u>DEVIATIONS FROM GENERIC SPECIFICATION</u>

4.2.1 Deviations from Special In-process Controls

None.

4.2.2 <u>Deviations from Final Production Tests</u> (Chart II)

None.

4.2.3 <u>Deviations from Burn-in Tests (Chart III)</u>

None.

4.2.4 <u>Deviations from Qualification Tests (Chart IV)</u>

None.

4.2.5 <u>Deviations from Lot Acceptance Tests (Chart V)</u>

None.



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4.3 <u>MECHANICAL REQUIREMENTS</u>

4.3.1 Dimension Check

The dimensions of the crystal units specified herein shall be checked; they shall conform to those shown in Figure 2.

4.3.2 Weight

The maximum weight of the crystal units specified herein shall be 2.0 grammes.

4.3.3 Robustness of Terminations

The requirements for robustness of termination testing are specified in Section 9 of ESCC Generic Specification No. 3501.

4.4 MATERIALS AND FINISHES

The materials and finishes shall be as specified herein. Where a definite material is not specified, a material which will enable the crystal units specified herein to meet the performance requirements of this specification shall be used. Acceptance or approval of any constituent material does not guarantee acceptance of the finished product.

4.4.1 <u>Case</u>

4.4.1.1 Cap

Copper, nickel plated or nickel and gold plated.

4.4.1.2 Base

Kovar, nickel plated and gold plated.

4.4.2 Lead Material and Finish

The lead material shall be Type 'D' with Type '2' finish in accordance with the requirements of ESCC Basic Specification No. 23500.

4.5 MARKING

4.5.1 General

The marking of all components delivered to this specification shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and the following paragraphs. When the component is too small to accommodate all of the marking specified, as much as space permits shall be marked and the marking information, in full, shall accompany the component in its primary package.

The information to be marked and the order of precedence, shall be as follows:-

- (a) The ESCC Component Number.
- (b) Characteristics.
- (c) Traceability Information.

4.5.2 The ESCC Component Number

Each component shall bear the ESCC Component Number, which shall be constituted and marked as follows:
350101101B

Detail Specification Number		
Type Variant, (see Table 1(a))	_	
Testing Level (B or C, as applicable)		



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4.5.3 Characteristics

The resonance frequency of the crystal units shall be clearly specified in MHz. Where necessary, it shall be specified to 6 decimal places.

4.5.4 Traceability Information

Each component shall be marked in respect of traceability information in accordance with the requirements of ESCC Basic Specification No. 21700.

4.5.5 Manufacturer's Name, Symbol or Code

The Manufacturer's marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700.

4.6 <u>ELECTRICAL MEASUREMENTS</u>

4.6.1 Electrical Measurements at Reference Temperature

The parameters to be measured in respect of electrical characteristics are scheduled in Table 2. The measurements shall be performed at the temperatures specified in the individual Tables 1(a), Item 2.

4.6.2 <u>Electrical Measurements at High and Low Temperatures</u>

The parameters to be measured at high and low temperatures are scheduled in Table 3. These measurements shall only be performed if values are specified in Table 1(a) Items 8 and/or 9.

4.6.3 <u>Circuits for Electrical Measurements (Figure 4)</u>

Not applicable.

4.7 BURN-IN TESTS

4.7.1 Parameter Drift Values

The parameter drift values applicable to burn-in are specified in Table 4 of this specification. Unless otherwise stated, measurements shall be performed at $T_{amb} = T_o \pm 2$ °C. The parameter drift values (Delta) applicable to the scheduled parameters shall not be exceeded. In addition to these drift value requirements for a given parameter, the appropriate limit value specified in Table 2 shall not be exceeded.

4.7.2 Conditions for Burn-in

The requirements for burn-in are specified in Section 7 of ESCC Generic Specification No. 3501. The conditions for burn-in shall be as specified in Table 5 of this specification.

4.7.3 <u>Electrical Circuits for Burn-in (Figure 5)</u>

Not applicable.

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TABLE 2 - ELECTRICAL MEASUREMENTS AT REFERENCE TEMPERATURE

,					
No.	Characteristics	Symbol	ESCC 3501 Test Method	Limits	Unit
1	Resonance frequency at reference temperature and rated drive level - with C _O - with C _L	f _r (T _o , P _o) f _L (T _o , P _o)	Para. 9.2.1.1	Table 1(a), Item 1 ± Item 6	MHz
2	Resonance resistance at reference temperature and rated drive level - with C _O - with C _L	R _r (T _o , P _o) R _L (T _o , P _o)	Para. 9.2.1.1	Table 1(a), Item 7	Ω
3	Frequency variation with Drive Level	<u>Δ f</u> (T _o , ΔP)	Para. 9.2.1.1	Table 1(a), Item 11	10 ⁻⁶
4	Resistance variation with Drive Level	$\frac{\Delta R}{R}$ (T _o , ΔP)	Para. 9.2.1.1	Table 1(a), Item 12	%
5	Motional Inductance	L ₁	Para. 9.2.1.3	Table 1(a), Item 13	mH
6	Static Capacitance	Co	Para. 9.2.1.4	Table 1(a), Item 15	pF
7	Unwanted response	R _P /R or IZ _P I/R	Para. 9.2.1.5	Table 1(a), Item 17	-
8	Insulation Resistance	Ri	Para. 9.2.1.6	500 Min.	МΩ



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TABLE 3 - ELECTRICAL MEASUREMENTS AT HIGH AND LOW TEMPERATURES

No.	Characteristics	Symbol	ESCC 3501 Test Method	Limits	Unit
9	Frequency variation with Temperature over Top	Δ f (ΔT, P _o)	Para. 9.2.1.2	Table 1(a) Item 8	10 ⁻⁶
10	Resistance variation with Temperature over Top	Δ R (ΔT, P _o)	Para. 9.2.1.2	Table 1(a) Item 9	%

FIGURE 4 - CIRCUITS FOR ELECTRICAL MEASUREMENTS

Not applicable.

TABLE 4 - PARAMETER DRIFT VALUES

No.	Characteristics	Symbol	Spec. and/or Test Method	Test Conditions	Change Limits (Δ)	Unit
1	Resonance frequency drift	Δf f	As per Table 2	As per Table 2	± 2	10-6
2	Resonance resistance drift	Δ <u>R</u> R	As per Table 2	As per Table 2	± 10 or (1) ± 1	% Ω

NOTES 1. Whichever is the highest value.

TABLE 5 - CONDITIONS FOR BURN-IN AND LIFE TEST

No.	Characteristics	Symbol	Condition	Unit
1	Ambient Temperature	T _{amb}	+85 ±5	°C

FIGURE 5 - ELECTRICAL CIRCUIT FOR BURN-IN AND LIFE TEST

Not applicable.



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4.8 <u>ENVIRONMENTAL AND ENDURANCE TESTS (CHARTS IV AND V OF ESCC GENERIC SPECIFICATION NO. 3501)</u>

4.8.1 <u>Measurements and Inspections on Completion of Environmental Tests</u>

The parameters to be measured and inspections to be performed on completion of environmental tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at $T_{amb} = T_0 \pm 2$ °C.

4.8.2 <u>Measurements and Inspections at Intermediate Points and on Completion of Endurance Tests</u>

The parameters to be measured and inspections to be performed at intermediate points and on completion of endurance tests are scheduled in Table 6. Unless otherwise stated, the measurements shall be performed at $T_{amb} = T_0 \pm 2$ °C.

4.8.3 <u>Conditions for Operating Life Test (Part of Endurance Testing)</u>

The requirements for the operating life test are specified in Section 9 of ESCC Generic Specification No. 3501. The test shall be performed as a high temperature storage test and the temperature to be applied shall be the maximum operating temperature specified in the individual Tables 1(a) given in this specification.



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TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING

	Hasne en	81.1	. 4	La Prop		-	120	<u> </u>	
	ESÇC GENERIC SP	EC. NO. 3501	MEASUREMENTS A	ND INSPECTIONS		LIM	MITS	_	
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS	SYMBOL	Min.	Max.	UNIT	
01	Electrical Measurements at Reference Temperature	Para. 9.2.4	Electrical Measurements	Table 2		Tabl	e 1(a)		
02	Shock	Para. 9.3	Initial Measurements Resonance Frequency Resonance Resistance Final Measurements Resonance Frequency Drift Resonance Resistance Drift	Table 2 Item 1 Table 2 Item 2 Table 2 Item 1 Table 2 Item 2	f Δf f AR R	-1.0 -10 or (2)	2 Item 1 2 Item 2 +1.0 +10	10 ⁻⁶ %	
			· 199		ΔR	- 1.0	+1.0	Ω	
03	Vibration	Para. 9.4	Initial Measurements Resonance Frequency Resonance Resistance Final Measurements Resonance Frequency Drift Resonance Resistance Drift	Table 2 Item 1 Table 2 Item 2 Table 2 Item 1 Table 2 Item 2	f R Δf f ΔR R ΔR		2 Item 1 2 Item 2 +1.0 +10 +1.0	10 ⁻⁶ % Ω	
04	Seal Test	Para. 9.5	Fine Leak Gross Leak	Para. 9.5.1 Para. 9.5.2			. 9.5.1 . 9.5.2		
05	Permanence of Marking	Para. 9.8	Final Measurements Visual Examination	No corrosion or obliteration of marking		-	<u>-</u>	-	
06	External Visual Inspection	Para. 9.9	Final Measurements Visual Inspection	ESCC No. 20500	-	-	-	_	
07	Solderability	Para. 9.13	-	-	-	-	_	-	

- 1. The tests in this table refer to either Chart IV or V, and shall be used as applicable.
- 2. Whichever is the highest value.



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TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING (Cont.)

h	EGGG GENERIO GF	EC. NO. 3501	MEASUREMENTS AN		LIMITS				
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS	SYMBOL	Min.	Мах.	UNIT	
	Climatic Sequence	Para. 9.14							1
80	Dry Heat	Para. 9.14.1	Initial Measurements						ı
			Resonance Frequency	Table 2 Item 1	f	Table 2	2 Item 1		ı
			Resonance Resistance	Table 2 Item 2	R	Table 2	2 Item 2		١
			Final Measurements						1
			Resonance Frequency	Table 2 Item 1	<u>∆ f</u>	- 2.0	+ 2.0	10-6	ı
l			Drift		f				١
			Resonance Resistance	Table 2 Item 2	<u>Δ R</u>	-10	+10	%	1
			Drift		R	or (2)			1
09	Cold	Para. 9.14.3			ΔR	-1.0	+ 1.0	Ω	1
09	Cold	Para. 9.14.3	Initial Measurements	Table O Bass d		D			ı
	The state of the second	and the second s	Resonance Frequency Resonance Resistance	Table 2 Item 1 Table 2 Item 2	lf R		9.14.1.3 surements		1
			Final Measurements	Table 2 Hem 2	"	Final Mea	surements		١
			Resonance Frequency	Table 2 Item 1	A #	- 2.0	+ 2.0	10-6	١
			Drift	Table 2 Reill 1	Δf f	~ 2.0	+ 2.0	'0°	1
			Resonance Resistance	Table 2 Item 2	ΔR	-10	+10	%	١
	8 - 1 - 1 - 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Drift		R	or (2)	0	~	١
					ΔR	-1.0	+ 1.0	Ω	1
10	Damp Heat (Acclerated)	Para. 9.14.4	Initial Measurements			""		"	١
l	Remaining Cycles		Resonance Frequency	Table 2 Item 1	f	Para. 9	9.14.3.2	ľ	١
- 1			Resonance Resistance	Table 2 Item 2	R	Final Mea	surements		١
- 1		74.4	Final Measurements	-					١
l			Resonance Frequency	Table 2 Item 1	<u>∆ f</u>	- 2.0	+ 2.0	10-6	1
- 1			Drift	:	f				İ
			Resonance Resistance	Table 2 Item 2	<u>Δ R</u>	-10	+10	%	١
			Drift		R	or (2)			١
			Inculation Desistance	Table Olivers O	ΔR	-1.0	+ 1.0	Ω	
			Insulation Resistance	Table 2 Item 8	Ri	500	•	ΜΩ	
11	Rapid Change of	Para. 9.15	Initial Measurements						
	Temperature		Resonance Frequency	Table 2 Item 1	f	Para. 9	9.14.4.2	1	١
.			Resonance Resistance	Table 2 Item 2	R		surements		-
- 1			Final Measurements	After minimum	1	1			١
I				Recovery of 2 hours	1				
		*	Resonance Frequency	Table 2 Item 1	Δf	-2.0	+ 2.0	10-6	
			Drift		f_				1
			Resonance Resistance	Table 2 Item 2	ΔR	-10	+10	%	١
			Drift		R	or (2)			١
					ΔR	- 1.0	+1.0	Ω	╛
12	Robustness of	Para. 9.16	Tensile Strength	Gen. 3501					٦
ŀ	Terminations			Para. 9.16.1					١
į			Visual Examination	No visible damage]			-
			Bending	Gen. 3501					
Į			· ·	Para. 9.16.2					
			Visual Examination	No visible damage					

- 1. The tests in this table refer to either Chart IV or V, and shall be used as applicable.
- 2. Whichever is the highest value.



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TABLE 6 - MEASUREMENTS AND INSPECTIONS ON COMPLETION OF ENVIRONMENTAL TESTS AND AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING (Cont.)

NO.	ESCC GENERIC SP	EC. NO. 3501	MEASUREMENTS AND IN	SPECTIONS	0.4.50	LIM	ITS	UNIT
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)			CONDITIONS	SYMBOL	Min.	Max.	UNIT
13	Life Test	Para. 9.17	Initial Measurements Resonance Frequency Resonance Resistance Intermediate Measurements Resonance Frequency Drift Resonance Resistance Drift	Table 2 Item 1 Table 2 Item 2 At 500 hours Table 2 Item 1 Table 2 Item 2	f R <u>Δf</u> f <u>ΔR</u> R ΔB	Table 2 Table 2 - 2.0 - 10 or (2) - 1.0		10 ⁻⁶ %
	- en a como de to parte sentido e constituido de la compansión de la compa	e constituido como con	Intermediate Measurements (Chart IV) and Final Measurements (Chart V) Resonance Frequency Drift	Table 2 Item 1	<u>Δ f</u>	-2.5	+2.5	10-6
			Resonance Resitance Drift Final Measurements (Chart IV) Resonance Frequency Drift	Table 2 Item 2 At 2000 hours Table 2 Item 1	<u>Δ R</u> R ΔR Δf	-10 or (2) -1.0	+10 +1.0 +3.0	% Ω 10-6
			Resonance Resistance Drift	Table 2 Item 2	<u>Δ R</u> R ΔR	-10 or (2) -1.0	+10 +1.0	% Ω

- 1. The tests in this table refer to either Chart IV or V, and shall be used as applicable.
- 2. Whichever is the highest value.

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	-					
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	79.91	6667	MHz	
2	Reference Temperature	To	+ 60	+ 70	°C;	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	·	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	,
6	Frequency Adjustment Tolerance	<u>∆ f</u> f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	Not ap	pplicable	10-6	
9	Resistance Variation with Temperature	<u>Δ R</u> R	1	+ 20 or	%	From resistance measured at T _o °C
	over T _{op}		-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not app	plicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	_	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	4:1	: -		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		00	X0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fL	16.777216		MHz	
2	Reference Temperature	To	+2	+ 25		
3	Overtone Order	-	Fundar	nental		:
4	Load Capacitance	C _L	1	5	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 15	+ 15	10-6	At T _o °C
7	Resonance Resistance	R_L	-	20	Ω	Over T _{op}
8	Frequency Variation with Temperature over Top	<u>∆</u> f	-50	+50	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-40	+90	,°C	
11	Frequency Variation with Drive Level	∆ f f	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	-	-	mH	
14	Motional Capacitance	C ₁	17	23	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	50 000	•	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	_		In the frequency range: f _L -500kHz to f _L +500kHz
18	Ageing	Δf f	-	2.0	10-6	After Burn-in over 10 years
19	Physical Dimensions		Figure 2(a)			
20	Intended Application)	(0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

					······································	
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	98	98.5		
2	Reference Temperature	To	+2	+ 25		
3	Overtone Order	-	5	5		
4	Load Capacitance	C _L	٥	0	pF	
5	Rated Drive Level	Po	0.	1.	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10-6	At To °C
7	Resonance Resistance	R _r	<u>-</u>	40	Ω	Over T _{op}
8	Frequency Variation with Temperature over Top	Δf f	-6.0	+6.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	ΔR R	Not app	olicable	%	
10	Operating Temperature Range	T _{op}	-20	+ 60	°C	
11	Frequency Variation with Drive Level	∆ f f	Not ap	olicable	10-6	\$.
12	Resistance Variation with Drive Level	AR R	-	50	%	From $P_{S1} = 10\mu W$ to $P_{S2} = 100\mu W$
13	Motional Inductance	L ₁	-	-	mH	
14	Motional Capacitance	C ₁	0.68	0.84	fF	
15	Static Capacitance	Co	-	-	pF	
16	Q Factor	Q	80 000			
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	_		In the frequency range: f _r -500kHz to f _r +500kHz
18	Ageing	<u>Δ f</u> f	-	1.0	10-6	After Burn-in per year
19	Physical Dimensions		Figure	e 2(a)		
20	Intended Application		Х	(0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			*			
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	127.33		MHz	
2	Reference Temperature	To	+23	+ 27	°C	. ;
3	Overtone Order	-	5	5		
4	Load Capacitance	CL	α	D	pF	·
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10 ⁻⁶	At T _o °C
7	Resonance Resistance	R _r	-	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u>	-5.0	+5.0	10 ⁻⁶	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+60	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	-	-	, mH	
14	Motional Capacitance	C ₁	0.45	0.55	fF	
15	Static Capacitance	Co	-	4.0	pF	·
16	Q Factor	Q	Not ap	plicable	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	-		In the frequency range: f _r -500kHz to f _r +500kHz
18	Ageing	Δf f	- 2.5	+ 2.5	10-6	After 17 years of operation
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		×	(0		·

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _r	43.57	6238	MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	C _L	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	:
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	25	Ω	At To °C°C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	0 - 9.0 - 9.0	+9.0 +9.0 0	10-6	From T = 20 to +10 °C From T + 10 to +50 °C From T + 50 to +70 °C
9	Resistance Variation with Temperature over Top	ΔR R	- 10 0 - 1.0	+ 10 r + 1.0	%	From resistance measured at T _o °C If R≤10Ω
10	Operating Temperature Range	Тор	-20	+70	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	∆R R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	oplicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TC	CX0		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f _r	60.40	9942	MHz	:
2	Reference Temperature	To	+20	+ 30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+10	10 ⁻⁶	At To °C
7	Resonance Resistance	R _r	-	25	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	0 - 9.0 - 9.0	+9.0 +9.0 0	10 ⁻⁶	From T - 20 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.0	+ 10 or + 1.0	%	From resistance measured at T_0 °C If $R \le 10\Omega$
10	Operating Temperature Range	T _{op}	-20	+ 70	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure	Figure 2(a)		
20	Intended Application		ТС	X0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f _r	60.42	426E	MHz	
2		 			°C	
<u> </u>	Reference Temperature	T _o	+ 20	+30		:
3	Overtone Order	-	3			
4	Load Capacitance	CL	٥)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
- 7	Resonance Resistance	R _r	-	25	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	Δf f	0 - 9.0 - 9.0	+9.0 +9.0 0	10-6	From T - 20 to +10 °C From T + 10 to +50 °C From T + 50 to +70 °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.0	+ 10 r + 1.0	% Ω	From resistance measured at T_0 °C If $R \le 10\Omega$
10	Operating Temperature Range	T _{op}	- 20	+ 70	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	·
16	Q Factor	Q	70 000			
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure	e 2(a)		
20	Intended Application		ТС	X0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

-						
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	75.778688		MHz	,
2	Reference Temperature	To	+20	+ 30	°C	
3	Overtone Order	-	. 3	3		
4	Load Capacitance	CL	α	∞		
5	Rated Drive Level	P _o	0.1		mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u> f	– 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	3	25	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T - 20 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	∆R R	- 10 o - 1.0	+ 10 r + 1.0	% Ω	From resistance measured at T _o °C If R≤10Ω
10	Operating Temperature Range	T _{op}	-20	+ 70	°C	:
-11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+ 20	%	From $P_{S1} = 0.01$ mW to $P_{S2} = 0.1$ mW
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	3.5:1	-		In the frequency range: f _r -10% to f _r +10%
18	Ageing	<u>Δ f</u> f	-3.0	+ 3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TCX0			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _r	75.79918		MHz	
2	Reference Temperature	To	+20	+30	°C	<u> </u>
3	Overtone Order	-	3			
4	Load Capacitance	CL	OX.)	pF	*************************************
5	Rated Drive Level	Po	0.1		mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	25	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	0 - 9.0 - 9.0	+ 9.0 + 9.0 0	10-6	From T = 20 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	- 10 0 - 1.0	+ 10 r + 1.0	%	From resistance measured at T _o °C If R≤10Ω
10	Operating Temperature Range	T _{op}	-20	+ 70	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10 ⁻⁶	From $P_{S1} = 0.01$ mW to $P_{S2} = 0.1$ mW
12	Resistance Variation with Drive Level	ΔR R	- 20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	_	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	3.5:1	-		In the frequency range: f _r -10% to f _r +10%
18	Ageing	Δf f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TCX0			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		. <u> </u>	ANIANI	10. 10		
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	70.392385		MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	∞		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10 ⁻⁶	At T _o °C
7	Resonance Resistance	R _r	-	25	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δf</u> f	0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T = 20 to +10 °C From T + 10 to +50 °C From T + 50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	- 10	+10	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+70	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not a	pplicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TCX0			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Limits			
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fL	16.0		MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	-	Fundai	mental		
4	Load Capacitance	C _L	29.7	30.3	pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10 ⁻⁶	At T _o °C
7	Resonance Resistance	RL	-	15	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	-30	+30	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not ap	pplicable	%	:
10	Operating Temperature Range	Тор	- 50	+ 100	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u> f	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not applicable		%	
13	Motional Inductance	L ₁	4.0	4.7	mH	
14	Motional Capacitance	C ₁	21	25	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	60 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	4:1	-		In the frequency range: f _L -500kHz to f _L +500kHz
18	Ageing	$\frac{\Delta f}{f}$	-30	+30	10-6	After Burn-in over 10 years
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		X0			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

7	,					1
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _r	45.576921		MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-	3	} ·		
4	Load Capacitance	C _L	∞		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10 ⁻⁶	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	0 - 9.0 - 9.0	+ 9.0 + 9.0 0	10 ⁻⁶	From T - 20 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 o -2.0	+ 20 r + 2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 25	+ 70	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u>	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not applicable		%	
13	Motional Inductance	L ₁	6.5	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	90 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	-		In the frequency range: f _r -10% to f _r +10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TCX0			



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		T		1	·	
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	47.477737		MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	∞		рF	
5	Rated Drive Level	Po	0.	0.1		
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	0 - 9.0 - 9.0	+ 9.0 + 9.0 0	10-6	From T - 20 to +10 °C From T + 10 to +50 °C From T + 50 to +70 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 0 -2.0	+20 r +2.0	% Ω	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	- 25	+ 70	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not applicable		%	
13	Motional Inductance	L ₁	6.5	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	рF	
16	Q Factor	Q	90 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	- -		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10 ⁻⁶	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TCX0			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			V/31 11/31 4 1			
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	47.48	4316	MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u> f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	0 - 9.0 - 9.0	+ 9.0 + 9.0 0	10 ⁻⁶	From T - 20 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 r +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 25	+ 70	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	6.5	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	90 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R or IZpI/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ</u> f f	-3.0	+3.0	10 ⁻⁶	12 years after 500 hours Burn-in
19	Physical Dimensions		Figure	e 2(a)		
20	Intended Application		TC	X0		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

Na	Ohamadaniatia	0	Lim	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	53.84	53.844019		
2	Reference Temperature	To	+ 55	+ 65	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0.	.2	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	R B B	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.20 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.20 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ</u> f	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figure	e 2(a)		
20	Intended Application		тс	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

Ma	Characteristics	Cumbal	Lim	nits	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	Tiernaiks
1	Resonance Frequency	fr	60.10	60.101563		
2	Reference Temperature	To	+ 55	+ 65	°C	
3	Overtone Order		3	3		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	.2	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not ap	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR	-2.0	+2.0	Ω .	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.20 \text{mW}$
12	Resistance Variation with Drive Level	<u>Δ R</u> R	-20	+20	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.20 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF.	
15	Static Capacitance	Co		5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		тс	XO		:



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
IVO.	Orial acteristics	Symbol	Min.	Max.	Oill	Heilidiks
1	Resonance Frequency	f _r	54.66	5417	MHz	
2,	Reference Temperature	To	+ 55	+ 65	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	0	o	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR	-2.0	+2.0	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u> f	- 0.5	+ 0.5	10-6	From P _{S1} = 0.01mW to P _{S2} = 0.1mW
12	Resistance Variation with Drive Level	ΔR R	- 20	+20	%	From P _{S1} = 0.01mW to P _{S2} = 0.1mW
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	<u>∆</u> f	-3.0	+ 3.0	10-6	Over 12 years after Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		TC	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

11		r.	Ļim	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	·f _r	96.115384		MHz	f
2	Reference Temperature	To	+ 70	+ 80	°C	:
3	Overtone Order	-	. 5	5	,	1
4	Load Capacitance	CL	• 0	0	pF	
5	Rated Drive Level	Po	0:	.1"	mW	-
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	Not ap	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ f</u> f	-6.0	+ 6.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		OC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
140.	Onaracteristics	Cymbol	Min.	Max.	5	Hemaiks
1	Resonance Frequency	f _r	99.93	3333	MHz	
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5	5		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	·
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	∆ f f	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ f</u> f	-6.0	+6.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		OC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Ob avanta vinting	T	Lin	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	47.377026		MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-		3		
4	Load Capacitance	C _L	C	xo	pF	
5	Rated Drive Level	Po	0	.2	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	<u>Δ R</u>	- 20 C	+ 20 or	%	From resistance measured at T _o °C
	over T _{op}		-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>∆</u> f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	<u>∆ R</u> R	- 20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	•	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1			In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ f</u>	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		TC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						T
No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
			Min.	Max.		
1	Resonance Frequency	f _r	47.383605		MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-		3		
4	Load Capacitance	CL	C	xo	pF	-
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	- 10	+10	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature	<u>Δ R</u> R	-20 c	+ 20 or	%	From resistance measured at T _o °C
	over T _{op}	ļ	-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>∆ f</u> f	- 0.5	+0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		TC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
140.	Onalacteristics	Symbol	Min.	Max.	Ont	nemarks
1	Resonance Frequency	f _r	39.78	39.781202		
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3	3		:
4	Load Capacitance	CL	0	o ·	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation	<u>Δ R</u> R	- 20	+ 20 r	%	From resistance
	with Temperature over T _{op}	, n	-2.0	+ 2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From P _{S1} = 0.01mW to P _{S2} = 0.1mW
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	•	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	_		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+ 3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figure 2(a)			
20	Intended Application		TC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lin	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	96.	96.250		
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	ţ	5		
4	Load Capacitance	CL	C	ø	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	Not applicable		10-6	
9	Resistance Variation with Temperature	ΔR R		+ 20 or	%	From resistance measured at T _o °C
	over T _{op}		-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	_	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-6.0	+ 6.0	10-6	Storage: 5 years Operating: 15 years
19	Physical Dimensions		Figur	e 2(a)	4	
20	Intended Application		OC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
	Characteristics	Cymbol	Min.	Max.	Offic	Hemaiks
1	Resonance Frequency	f _r	96.42	8571	MHz	
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	Ę	5		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	ΔR R	- 20 - 2.0	+20 r +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u>	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ·R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	_	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or !Z _p l/R	2:1	-	·	In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-6.0	+ 6.0	10-6	Storage: 5 years. Operating: 15 years.
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		OCXO			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						Francisco Company Comp
No.	Characteristics	Symbol		nits	Unit	Remarks
		<u> </u>	Min.	Max.		
1	Resonance Frequency	. f _r		30752	MHz	
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-		5		
4	Load Capacitance	CL		10	pF	inger kan sentek keraja
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not ap	plicable	10-6	
9	Resistance Variation	<u>Δ R</u> R	-20	+ 20	%	From resistance
	with Temperature over Top	"	-2.0	r + 2.0	Ω	measured at To °C
10	Operating Temperature Range	Тор	-20	+80	°C	·
11	Frequency Variation with Drive Level	<u>Δ f</u>	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-6.0	+6.0	10-6	Storage: 5 years. Operating: 15 years.
19	Physical Dimensions		Figure	e 2(a)		
20	Intended Application		00	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	0		Lim	nits		5 .
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	97.82	97.826087		
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-		5		
4	Load Capacitance	CL	c	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆f f	Not applicable		10-6	
9	Resistance Variation	<u>Δ R</u> R	- 20	+20	%	From resistance
	with Temperature over Top	R	-2.0	or +2.0	Ω	measured at To °C
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u>	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	_	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	- 6.0	+6.0	10-6	Storage: 5 years Operating: 15 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO	·	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Oh ava ata viation	Cumbal	Lim	its	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	ricinario
1	Resonance Frequency	f _r	97.91	6667	MHz	
2	Reference Temperature	To	+ 70	+ 80	°C	**
3	Overtone Order	-	5			
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	_	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1			In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-6.0	+6.0	10-6	Storage: 5 years Operating: 15 years
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	схо		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	\$. I	T T	Limi	te I		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	98.750		MHz	
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	i i	5			
4	Load Capacitance	CL	~)	pF	# 4
5	Rated Drive Level	-10 P ₀	' O.	1	"mW"	\$ W • 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not app	licable	10-6	
9	Resistance Variation with Temperature over Top	∆R R	-20 or -2.0	+20 r +2.0	% Ω	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	<u>∆ f</u> f	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF	
15	Static Capacitance	Co	•	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-6.0	+6.0	10-6	Storage: 5 years Operating: 15 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		oc	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
INO.	Characteristics	Symbol	Min.	Max.	Offic	
1	Resonance Frequency	f _r	65.01	65.016606		
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	÷	3	3		
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0.	.2	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	<u>Δ R</u> R	-20 +20 or		%	From resistance measured at To °C
	over T _{op}		-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	: -	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1			In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		TO	тсхо		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

N1-	Ob and a desirable a	0	Lim	nits	. 11-2	Domodro
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	100.8	33333	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-		5		
4	Load Capacitance	C _L	o	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	60	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	<u>∆ f</u>	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	,
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Operating : 12 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
NO.	Characteristics	Symbol	Min.	Max.	Oill	Hemaks
1	Resonance Frequency	f _r	36.96	6600	MHz	AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	9 (1) 1 (1)
3	Overtone Order	-	3	3		.11
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	Δf f	0 - 10 - 10	+ 10 + 10 0	10-6	From T - 20 to + 10°C From T + 10 to + 50°C From T + 50 to + 80°C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 or +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co		7.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10-6	Operating: 12 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		TC	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

T.	<u></u>								
No.	Characteristics	Symbol	Limits		Unit	Remarks			
			Min.	Max.					
1	Resonance Frequency	f _r	101.13	36363	MHz	AT Cut			
2	Reference Temperature	To	+ 70	+ 80	°C				
3	Overtone Order	-	5	5		· · · · · · · · · · · · · · · · · · ·			
4	Load Capacitance	C _L	0	o	pF				
5	Rated Drive Level	Po	0	.1 - 1 1	mW				
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C			
7	Resonance Resistance	R _r	-	80	Ω	At To °C			
8	Frequency Variation with Temperature over Top	<u>∆</u> f f	Not applicable		10-6				
9	Resistance Variation with Temperature over Top	ΔR R	-20	+ 20	%	From resistance measured at T _o °C			
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C				
11	Frequency Variation with Drive Level	<u>∆ f</u> f	Not applicable		10-6				
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%				
13	Motional Inductance	L ₁	6.0		mH				
14	Motional Capacitance	C ₁	Not ap	plicable	fF				
15	Static Capacitance	Co	-	5.0	pF				
16	Q Factor	Q	70 000	-	_				
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	<u>-</u>		In the frequency range: f _r - 10% to f _r + 10%			
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years Operating: 15 years			
19	Physical Dimensions		Figure 2(a)						
20	Intended Application		00	CXO					



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	iits	Unit	Remarks
140.	Characteristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	20	.0	MHz	
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	·	Fundar	mental		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	.2	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	ΔR R	- 20 ·	+ 20 or	%	From resistance measured at To °C
4	over T _{op}		- 2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-6	Over 12 years after 240 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application)	KO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

NIa	Ohavaataviatiaa	Cumbal	Lim	_imits Unit		Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	nemarks
1	Resonance Frequency	f _r	36.91	36.916667		AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	C _L	· 00	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	∆ f f	0 - 10 - 10	+ 10 + 10 0	10-6	From T - 20 to + 10°C From T + 10 to + 50°C From T + 50 to + 80°C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 r +2.0	% Ω	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+ 20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	70 000	_	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-5.0	+5.0	10-6	Operating: 12 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		то	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	Oridiacteristics	Syllibol	Min.	Max.	Offic	Hemaiks
1	Resonance Frequency	f∟	16	16.0		
2	Reference Temperature	T _o	+ 23	+ 27	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	C _L	3	0	pF	·
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	RL	-	10	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 15	+ 15	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR	-2.0	+2.0	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 40	+ 90	°C	
11	Frequency Variation with Drive Level	Δf f	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	50 000	_	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1			In the frequency range: f _L - 200kHz to f _L + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-6	Over 10 years after Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		>	(0		. :



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No	Characteristics	Cymphol	Lim	nits	l lais	Domorko
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	56.28	8799	MHz	AT Cut
2	Reference Temperature	T _o	+ 65	+ 75	ပ္	
3	Overtone Order	•	3	3		
4	Load Capacitance	CL	o	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-20 -2.0	+20 or +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	3.0	. -	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Operating: 12 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		тс	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		0	Limits		Unit	D
No.	Characteristics	Symbol	Min.	Min. Max.		Remarks
1	Resonance Frequency	f _r	56.298413		MHz	AT Cut
2	Reference Temperature	To	+ 65	+ 75	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	·œ)	pF	· .
5	Rated Drive Level	Po	0.	1	mW) .
6	Frequency Adjustment Tolerance	<u>Δ</u> f	– 10	+ 10 	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	-20 0 -2.0	+20 r +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From P _{S1} = 0.01mW to P _{S2} = 0.1mW
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From P _{S1} = 0.01mW to P _{S2} = 0.1mW
13	Motional Inductance	L ₁	3.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Operating: 12 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		тс	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

117		4.5				
No	Characteristics	Symbol -	Lim	its	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	
1	Resonance Frequency	fr	∉60	.0	MHz	r. Vi
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	.s'=	- 3	3		
4	Load Capacitance	CL	. 0	0	pF	
5	Rated Drive Level	P _o	[*] 0.	.1	mW	N and a second
6	Frequency Adjustment Tolerance	<u>Δ f</u> ∫f	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	<u>-</u>	35	Ω	Over T _{op} °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	-30	+30	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not applicable		%	i
10	Operating Temperature Range	T _{op}	- 50	+100	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.5	3.2	mH	
14	Motional Capacitance	C ₁	2.2	2.8	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	Not ap	plicable	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 500kHz to f _r + 500kHz
18	Ageing	<u>Δ f</u>			10-6	Over 10 years after Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application			XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		· ·	Limits			
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
4	December Fraguency			89.066666		
1	Resonance Frequency	f _L			MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order			3		-
4	Load Capacitance	C _L	1	2	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	At T _o °C
7	Resonance Resistance	RL	-	25	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	∑ f	-5.0 -10	-5.0 -10	10-6	From T – 20 to +70°C From T – 20 to +80°C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δ f	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	1.7	- ·	fF	
15	Static Capacitance	Co	-	6.0	pF	
16	Q Factor	Q	50 000	_	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or iZ _p i/R	2.5:1	· <u>-</u>		In the frequency range: f _L - 100kHz to f _L + 100kHz
18	Ageing	$\frac{\Delta f}{f}$	- 6.0	+6.0	10-6	Over 10 years at 100μW drive level
19	Physical Dimensions		Figu	re 2(b)		
20	Intended Application		V	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
INO.	Orial acteristics	Symbol	Min.	Max.	O.I.I.C	
1	Resonance Frequency	f _r	56.28	56.283991		AT Cut
2	Reference Temperature	To	+60	+ 70	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	oc)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	_	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	Δf f	- 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR	- 20	+20	%	From resistance
	with Temperature over Top	R	- 2.0	+2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	_		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-1.0	+ 1.0	10-6	Over 15 years after 1704 hours ageing
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		0	Lim	its	11-14	Domarko
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	56.26	56.264760		AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3	}		
4	Load Capacitance	CL	ά	0	pF	
5 ·	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f f	- 18	+ 18	10-6	From frequency measured at To °C
9	Resistance Variation	<u>Δ R</u> R	- 20	+ 20	%	From resistance
: .	with Temperature over Top	R	-2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	·
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	_	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	- 1.0	+1.0	10-6	Over 15 years after 1704 hours ageing
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		· -		· · · · · · · · · · · · · · · · · · ·	·	
No.	Characteristics	Symbol	Lim		Unit	Remarks
			Min.	Max.		· ·
1	Resonance Frequency	f _r	49.7	760	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5			
4	Load Capacitance	CL	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	Not app	Not applicable		
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	Not applicable		
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Observatoristics	Sumbol	Limi	ts	Unit	Remarks	
No.	Characteristics	Symbol -	Min.	Max.	Offic		
1	Resonance Frequency	f _r	83.33	83.333333		AT Cut	
2	Reference Temperature	To	+ 65	+ 75	°C		
3	Overtone Order	-	5				
4	Load Capacitance	C _L	00)	pF		
. 5	Rated Drive Level	Po	0.	1	mW		
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At T _o °C	
7	Resonance Resistance	R _r	-	50	Ω	At To °C	
8	Frequency Variation with Temperature over Top	Δf f	Not app	olicable	10-6		
9	Resistance Variation	ΔR R	-20	+ 20	%	From resistance	
	with Temperature over Top	H	- 2.0	r +2.0	Ω	measured at To °C	
10	Operating Temperature Range	T _{op}	-20	+80	°C		
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
13	Motional Inductance	L ₁	8.0	-	mH		
14	Motional Capacitance	C ₁	Not ap	plicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	80 000	-	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$	
18	Ageing	<u>∆</u> f	-1.0	+ 1.0	10-6	Over 15 years	
19	Physical Dimensions		Figu	re 2(a)	·		
20	Intended Application		00	CXO			



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	iits		Domeste
No.	Characteristics	Symbol -	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	43.21	43.214457		AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 18	+ 18	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-20 -2.0	+20 or +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	_	· -	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

,	O I		Lim	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	49.98	49.982342		AT Cut
2	Reference Temperature	To	+ 60	+ 70	ô	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	0	o	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	- 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	ΔR R	_	+ 20 or	%	From resistance measured at T ₀ °C
4	over T _{op}		-2.0	+ 2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
.16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

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N1.	Observatoristics	Cumbal	Lim	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Offic	Remarks
1	Resonance Frequency	f _r	56.24	56.240721		AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3	, 1 k,		
4	Load Capacitance	C _L	ox-)	pF	The first section of the section of
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 18	+ 18	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	ΔR R	-20	+20	%	From resistance measured at T ₀ °C
1	with Temperature over Top	H	- 2.0	+ 2.0	Ω	measured at 10 C
10	Operating Temperature Range	Тор	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	re 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		0	Limi	its	Lleit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Unit	Hemaiks
1	Resonance Frequency	f _r	58.91	3814	MHz	AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	α)	pF	·
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	∆ f f	- 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	ΔR R	- 20 0	+ 20 r	%	From resistance measured at T _o °C
	over T _{op}		- 2.0	+2.0	Ω	•
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	<u>Δ</u> R R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	eget g	TYP	E VARIANT	NO. 48			
			Limits		Unit	Pomorko	
No.	Characteristics	Symbol -	Min.	Min. Max.		Remarks	
1	Resonance Frequency	f _r	47.023	3950	MHz	AT Cut	
2	Reference Temperature	To	+ 60	+ 70	°C		
3	Overtone Order		3				
4	Load Capacitance	C _L	∞ ∞)	pF	1	
5	Rated Drive Level	™ _O	, 0.	4 1	'mW	ringer conduct growth	
6	Frequency Adjustment Tolerance	<u>∆ f</u> ∫f	- 10	+ 10	10-6	At T _o °C	
7	Resonance Resistance	R _r	-	40	Ω	At To °C	
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 18	+ 18	10-6	From frequency measured at T _o °C	
9	Resistance Variation	ΔR R	-20	+20	%	From resistance measured at T _o °C	
	with Temperature over Top	"	- 2.0	+ 2.0	Ω		
10	Operating Temperature Range	T _{op}	-20	+ 80	°C		
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
13	Motional Inductance	L ₁	2.0	-	mH		
14	Motional Capacitance	C ₁	Not ap	plicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	70 000	-	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%	
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-i	
19	Physical Dimensions		Figur	re 2(a)			
20	Intended Application		00	CXO			



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

Na	Characteristics	Symbol	Lim	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Offic	Temaks
1	Resonance Frequency	f _r	49.97	49.974902		AT Cut
2	Reference Temperature	To	+60	+ 70	°C	
3	Overtone Order	-	3	}		
4	Load Capacitance	CL	α	0	pF	The state of the s
5	Rated Drive Level	Po	0.	1	mW	i
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	- 18	+ 18	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-20 -2.0	+20 or +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1			In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		·



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	0	0	Limi	its	l Iia	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Unit	Hemarks
1	Resonance Frequency	f _r	49.99	8712	MHz	AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order		3			
4	Load Capacitance	C _L	œ)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	- 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	<u>Δ R</u> R	-20 0		%	From resistance measured at T _o °C
:: <u> </u>	over T _{op}	_	-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	- 20	+ 80	· °C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	AR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	_	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	- -		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	<u> </u>					
No.	Characteristics	Symbol -	Limi		Unit	Remarks
			Min.	Max.		
1	Resonance Frequency	f _r	60.38	8308	MHz	AT Cut
2	Reference Temperature	T _o	+ 20	+ 30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	œ		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	<u>Δ R</u> R	-20	+ 20	%	From resistance
	with Temperature over Top	H	- 2.0	r +2.0	- Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	° °C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	nits		Demode
No.	Characteristics	Symbol -	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	64.85	64.850955		AT Cut
2	Reference Temperature	То	+ 20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	x 0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	ΔR R	-20	+20	%	From resistance measured at To °C
	with Temperature over Top		-2.0	or +2.0	Ω	measured at 1 ₀ O
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not a	pplicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	<u>-</u>	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions	:	Figu	ure 2(a)		
20	Intended Application		C	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
_					NAL I—	AT Cut
1	Resonance Frequency	f _r	74.0		MHz	AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	- 9.0	+9.0	10-6	From frequency measured at To °C
9	Resistance Variation	ΔR R	-20	+ 20	%	From resistance
	with Temperature over Top	R	-2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	<u>-</u>	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L VALUATE			
	Observatoristics	0	Lim	nits	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	remarks
. 1	Resonance Frequency	f _r	65.70	3227	MHz	AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	0	Ø	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ΄ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR R	-20	+20	%	From resistance measured at T _o °C
	with Temperature over Top		-2.0	or +2.0	Ω	measured at 10 0
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	oplicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		C	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L VALUATION			
	Characteristics	Oh.al	Lim	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Onit	riomano
1	Resonance Frequency	f _r	65.00	5242	MHz	AT Cut
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	_	3			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆f f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR	- 20	+ 20	%	From resistance measured at T _o °C
	with Temperature over Top	R	- 2.0	r +2.0	Ω	measured at 1 ₀ C
10	Operating Temperature Range	Тор	-20	+ 80	°C	
1,1	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	·
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L 7/11 11/11 1				
	Characteristics	0	Lim	its	Unit	Remarks	
No.	Characteristics	Symbol -	Min.	Max.	Onit	Hemans	
1	Resonance Frequency	fL	21	.0	MHz	AT Cut	
2	Reference Temperature	To	+ 20	+30	°C		
3	Overtone Order	-	Fundar	mental			
4	Load Capacitance	CL	3	0	pF		
5	Rated Drive Level	Po	0.	1	mW		
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C	
7	Resonance Resistance	RL	-	25	Ω	At To °C	
8	Frequency Variation with Temperature over Top	Δf f	-6.0 0 -14 -10 -14	+14 +14 +14 0 +6.0	10-6	From T - 40 to -20°C From T - 20 to +10°C From T + 10 to +50°C From T + 50 to +70°C From T + 70 to +85°C	
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 r +2.0	%	From resistance measured at T _o °C	
10	Operating Temperature Range	Тор	- 40	+ 85	°C		
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
13	Motional Inductance	L ₁	2.0	-	mH		
14	Motional Capacitance	C ₁	Not ap	plicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	100 000	-	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _L - 10% to f _L + 10%	
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10-6	Over 10 years	
19	Physical Dimensions		Figu	re 2(a)			
20	Intended Application		TO	CXO			



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L 774 (1741)			
No.	Characteristics	Symbol	Lim	its	Unit	Remarks
INO.	Onaracteristics	Cymoo.	Min.	Max.		100
1	Resonance Frequency	f _r	82.40	82.407407		AT Cut
2	Reference Temperature	To	+ 65	+ 75	°C	
3	Overtone Order	-	5	5		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
9	Resistance Variation	<u>Δ R</u> R	-20	+ 20	%	From resistance measured at T _o °C
	with Temperature over Top	H	-2.0	or +2.0	Ω	measured at 10 0
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	8.0	-	mH	
14	Motional Capacitance	C ₁	Not a	oplicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	80 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-1.0	+1.0	10-6	Over 15 years
19	Physical Dimensions		Figi	ure 2(a)		
20	Intended Application		C	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Limi Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr		3333	MHz	AT Cut
2	Reference Temperature	To	+ 65	+ 75	°C	
3	Overtone Order	<u>.</u>	. 5	1 1	egge se se	**************************************
4	Load Capacitance	CL	œ		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10 :	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not app	blicable	10-6	*
9	Resistance Variation with Temperature	ΔR R	-20 or -2.0	+ 20 r + 2.0	% Ω	From resistance measured at T ₀ °C
	over T _{op}	<u> </u>				
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u> f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$
13	Motional Inductance	L ₁	8.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	80 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	<u>-</u>		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	- 6.0	+ 6.0	10-6	Over 15 years
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		<u> </u>	E VARIAN	1 140. 00			
			Limits			Domarko	
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks	
1	Resonance Frequency	f _r	82.40	7407	MHz	AT Cut	
2	Reference Temperature	To	+ 65	+ 75	°C		
3	Overtone Order	-	5	5			
4	Load Capacitance	CL	٥	0	pF		
.5	Rated Drive Level	Po	0.	.1	mW		
6	Frequency Adjustment Tolerance	<u>Δ' f</u>	- 10	+10	10-6	At To °C	
7	Resonance Resistance	R _r	-	50	Ω	At To °C	
8	Frequency Variation with Temperature over Top	Δf f	Not ap	plicable	10-6		
9	Resistance Variation	ΔR R	-20	+20	%	From resistance measured at To °C	
: 	with Temperature over Top	"	-2.0	r +2.0	Ω	measured at 1 ₀ C	
10	Operating Temperature Range	T _{op}	- 20	+80	°C		
11	Frequency Variation with Drive Level	Δf f	- 0.5	+0.5	10-6	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.01 \text{mW}$ to $P_{S2} = 0.1 \text{mW}$	
13	Motional Inductance	L ₁	8.0	-	mH		
14	Motional Capacitance	C ₁	Not ap	plicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	80 000	-	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%	
18	Ageing	$\frac{\Delta f}{f}$	-6.0	+6.0	10-6	Over 15 years	
19	Physical Dimensions		Figu	re 2(a)			
20	Intended Application		0	CXO			



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	01		Lim	its	1.114	Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	Hemarks
. 1	Resonance Frequency	f _r	44.80	44.806526		AT Cut
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	-	3		-	
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	1.
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	Δ <u>R</u> R	-20	+20	%	From resistance
	with Temperature over Top	"	- 2.0	+2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	_	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	·
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		00	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

:	Limits					
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	59.71	59.717665		AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	– 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 0 -2.0	+ 20 r + 2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	·
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		·
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

NI.	Oh avanta sinting	Cumbal	Limi	its	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	Remarks
1	Resonance Frequency	f _r	100	100.0		AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	<u>.</u>	5			
4	Load Capacitance	CL)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not app	Not applicable		
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	re 2(a)		
20	Intended Application		00	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim		Unit	Remarks
		,	Min.	Max.		
1	Resonance Frequency	f _r	103	3.5	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	4.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		0 -1-1	Limi	ts	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Oint	remains
1	Resonance Frequency	f _r	99.023	99.023438		AT Cut
2	Reference Temperature	T _o	+ 70	+ 80	°C	
3	Overtone Order	-	5			
4	Load Capacitance	C _L	oc		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+10	10 ⁻⁶	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\overline{\Delta} f}{f}$	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>∆ f</u>	Not ap	olicable	10-6	:
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	· <u>-</u>	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		·



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	Orial acteristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	76	.0	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	_	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L VARIANI	т		T 1
No.	Characteristics	Symbol Lin		its	Unit	Remarks
IVO.	Orial acteristics	Symbol	Min.	Max.		
1	Resonance Frequency	f _r	55.05	7968	MHz	AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3			
4	Load Capacitance	C _L	oc)	pF	
5	Rated Drive Level	Po	0.	1 < 40)	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ _f f	- 18	+ 18	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	ΔR R	- 20	+20	%	From resistance measured at T _o °C
	with Temperature over Top	H	- 2.0	r +2.0	Ω	measured at 1 ₀ C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.005 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.005 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	1
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	- 1.0	+1.0	10-6	Over 15 years after 1704 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol Limits		Unit	Remarks	
NO.	Criaracteristics	Symbol	Min.	Max.		
1	Resonance Frequency	fr	53.83	808	MHz	AT Cut
2	Reference Temperature	To	+60	+ 70	°C	
3	Overtone Order	\ -	3		1	
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	– 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR R	- 20	+20	%	From resistance measured at T _o °C
	with Temperature over Top	H	-2.0	+ 2.0	Ω	measured at 10 O
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.005 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+10	%	From $P_{S1} = 0.005 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	- 1.0	+ 1.0	10-6	Over 15 years after 1704 hours Burn-in
19	Physical Dimensions		Figu	ire 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		115	E VARIAN I	140.00	1.	
No.	Characteristics	Symbol -	Limi		Unit	Remarks
	1.5400,7	i k G	Min.	Max.		
	Resonance Frequency	fr	65.708	3909	MHz	AT Cut
2	Reference Temperature	To	+ 20	+30	°C ;	
3	Overtone Order		3			
4	Load Capacitance	CL	00		pF	
5	Rated Drive Level	Po	, O.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	- :	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	<u>Δ R</u> R	-20	+20	%	From resistance measured at To °C
	with Temperature over Top	, R	-2.0	+2.0	Ω	measured at 10 0
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	<u>∆ R</u> R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

Na	Characteristics	Symbol	Lim	its	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Offic	Romano
1	Resonance Frequency	fr	101	.5	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5			
4	Load Capacitance	C _L	·α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	Not applicable		%	
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	4.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	. .		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Over 5 years storage + 15 years operating after 500 hours Burn-in
19	Physical Dimensions		Figur	re 2(a)		
20	Intended Application		00	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		IYE	<u>E VARIANT</u>	NO. 70		w <u></u>
	0	0	Limi	ts	Linia	Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	Hemarks
1	Resonance Frequency	f _r	50)	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	_	5			
4	Load Capacitance	CL	000	,	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f f	-30	+30	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+ 20	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not app	olicable	%	
13	Motional Inductance	L ₁	20	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	Storage: 5 years. Operating: 10 years.
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		TC	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		,				1
No.	Characteristics	Symbol -	Limi	ts	Unit	Remarks
140.	Onaracteristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	83.353	3825	MHz	AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	00		pF	e ^t
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR R	- 20	+20	%	From resistance
	with Temperature over Top	H	oi - 2.0	+ 2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
1.6	Q Factor	Q	70 000	_	_	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage 5 years. Operating 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						
No.	Characteristics	Symbol -	Lim	its	Unit	Remarks
INO.	Offaracteristics	Oymbor	Min.	Max.		
1	Resonance Frequency	f _r	83.36	83.360656		AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	1 1
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR R	- 20	+ 20	%	From resistance
	with Temperature over Top	. 	- 2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			<u> </u>			
NI.	Characteristics	Symbol	Lim	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	OTHE	rtomano
1	Resonance Frequency	f _r	66.03	4769	MHz	AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	$\frac{\overline{\Delta} f}{f}$	- 9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	<u>Δ R</u> R	- 20	+ 20	%	From resistance
	with Temperature over Top	H	- 2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+80	°C	
11	Frequency Variation with Drive Level	∆ f	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	·
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	. <u></u>					
]		O. maile al	Limi	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Offic	Henraks
1	Resonance Frequency	f _r	70.35	8731	MHz	AT Cut
2	Reference Temperature	To	+20	+ 30	°C	
3	Overtone Order	.	3			
4	Load Capacitance	C _L	α		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+ 20 r + 2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	_	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		··	Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
. 1	Resonance Frequency	f _r	37.83	37.833333		AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature	<u>Δ R</u> R	-20 0		%	From resistance measured at T _o °C
	over T _{op}	_	-2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	- 20	+80	°C	e e
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L VALUATO	Т		
No.	Characteristics	Symbol	Limi	its	Unit	Remarks
INO.	Onalacteristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	37.48	3333	MHz	AT Cut
2	Reference Temperature	To	+20	+ 30	°C	·
3	Overtone Order	-	3			
4	Load Capacitance	CL)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	<u>Δ R</u> R	- 20	+20	%	From resistance
	with Temperature over Top	K 	- 2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lin	nits		Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	
1	Resonance Frequency	f _r	37.	37.950		AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	. 3	3		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>Δ</u> R R	-20 -2.0	+ 20 or + 2.0	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	: 10−6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



Tosi, Jack

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	riscpanion; fr		E VARIANT		<u>NFORMAII</u>	
No.	Characteristics	Symbol	Limi Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	32.	0	MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	÷	Fundan	nental		
4	Load Capacitance	CL	30)	pF	V.
5	Rated Drive Level	Po	0.	1 0, 135	"mW"	First or sekada seki seki se
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	. + 10	10-6	At T _o °C
7	Resonance Resistance	RL	-	15	Ω	Over T _{op} °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-30	+30	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	ΔR	-2.0	+2.0	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 55	+ 105	°C	
11	Frequency Variation with Drive Level	<u>∆ f</u>	Not app	olicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	60 000	-	_	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _L - 200kHz to f _L + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	- 2.0	+2.0	10-6	Per year after Burn-in at To
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		Х	(O		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Cumbal	Lim	nits	Unit	Remarks
NO.	Characteristics	Symbol	. Min.	Max.	Offic	Hemaiks
1	Resonance Frequency	f _r	74.63	74.637682		AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	0	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-20 0 -2.0	+20 r +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	-0.5	+ 0.5	10-6 ,	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	_	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or iZ _p i/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		oc	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		0	Lim	its	1.1-24	Domestra
No.	Characteristics	Symbol -	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	74.6	554	MHz	AT Cut
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	_	3			
4	Load Capacitance	C _L	00)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+9.0	10-6	From frequency measured at To °C
9	Resistance Variation	ΔR R	- 20	+ 20	%	From resistance
	with Temperature over T _{op}	H	- 2.0	r + 2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		oc	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	75.0		MHz	AT Cut
2	Reference Temperature	· T _o	+ 70	+ 80	°C	:
3	Overtone Order	·	5			
4	Load Capacitance	CL	oi.	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	-10	+10	10-6	At To °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> f f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ f</u> f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	XO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

. 1						
No.	Characteristics	Symbol	Lim Min.	Max.	Unit	Remarks
1	December Fraguency	ı ı	45.23		MHz	AT Cut
	Resonance Frequency	f _r		· · · · · · · · · · · · · · · · · · ·		AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	:
3	Overtone Order	_		3	<u> </u>	
4	Load Capacitance	CL	0		pF	
5	Rated Drive Level	Po	0.	.1 .	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u> f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 18	+ 18	10-6	From frequency measured at To °C
9	Resistance Variation	ΔR R	- 20	+20	%	From resistance
	with Temperature over Top	R	- 2.0	r +2.0	Ω	measured at To °C
10	Operating Temperature Range	Тор	-20	+ 80	¦°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	- 3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
140.	Characteristics	Symbol	Min.	Max.	Offic	Tomano
1	Resonance Frequency	fr	54.80	7966	MHz	AT Cut
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	0	рF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	.+ 10.	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> f	- 18	+ 18	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR	- 20	+20	%	From resistance
.'	with Temperature over Top	R	- 2.0	r +2.0	Ω	measured at T _o °C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	<u>Δ R</u> · R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co		5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	- 3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	60.34	60.340231		AT Cut
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-		3		
4	Load Capacitance	CL	C	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-9.0	+ 9.0	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-20 -2.0	+20 or +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>Δ f</u> f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	·
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Limits					
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	100.084340		MHz	AT Cut
2	Reference Temperature	T _o	+ 23	+ 27	°C	σαι
3	Overtone Order	_	- 20			
4	Load Capacitance	CL		·	pF	
5	Rated Drive Level	P _o		<u>.</u> .1	mW	`
6	Frequency Adjustment Tolerance	Δ f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	∆ f f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 or +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 25	+ 75	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	4.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	. <u>-</u>		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Over 10 years after 500 hours Burn-in
19	Physical Dimensions		Figui	re 2(a)		
20	Intended Application		ТС	CXO		·



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
110.	Oridiacteristics	Symbol	Min.	Max.	Offic	Hemans
1	Resonance Frequency	f _r	62.350		MHz	AT Cut
2	Reference Temperature	T _o	+ 70	+ 80	°C	
3	Overtone Order	-	5			1
4	Load Capacitance	CL	α)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	R _r	-	80	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	Δf f	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		oc	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		·		_T		
No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	- Onaractoristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	67.99	67.998154		AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	C _L	α	0	pF	
5.	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	•	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	<u>Δ R</u>	-20	+20	%	From resistance measured at T _o °C
	with Temperature over Top	K	-2.0	+ 2.0	Ω	measured at 1 ₀ C
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-ir
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application	1	0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	\$ <u></u>					i i i i i i i i i i i i i i i i i i i
No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	Orial acteristics	Cymbol	Min.	Max.	O.I.I.	44
1	Resonance Frequency	f _r	61.29	0031	MHz	AT Cut
2	Reference Temperature	To	5.3	+ 6 5	°C	in the second second
3	Overtone Order		3			:
4	Load Capacitance	CL	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature. Over Top. At To ± 5°C.	<u>Δ f</u> f	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	-20 -2.0	+20 r +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+ 80	°C	
11	Frequency Variation with Drive Level	Δ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	. -	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		00	СХО		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	56.25	56.259952		AT Cut
2	Reference Temperature	То	+ 55	+ 65	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	0	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature. Over Top. At To ± 5°C.	<u>∆</u> f f	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 r +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co		5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figui	re 2(a)		
20	Intended Application	·	00	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	l	56.283270		AT Cut
2	Reference Temperature	T _o	+ 55	+ 65	MHz °C	
3	Overtone Order	-		}		
4	Load Capacitance	CL			pF	
5	Rated Drive Level	P _o	0.		mW	
6	Frequency Adjustment Tolerance	Δ f	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature. Over Top. At To ±5°C.	$\frac{\Delta f}{f}$	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature	<u>Δ·R</u> R	-20 0		%	From resistance measured at T _o °C
	over T _{op}	<u> </u>	-2.0	+ 2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C	
11	Frequency Variation with Drive Level	<u>∆</u> f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol -	Lim	its	Unit	Remarks
110.	Ondradionidado	Cymbo.	Min.	Max.		
1	Resonance Frequency	f _r	37.75	3122	MHz	AT Cut
2	Reference Temperature	То	+ 20	+ 30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	C _L	α	0	рF	·
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	- 10	+10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> f	- 9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature	ΔR R	-20 0		%	From resistance measured at T ₀ °C
	over T _{op}		- 2.0	+2.0	Ω	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	∆ f f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	∆ f f	- 3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		oc	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

NI-	Observatoristics	Combal	Lim	its	Unit	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Unit	Hemarks
1	Resonance Frequency	f _r	37.14	37.140272		AT Cut
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order		3			
4	Load Capacitance	CL	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 o -2.0	+20 r +2.0	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	- 20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		00	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	nits	Unit	Remarks
		,	Min.	Max.		
1	Resonance Frequency	f _r	47.37	3737	MHz	AT Cut
2	Reference Temperature	T _o	+20	+ 30	°C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	٥	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	- 9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation	ΔR	- 20	+ 20	%	From resistance
	with Temperature over Top	R	- 2.0	r + 2.0	Ω	measured at To °C
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	: 10 ⊤6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	<u>Δ·R</u> R	- 10	+10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-
19	Physical Dimensions		Figur	e 2(a)		
20	Intended Application		OC	CXO	1	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its	l lait	Remarks
No.	Characteristics	Symbol -	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	80.56	2500	MHz	AT Cut
2	Reference Temperature	To	+ 70	+ 80	°C	
3	Overtone Order	-	5	5	i .	
4	Load Capacitance	C _L	o	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	∆ f f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	80	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	Not applicable		%	
10	Operating Temperature Range	T _{op}	-20	+80	°C	
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance Variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	100 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	СХО		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol -	Lim	its	Unit	Remarks
110.	Onal actoristics	Cymbol	Min.	Max.	<u> </u>	
1	Resonance Frequency	f _r	100.64	16340	MHz	AT Cut
2	Reference Temperature	T _o	+ 23	+ 27	°C	
3	Overtone Order	-	5	i		
4	Load Capacitance	C _L	α	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	-10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> f f	- 9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	<u>Δ R</u>	- 20	+20	%	From resistance
1	with Temperature over Top	K	- 2.0	+ 2.0	Ω	measured at To °C
10	Operating Temperature Range	T _{op}	- 25	+ 75	°C	
11	Frequency Variation with Drive Level	Δf f	- 0.5	+0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 1.0	+ 1.0	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	4.0	_	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	<u>Δ f</u>	-3.0	+3.0	10-6	Over 10 years after 500 Hours Burn-in
19	Physical Dimensions		Figui	re 2(a)		
20	Intended Application		TO	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol -	Lim	its	Unit	Remarks
140.	Onal acteristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	100.78	33130	MHz	AT Cut
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	-	5			
4	Load Capacitance	CL	O.)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10-6	At To °C
7	Resonance Resistance	R _r	_	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	- 9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation	ΔR R	-20	+20	%	From resistance
	with Temperature over Top	H	- 2.0	r +2.0	Ω	measured at To °C
10	Operating Temperature Range	T _{op}	- 25	+ 75	°C	
11	Frequency Variation with Drive Level	<u>Δ</u> f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	-1.0	+1.0	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	4.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	_	7.0	pF	
16	Q Factor	Q	70 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	2:1	-		In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Over 10 years after 500 Hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		TO	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			L VALUATI			
No.	Characteristics	Symbol -	Lim	its	Unit	Remarks
140.	Onaractoristics	Cymbol	Min.	Max.		
1	Resonance Frequency	f _r	60.28	60.281611		AT Cut
2	Reference Temperature	To	+ 55	+ 65	۰C	
3	Overtone Order	-	3	3		
4	Load Capacitance	CL	ď	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf f	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	-	40	Ω	At To °C
8	Frequency Variation with Temperature. Over Top. At To ± 5°C.	<u>Δ f</u> f	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature	ΔR R	-20 -2.0	+20 r +2.0	%	From resistance measured at T ₀ °C
40	over Top	 _	-20	+80	°C	
10	Operating Temperature Range	T _{op}	- 20	+80		
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$
13	Motional Inductance	L ₁	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	70 000	-	_	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-		In the frequency range: $f_r - 10\%$ to $f_r + 10\%$
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in
19	Physical Dimensions		Figu	re 2(a)		
20	Intended Application		0	CXO		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

				· · · · · · · · · · · · · · · · · · ·			
No.	Characteristics	Symbol	Limits Min. Max.		Unit	Remarks	
1	Resonance Frequency	f _r	Min. 60.284		MHz	AT Cut	
	Reference Temperature	T _o	+ 55	+ 65	°C		
3	Overtone Order		3				
4	Load Capacitance	CL	00		pF		
5	Rated Drive Level	Po	0.		mW		
6	Frequency Adjustment Tolerance	Δ f	-10	+10	10-6	At To °C	
7	Resonance Resistance	R _r	-	40	Ω	At To °C	
8	Frequency Variation with Temperature. Over Top. At To ± 5°C.	$\frac{\Delta f}{f}$	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T _o °C	
9	Resistance Variation with Temperature over Top	ΔR R	-20 o -2.0	+20 r +2.0	%	From resistance measured at T _o °C	
10	Operating Temperature Range	T _{op}	-20	+ 80	°C		
11	Frequency Variation with Drive Level	Δf f	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	- 10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
13	Motional Inductance	L ₁	2.0	-	mH		
14	Motional Capacitance	C ₁	Not ap	plicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	70 000	-	_		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	3:1	-	·	In the frequency range: f _r - 10% to f _r + 10%	
18	Ageing	Δf f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-in	
19	Physical Dimensions		Figu	re 2(a)			
20	Intended Application		0	СХО			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

: 17	Spring Silver	; 	E VARIAIN				
2.4	Characteristics	Symbol	Lim	Limits		Domorko	
No.			Min.	Max.	Unit	Remarks	
1	Resonance Frequency	f _r	55.85	0279	MHz	AT Cut	
2	Reference Temperature	To	+ 55	+ 65	°C	i V	
3	Overtone Order	i ,	3	B			
4	Load Capacitance	CL	α	•			
5	Rated Drive Level	Po	'0.	M r r kir	mW	N	
6	Frequency Adjustment Tolerance	Δf f	-10	+ 10	10-6	At To °C	
7	Resonance Resistance	R_r	-	40	Ω	At T _o °C	
8	Frequency Variation with Temperature. Over Top. At To ±5°C.	<u>Δ f</u> f	- 12 0	+ 12 + 1.0	10-6	From frequency measured at T _o °C	
9	Resistance Variation with Temperature over Top	ΔR R	-20 -2.0	+20 or +2.0	%	From resistance measured at T _o °C	
10	Operating Temperature Range	Тор	- 20	+80	°C		
11	Frequency Variation with Drive Level	$\frac{\Delta f}{f}$	- 0.5	+ 0.5	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
12	Resistance Variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.25 \text{mW}$	
13	Motional Inductance	L ₁	2.0		mH		
14	Motional Capacitance	C ₁	Not ap	oplicable	fF		
15	Static Capacitance	Co	-	5.0	pF		
16	Q Factor	Q	70 000	-	-		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p l/R	3:1	-		In the frequency range: f _r - 10% to f _r + 10%	
18	Ageing	∆ f f	-3.0	+3.0	10-6	Storage: 5 years. Operating: 15 years. After 500 Hours Burn-i	
19	Physical Dimensions		Figu	Figure 2(a)			
20	Intended Application		0	CXO			



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APPENDIX 'A'

AGREED DEVIATIONS FOR RAKON (F)

ITEMS AFFECTED	i i	DESCRIPTION OF DEVIATION	
Para. 4.2.2	The state of the s	Para. 9.3, Shock: Shall not be performed.	ay as the object
Para. 4.2.3		Para 9.11, Radiographic Inspection: Shall not be performed.	