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CRYSTAL UNITS IN METAL HOLDER, BASED ON TYPE T807,

FREQUENCY RANGE 4.0 - 140MHZ

ESCC Detail Specification No. 3501/008

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

ISSUE 5 November 2010





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DOCUMENTATION CHANGE NOTICE

(Refer to https://escies.org for ESCC DCR content)

DCR No.	CHANGE DESCRIPTION
582	Specification upissued to incorporate technical and per DCR.
- 1486 - 14	



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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 807, 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 No. 3501/001. ESCC 3501/001 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 Load Frequency Capacitance		Reference Temp.	Operating Temp. Range	Lead Length (Dim. L mm)	
	(MHz)	(C _L pF)	(T ₀ °C)	(T _{op} °C)	Min.	Max.
01	83.102493		+ 25	-25 to +70	12.7	†
02	85.412668	**	+25	-20 to +70	12.7	-
03	90.833333	∞	+25	-20 to +70	12.7	-
04	90.857143		+ 25	-20 to +70	12.7	-
05	90. 880 952		+ 25	-20 to +70	12.7	-
06	50.0	96.	+ 25	-20 to +70	12.7	-
07	85.412668	∞	+ 65	+59 to +71	12.7	-
08	93.988095		+25	-20 to +70	12.7	
09	94.0	∞	+ 25	-20 to +70	12.7	-
10	94.095238		+25	-20 to +70	12.7	† -
11	94.107143	∞	+25	-20 to +70	12.7	†
12	18.8875	32	+25	-20 to +70	12.7	†
13	16.0	œ	+ 25	-40 to +85	12.7	-
14	24.6862	30	+ 25	-20 to +70	12.7	-
15	110.045	, , , , , , , , , , , , , , , , , , ,	+ 25	-25 to +70	12.7	-
16	110.765	· oc	+ 25	-25 to +70	12.7	-
17	27.5	30	+25	-20 to +50	12.7	-
18	92.852381	œ	+25	-25 to +70	12.7	*
19	92.846032	\$	+25	-25 to +70	12.7	*
20	88.134921	- CC	+25	-25 to +70	12.7	-
21	84.0	×.	+70	-20 to +80	12.7	-
22	15.0	25	+25	-55 to +105	12.7	*
23	40.0	œ	+40	0 to +90	12.7	+
24	29.629	× ×	+40	0 to +90	12.7	-
25	32.0		+25	-20 to +70	12.7	-
26	14.7456	90	+25	-55 to + 105	12.7	-
27	12.25	32	+25	-30 to +70	12.7	†
28	4.096	25	+25	-55 to +100	12.7	-
29	31.999305	*	+25	-20 to +60	12.7	†
30	74.801912		+25	-25 to +70	12.7	•
31	78.217213	× ×	+25	-25 to +70	12.7	1 -
32	81.66667	·	+70	-20 to + 70	12.7	-
33	81.00766	00	+70	-20 to + 80	12.7	-
34	90.869921		+25	-25 to +70	12.7	-
35	85.412668		+ 65	+59 to +71	12.7	~
36	140.0		+25	-20 to +70	12.7	†

NOTES: See Page 8.

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

Variant	1		Load Reference pacitance Temp.	Operating Temp. Range	Intend. Applica-	Lead Length (Dim. L mm)	
	(MHz)	(C _L pF)	(T _o °C)	(T _{op} *C)	tion	Min.	Max.
37	81.544502	*	+ 67	-20 to +80	~	12.7	-
38	81.632635	∞	+ 65	-20 to +80		12.7	~
39	20.0	32	+ 25	-30 to +70	*	12.7	-
40	83.133333	00	+ 65	-20 to +80	-	12.7	-
41	16.0	30	+ 25	-22 to +90	*	12.7	+
42	20.0	00	+25	-30 to +95		12.7	-
43	83.312841	ψc .	+ 25	-25 to +70		12.7	-
44	83.316257		+ 25	-25 to +70		12.7	-
45	83.319672		+ 25	-25 to +70	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12.7	
46	83.362503	\$60	+ 25	-25 to +70	-	12.7	-
47	83.340164	90	+ 25	-25 to +70	*	12.7	-
48	83.346994	∞.	+ 25	-25 to +70	-	12.7	-
49	83.353825	∞	+25	-25 to +70	-	12.7	-
50	83.360656	- 00	+25	-25 to +70	-	12.7	-
51	45.056	20	+ 25	-25 to +70	-	12.7	† -
52	78.247951	œ	+ 25	-25 to +70	*	12.7	† -
53	78.213798	×:	+25	-25 to +70	-	12.7	-
54	78.227459	- x xx x	+ 25	-25 to +70		12.7	-
55	78.220628	6 0	+ 25	-25 to +70	*	12.7	-
56	81.666667	90	+67	-20 to +80	~	12.7	†
57	121.714286	· · · · · · · · ·	+ 25	-20 to +70		12.7	-
58	116.471429	95	+ 25	-20 to +70	*	12.7	†
59	4.194304	22	+60	-20 to +70	-	12.7	-
60	16.0	30	+ 25	-30 to +70	:	12.7	-
61	10.0	30	+ 30	-30 to +70		12.7	
62	25.0	30	+ 25	-30 to +80	X0	12.7	-
63	90.0	12	+ 25	-20 to +85	-	12.7	*
64	83.366142	∞	+ 67	-20 to +80	-	12.7	†
65	70.975328	90	+ 25	-25 to +70	*	12.7	† -
66	79.93306	20	+ 65	-20 to +80	-	12.7	-
67	79.941257		+ 65	-20 to +80	-	12.7	† -
68	9.2	30	+ 30	-30 to +70	XO	12.7	†
69	24.0	30	+27	-55 to +100	*	12.7	-
70	76.8315	4 6	+ 25	-25 to +80	•	12.7	-
71	20.0	30	+ 25	-30 to +80	~	12.7	† • • • • • • • • • • • • • • • • • • •
72	20.0	30	+25	-55 to + 105	1	12.7	-

NOTES: See Page 8.



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

Variant	Resonance Frequency	Load Capacitance	Reference Temp.	Operating Temp. Range	Intend. Applica-	Lead Length (Dim. L mm)	
	(MHz)	(C _L pF)	(To °C)	(T _{op} °C)	tion	Min.	Max.
73	40.960	20	+ 25	-25 to +70		12.7	~
74	70.965082	x	+ 25	-25 to +70	*	12.7	*
75	79.937158	∞	+ 65	-20 to +80	*	12.7	*
76	79.945355	œ	+ 65	-20 to +80		12.7	~
77	59.356 136	96	+ 25	-25 to +70	*	12.7	~
78	18.0	30	+ 25	-25 to +100		12.7	*
79	81.576923	×	+ 67	-20 to +80	ОСХО	12.7	~
80	86.024590	∞ ∞	+ 25	-20 to +80	TCXO	12.7	*
81	85.983607	×	+ 25	-20 to +80	TCXO	12.7	+
82	79.949453		+ 65	-20 to +80	ОСХО	12.7	+
83	79.957650	×	+ 65	-20 to +80	OCXO	12.7	~
84	70.970205	· •	+ 25	-25 to +70	TCXO	12.7	*
85	101.936620	12	+ 25	-20 to +80	VCXO	12.7	+
86	75.0	12	+ 25	-20 to +80	VCXO	12.7	~
87	80.0	12	+ 25	-20 to +80	VCXO	12.7	-
88	74.626318	90	+ 25	-20 to +80	тсхо	12.7	-
89	64.791785	. oc	+ 25	-20 to +80	тсхо	12.7	~
90	64.990091	Ø2	+ 25	-20 to +80	тсхо	12.7	-
91	64.995773	900	+ 25	-20 to +80	тсхо	12.7	~
92	74.677455	∞	+ 25	-20 to +80	TCXO	12.7	+
93	66.638308	GC .	+ 25	-20 to +80	тсхо	12.7	-
94	66.628692	300	+ 25	-20 to +80	тсхо	12.7	~
95	60.091346	0 6	+ 25	-20 to +80	тсхо	12.7	-
96	60.086538	90	+ 25	-20 to +80	тсхо	12.7	-
97	37.083333	>>> ==================================	+ 25	-20 to +80	тсхо	12.7	*
98	66.612423	90	+ 25	-25 to +70	тсхо	12.7	-
99	79.924863		+ 65	-20 to +80	осхо	12.7	-

NOTES

^{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 and the second	4.0 to 140	MHz	Note 1
2	Drive Level Range	P	Note 1	mW	
3	Operating Temperature Range	Тор	- · · · · · · · · · · · · · · · · · · ·	°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 Range (mW)
Fundamental	4 - 35	0.05 to 0.2
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.

	·	 ,				
No.	Characteristic	Symbol	Um	iits	Unit	Rømarks
140.	Consideration Constitution Cons		Min. Max			i nemaiks
1	Resonance Frequency	f, or f			MHz	Note 1
2	Reference Temperature	J.			°C	Note 2
3	Overtone Order					
4	Load Capacitance	C _L			pF	Note 3
5	Rated Drive Level	Ρ,			mW	Note 4
6	Frequency Adjustment Tolerance	<u>41</u>			10-6	At To *C Note 5
7	Resonance Resistance	R _r or R _L			Ω	At To *C Note 6
8	Frequency Variation with Temperature over Top	<u>41</u>			10 ⁻⁹	From frequency measured at T _o *C Note 7
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R			%	From resistance measured at T _o °C Note 7
10	Operating Temperature Range	Тор		-	°C	
11	Frequency variation with Drive Level	<u> </u>			10-6	From P _{S1} = mW to P _{S2} = mW Note 8
12	Resistance variation with Drive Level	AB R			%	From P _{S1} = mW to P _{S2} = mW Note 8
13	Motional Inductance	L ₁			mH	Notes 9 and 10
14	Motional Capacitance	C ₁			ſF	Note 9
15	Static Capacitance	C _o			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 (Z _p)/R				In the frequency range: f - kHz to f + kHz
18	Ageing	 4	:		10-6	Note 13
19	Terminal length	 L.			mm	Note 14
20	Intended Application	 2 2			·	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 C_L

- (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 To or 1% of the nominal load capacitance, whichever is smaller.

4. 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 L₁ 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. Terminal Lengths

To be specified if different from Figure 2 dimensions. If dimensions are as per Figure 2 then "Figure 2" to be entered in the Limits column.

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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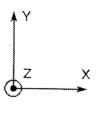
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FIGURE 1 - PARAMETER DERATING INFORMATION

Not applicable.

FIGURE 2 - PHYSICAL DIMENSIONS

Symbol	Millin	netres	
<i>-</i>	Min.	Max.	Remarks
ØA	*	10.70	7
С	•	6.80	
Н	4.83	5.33	Pitch 5.08mm
ØK	0.40	0.48	
L	12.70	~	•
Р		0.90	Note 2
Q		0.95	Note 2

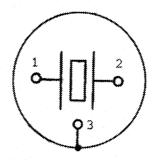


Note 1

NOTES

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

FIGURE 3 - FUNCTIONAL DIAGRAM



(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 $= T_o$ Reference Temperature Resonance Resistance $= R_r$ Load Resonance Resistance $= R_{i}$ = Po Rated Drive Level = C0 Static Capacitance = CL Load Capacitance Motional Capacitance $= C_1$ $= L_1$ Motional Inductance Response Resistance $= R_{\rm p}$ 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 Deviations from Final Production Tests (Chart II)

None.

4.2.3 Deviations from Burn-in Tests (Chart III)

None

4.2.4 Deviations from Qualification Tests (Chart IV)

Nana

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

None.



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4.3 MECHANICAL REQUIREMENTS

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 <u>Weight</u>

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 Case

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 SCC Component Number, which shall be constituted and marked as follows:- 350100801B

Detail Specification Number		T	į
Type variant, (see Table 1(a))	***************************************		
Testing level (B or C, as applicable)			į



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4.5.3 <u>Characteristics</u>

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 ELECTRICAL MEASUREMENTS

4.6.1 <u>Electrical Measurements at Reference Temperature</u>

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 Electrical Measurements at High and Low Temperatures

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 Circuits for Electrical Measurements (Figure 4)

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 $T_{amb} = T_0 \pm 2$ °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
	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	$\frac{\Delta f}{f}$ (T _o , Δ P)	Para. 9.2.1.1	Table 1(a), Item 11	10-6
4	Resistance variation with Drive Level	<u>Δ R</u> (T _o , ΔP) R	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	C _o	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 ₀)	Para. 9.2.1.2	Table 1(a) Item 8	10-6
10	Resistance variation with Temperature over Top	Δ <u>R</u> (ΔΤ, 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	$\frac{\Delta f}{f}$	As per Table 2	As per Table 2	± 2.0	10-6
2	Resonance resistance drift	ΔR R	As per Table 2	As per Table 2	± 10 or (1)	%
					± 1.0	Ω

NOTES

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.

^{1.} Whichever is the highest value.



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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 Measurements and Inspections on Completion of Environmental Tests

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 $T_{amb} = T_o \pm 2$ °C.

4.8.3 Conditions for Operating Life Test (Part of Endurance Testing)

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

	ESCC GENERIC SP	EC. NO. 3501	MEASUREMENTS A	ND INSPECTIONS		UN	IITS		
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		Table	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	1 R Δ1 T ΔR R		2 Item 1 2 Item 2 +1.0 +10 +1.0	10- ⁸ %	
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 AR		2 Item 1 2 Item 2 + 1.0 + 10 + 1.0	10 ⁻⁸ %	
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 corresion or obliteration of marking	**************************************	·	~	~	
06	External Visual Inspection	Para. 9.9	Final Measurements Visual Inspection	ESCC No. 20500			*		
07	Solderability	Para. 9.13		÷				-	

- The tests in this table refer to either Chart IV or V, and shall be used as applicable.
 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.)

	ESCC GENERIC SP	EC. NO. 3501	MEASUREMENTS AN	ID INSPECTIONS		LIM	ITS	
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS	SYMBOL	Min.	Max.	UNIT
	Climatic Sequence	Para. 9.14			:			
08	Dry Heat	Para. 9.14.1	Initial Measurements					
			Resonance Frequency	Table 2 Item 1			2 Item 1	
			Resonance Resistance Final Measurements	Table 2 Item 2	R	Table :	2 Item 2	
			Resonance Frequency	Table 2 Item 1	3.1	~2.0	+ 2.0	10-6
			Drift	10010 2 10111 1	<u>a</u> 1	2.0	7 2.0	10.
			Resonance Resistance	Table 2 Item 2	<u>A.B</u>	- 10	+ 10	%
	* W.		Drift		R	or (2)		
					ΔR	-1.0	+1.0	Ω
09	Cold	Para. 9.14.3	Initial Measurements					
	h	e e e e e e e e e e e e e e e e e e e	Resonance Frequency	Table 2 Item 1	la f	§	3.14.1.3	
	FL.		Resonance Resistance	Table 2 Item 2	B	Final Mea	surements	
			Final Measurements	Table 6 Bees 4			1 M M	
			Resonance Frequency Drift	Table 2 Item 1	<u>4</u> 1	~2.0	+ 2.0	10*
			Resonance Resistance	Table 2 Item 2	<u>AB</u>	~ 10	+10	%
	<u> </u>		Drift	(1000) & 100111 &	R R	or (2)	, , , ,	~
				'	ΔR	-1.0	+1.0	Ω
10	Damp Heat (Acclerated)	Para. 9.14.4	Initial Measurements					
	Remaining Cycles		Resonance Frequency	Table 2 Item 1	f	Para.	9.14.3.2	
	**		Resonance Resistance	Table 2 Item 2	R	Final Mea	surements	
			Final Measurements	···				
			Resonance Frequency Drift	Table 2 Item 1	LA.	-2.0	+2.0	10-
			Resonance Resistance	Table 2 Item 2	1 1	**	+10	%
			Drift	Table 2 Helli 2	AB B	-10 or (2)	* 10	70
			—		ΔR	-1.0	+1.0	Ω
			Insulation Resistance	Table 2 Item 8	Ri	500		MS
					ļ		<u> </u>	
11	Rapid Change of	Para. 9.15	Initial Measurements					
	Temperature		Resonance Frequency Resonance Resistance	Table 2 Item 1	1 1	*	9.14.4.2	
			Final Measurements	Table 2 Item 2 After minimum	R	rinai Mei	asurements	
				Recovery of 2 hour				
			Resonance Frequency	Table 2 Item 1	1 41	- 2.0	+ 2.0	10
			Drift		f			1
			Resonance Resistance	Table 2 Item 2	<u>AB</u>	10	+10	9%
			Drift		R	or (2)		
					ΔR	- 1.0	+ 1.0	Ω
12	Robustness of	Para. 9.16	Tensile Strength	Gen. 3501	†	***************************************		†
, x.,	Terminations	1 0000 0000	, was value	Para. 9.16.1				*
	: 201 manadda		Visual Examination	No visible damage				
			Bending	Gen. 3501				
	W.			Para. 9.16.2				
	\$	}	Visual Examination	No visible damage	3	}		3

NOTES

- 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	ISPECTIONS		LIM	IITS	
	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS	SYMBOL	Min.	Max.	UNIT
13	Life Test	Para, 9,17	Initial Measurements		†			
			Resonance Frequency	Table 2 Item 1	f .	Table 2	! ! Itaro t	
			Resonance Resistance	Table 2 Item 2	R	1	ttem 2	
			Intermediate Measurements	At 500 hours		,		
			Resonance Frequency	Table 2 Item 1	- <u>Δ.</u> f	~ 2.0	+2.0	10-6
			Drift		1			, , ,
			Resonance Resistance	Table 2 Item 2	<u>AR</u>	- 10	+10	%
			Drift		R	or (2)		
					ΔR	~ 1.0	+1.0	Ω
			Intermediate Measurements	At 1000 hours				
			(Chart IV) and Final			,		
	Management of the second		Measurements (Chart V)	Appropriate to the second				
			Resonance Frequency Drift	Table 2 Item 1	1	~ 2.5	+2.5	10-6
			Resonance Resitance	Table 2 Item 2	1			
			Drift	raunc z nem z	<u> </u>	-10	+10	%
	·				ΔA	or (2) 1.0	+1.0	Ω
			Final Measurements	At 2000 hours	1	7.0	7 1.0	2.5
	. :		(Chart IV)	00000				
			Resonance Frequency	Table 2 Item 1	A f	~ 3.0	+3.0	10-6
			Drift	and the second of the second o	<u>A.1</u>	Ψ.ω	, 0,0	,,,,
			Resonance Resistance	Table 2 Item 2		- 10	+10	%
			Drift		<u>Δ B</u> B	or (2)	,	– ~
					ΔR	~ 1.0	+ 1.0	Ω

NOTES

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.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	83.10	2493	MHz	Swept
2	Reference Temperature	To	+24	+26	°C	
3	Overtone Order	~	:	3		
4	Load Capacitance	CL	č	c	ρF	
5	Rated Drive Level	Pa	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R _r	•	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	-9.0	+9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	∆R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	-20	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>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		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	Rp/R IZpi/R	Not ap	plicable		
18	Ageing	<u>∆f</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figi	ure 2	mm .	

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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	84.41	2668	MHz	Swept
2	Reference Temperature	То	+ 24	+26	°C	
3	Overtone Order		3			
4	Load Capacitance	CL	×	;	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	Rr		40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	-9.0	+9,0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	AR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+70	*C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not app	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not app	olicable	%	
13	Motional Inductance	Lı	2.0	-	mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF	
15	Static Capacitance	Co	•	7.0	pF	
16	Q Factor	Q	Not app	olicable	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	90.83	3333	MHz	Swept
2	Reference Temperature	То	+ 24	+ 26	°C	
3	Overtone Order	~		3		
4	Load Capacitance	CL	Э	0	ρF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	Rr		19	Ω	At To *C
8	Frequency Variation with Temperature over Top	Δ f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	유	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.3		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	Rp/R IZpI/R	2:1	~		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	Δ <u>1</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L.	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	ıits Max.	Unit	Remarks
1	Resonance Frequency	fr	90.85	7143	MHz	Swept
2	Reference Temperature	To	+ 24	+ 26	°C	
3	Overtone Order	-	(3		
4	Load Capacitance	CL	ŭ	c .	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R,	*	19	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δt	-9.0	+9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	∆R R	-20	+ 20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+70	°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	2.3	-	mH	
14	Motional Capacitance	Cı	Not ap	olicable	ſF	
15	Static Capacitance	C _o		7.0	ρF	
16	Q Factor	Q	70 000	-	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpi/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	Δ <u>f</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	90.88	0952	MHz	Swept
2	Reference Temperature	To	+ 24	+ 26	°C	
3	Overtone Order	~	Ş	}_		
4	Load Capacitance	C _L	٥	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	∆ f T	-5.0	+ 5.0	10-6	At T _o °C
7	Resonance Resistance	F r	? •	19	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-9.0	+9.0	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	Тор	-20	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.3	~	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	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -50kHz to f _r +50kHz
18	Ageing	<u>4</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Quantari	Lin	nits	* * * *	
140.	Criaracteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	50	0.0	MHz	Swept
2	Reference Temperature	То	+23	+27	°C	
3	Overtone Order			3		
4	Load Capacitance	C _L	3	×	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	∆ f	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	Rr		23	Ω	At T _o °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 with Temperature over Top	ΔR R	-20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	-20	+70	°C	
11	Frequency variation with Drive Level	∆ f f	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L ₁	8.0	*	mH	
14	Motional Capacitance	C ₁	Not app	olicable	ſF	
15	Static Capacitance	Co	*	7.0	pF	:
16	Q Factor	Q	110 000	+	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZp!/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	<u>Δ f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	85.412668		MHz	Swept, AT cut
2	Reference Temperature	To	+59	+71	°C	
3	Overtone Order	*	Ε	;		
4	Load Capacitance	CL	(3)	<sc< td=""><td></td></sc<>		
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	R _r		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	AR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	+59	+71	°C	
11	Frequency variation with Drive Level	∆f f	Not app	olicable	10-6	
12	Resistance variation with Drive Level	∆B R	Not app	olicable	%	
13	Motional Inductance	L ₁	2.0	•	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	ſF	
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	Rp/R IZpI/R	2:1	~		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	<u> </u>	~1.0	+1.0	10-6	After burn-in and over 10 years
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	93.988095		MHz	Swept
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	•	3	}		
4	Load Capacitance	GL	٥	> _	pF	
5	Rated Drive Level	Po	0.1		mW	di. Nga
6	Frequency Adjustment Tolerance	<u></u>	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	H _r		17	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	-9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
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	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	: :
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	*	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co	~	3.0	pF	
16	Q Factor	Q	70 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	Limits Min. Max.		Remarks
1	Resonance Frequency	f _r	94.0		MHz	Swept
2	Reference Temperature	To	+ 23	+ 27	°C	· :
3	Overtone Order		(3		
4	Load Capacitance	CL	ÚS.		ρF	
5	Rated Drive Level	Po	0.1		mW	
6	Frequency Adjustment Tolerance	∆ f f	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	R _r		17	Ω	At T ₀ °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 with Temperature over Top	AR R	-20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	-20	+70	°C	=
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>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	~	3.0	pF	
16	Q Factor	Q	70 000	~	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	Δ <u>f</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f _r	94.095238		MHz	Swept
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order	~		3		
4	Load Capacitance	C _L	x		pF	
5	Rated Drive Level	Po	0.1		mW	
6	Frequency Adjustment Tolerance	Δ f	-5.0	+5.0	10-6	At T _o °C
7	Resonance Resistance	R _r		17	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 with Temperature over Top	유	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+70	°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	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF.	
15	Static Capacitance	Co	*	3.0	pF	
16	Q Factor	Q	70 000	-	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2:1	~		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years.
19	Terminal Length	L.	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lirr Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	94.107143		MHz	Swept
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order		3	3		
4	Load Capacitance	CL	oc		pF	
5	Rated Drive Level	Po	0.	0.1		
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R _r	~	17	Ω	At To °C
8	Frequency Variation with Temperature over Top	2 Δ f f	-9.0	+9.0	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Top	-20	+ 70	°C	
11	Frequency variation with Drive Level	∆f f	Not ap	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	~	3.5	pF	
16	Q Factor	Q	70 000		~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2:1	~		In the frequency range: f _r -50kHz to f _r +50kHz
18	Ageing	∆ f f	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in. Over 10 years
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _L	18.8875		MHz	
2	Reference Temperature	То	+2	25	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	C _L	32		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-5.0	+5.0	10-6	At T _a °C
7	Resonance Resistance	RL	*	21	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-7.0	+ 7.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	<u>A f</u>	Not app	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	•	6.93	mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF	
15	Static Capacitance	Co	*	3.0	pF	
16	Q Factor	Q	60 000	*	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	3:1	~		In the frequency range: f _L -200kHz to f _L + 200kHz
18	Ageing	∆f f	-5.0	+5.0	10-6	After burn-in, per year
19	Terminal Length	L	Figu	re 2	mm	

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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	16.0		MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order		Fundamental			
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	*	18	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-15	+ 15	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-10 c -1.5	+ 10 >r + 1.5	% Ω	From resistance measured at T _o °C If R<10Ω
10	Operating Temperature Range	Top	-40	+ 85	°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	7.0	•	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	Rp/R IZpi/R	2:1	ž		In the frequency range: f _r -200kHz to f _r + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in, per year
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin	***************************************	Unit	Remarks
			Min.	Max.		
11	Resonance Frequency	1 f _L	24.6	862	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	*	Funda	mental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-10	+ 10	10-6	At To °C
7	Resonance Resistance	RL	-	10	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	∆f f	-10	+ 10	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.7	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	*	5.0	pF	
16	Q Factor	Q	40 000	•	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	4:1 5:1	*		In the frequency range: f _L -50kHz to f _L + 50kHz Overtones 3 and 5
18	Ageing	$\frac{\Delta f}{f}$	-2.9	+2.9	10-6	After burn-in, over 4 years
19	Terminal Length	L.	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
4	Resonance Frequency	fr	110.045		MHz	Swept.
2	Reference Temperature	To	+ 23	+27	°C	,
3	Overtone Order	*		і		AT cut.
4	Load Capacitance	CL	S	c	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	R _r		45	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f	-10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	AR R	-10	+10	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	-25	+70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>Δ B</u> R	Not ap	plicable	%	
13	Motional Inductance	L,	4.5	5.5	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co		3.0	pF	
16	Q Factor	Q	80 000	-	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	∆f f	-0.5 -1.0	+0.5 +1.0	10-6	First year after burn-in. Over 5 years
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	i. f	110.	765	MHz	Swept
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order		Ę	5		AT cut
4	Load Capacitance	CL	ø	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+5.0	10-6	At T _o °C
7	Resonance Resistance	R _r	•	45	Ω	At To °C
8	Frequency Variation with Temperature over Top	1 <u>A</u>	-10	+10	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-10	+ 10	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-25	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	4.5	5.5	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	27 - 27 - 27
15	Static Capacitance	Co	*	3.0	pF	
16	Q Factor	Q	80 000	~	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -50kHz to f _r + 50kHz
18	Ageing	Δ <u>f</u>	-0.5 -1.0		10-6	First year after burn-in. Over 5 years
19	Terminal Length	L	Figu	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _L	27	.5	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	*	Fundai	nental		
4	Load Capacitance	CL	3	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		20	Ω	At To *C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	-10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-10	+10	%	From resistance measured at T _c °C
10	Operating Temperature Range	Тор	-20	+ 50	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> 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	80 000		~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	<u>.</u>		In the frequency range: f _L -10% to f _L + 10%
18	Ageing	Δ <u>f</u>	-10	+10	10-6	Over 10 years
19	Terminal Length	L	Figi	ure 2	mm	

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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	98.85	2381	MHz	
2	Reference Temperature	T _o	+20	+30	°C	
3	Overtone Order			5		
4	Load Capacitance	G _L	9	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R _r		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f f	-9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-25	+70	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	*	5.0	ρF	
16	Q Factor	Q	90 000	~	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	~		In the frequency range: f _r -10% to f _r + 10%
18	Ageing	<u>Δ1</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lîn Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	92.84	92.846032		
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order			5		
4	Load Capacitance	CL	Č	c c	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u> f	-5.0	+5.0	10-6	At To *C
7	Resonance Resistance	R _r	•	50	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		-20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	-25	+ 70	°C	
11	Frequency variation with Drive Level	<u>\(\Delta \text{!} \\ \frac{1}{1} \)</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	*	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF.	
15	Static Capacitance	C _o	-	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 IZpI/R	2:1			In the frequency range: f _r -10% to f _r + 10%
18	Ageing	Δf	-3.0 -5.0	•	10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

N.I.	Characteristics	Committee and	Lim	its	l limits	
No.	Unaracteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	88.13	4921	MHz	PQ swept
2	Reference Temperature	Τ _ο	+20	+30	°C	
3	Overtone Order	*	ξ			
4	Load Capacitance	CL	3	3	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	1 <u>4</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R _r	. · ·	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f f	-9.0	+ 9.0	10-6	From frequency measured at T ₀ °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	-25	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	<u>∆ R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	6.5	*	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	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	Rp/R	2:1	~		In the frequency range: f _r -8 000kHz to f _r +8 000kHz
18	Ageing	Δ <u>f</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year Over 10 years
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fr	84	.0	MHz	
2	Reference Temperature	Τ ₀	+ 65	+ 75	°C	Turn-on Point
3	Overtone Order	*	3	3		
4	Load Capacitance	CL	5	D	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-5.0	+5.0	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	Not ar	oplicable	10-6	
9	Resistance Variation with Temperature over Top	∆R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Τορ	-20	+ 80	°C	
11	Frequency variation with Drive Level	- <u>Δ f</u> f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	Ť	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 IZpI/R	2:1	*		In the frequency range: f _r -8 000kHz to f _r +8 000kHz
18	Ageing	∆ f f	-5.0	+ 5.0	10-6	After burn-in and over 10 years
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fL	15	.0	MHz	
2	Reference Temperature	To	+ 23	+27	°C	<u> </u>
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	18	32	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	Not ap	olicable	10-6	
7	Resonance Resistance	Rr	*	100	Ω	Over T _{op} °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-40	+ 40	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-55	+ 105	°C	
11	Frequency variation with Drive Level	<u>∆</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> 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	80 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _L -200kHz to f _L +200kHz
18	Ageing	Δ <u>1</u>	-2.0	+2.0	10-6	After burn-in, per year
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lìm Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	40	40.0		Swept
2	Reference Temperature	То	+36	+ 44	*C	-
3	Overtone Order	*	3	}		
4	Load Capacitance	CL	ÿ	>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	R _r	10	25	Ω	Over T _{op} °C
8	Frequency Variation with Temperature over Top	∆ f f	-15	+ 15	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	-10	+ 10	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	T _{op}	0	+ 90	°C	
11	Frequency variation with Drive Level	<u>Δ1</u>	-1.0	+1.0	10-6	From $P_{S1} = 0.05$ mW to $P_{S2} = 0.2$ mW
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L1	5.0		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	Rp/R	4:1	*	~	In the frequency range: f _r -50kHz to f _r +50kHz
	Response Resistance Response Resistance	Rp Rp	2.5 25	~	Ω Ω	Fundamental Overtone 5
18	Ageing	Δ <u>f</u>	-5.0	+5.0	10-6	After burn-in over 5 years
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	29.6296		MHz	
2	Reference Temperature	То	+36	+ 44	°C	
3	Overtone Order	*	Funda	mental		
4	Load Capacitance	CL	Ç	¢	ρF	
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	2.5	15	Ω	Over T _{op} °C and drive level
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	AR R	-10 -1.5	+ 10 rr + 1.5	% Ω	From resistance measured at T _o °C If R < 10Ω
10	Operating Temperature Range	Тор	0	+90	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	-1.0	+1.0	10∕6	From $P_{S1} = 0.025 \text{mW}$ to $P_{S2} = 0.2 \text{mW}$
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.8	+	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	*	5.0	pF	
16	Q Factor	Q	60 000	-	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or	Rp/R	4:1	~	*	In the frequency range: f _r -50kHz to f _r + 50kHz
	Response Resistance	Rp	30	*	Ω	Overtone 3
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	Per year after burn-in
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fr	32	32.0		Synthetic swept, Premium Q
2	Reference Temperature	Τ _ο	+ 23	+ 27	°C	Inflection temp. point
3	Overtone Order		(3		A/T cut
4	Load Capacitance	CL	G	c	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{t}$	-10	+10	10-6	At T _o °C
7	Resonance Resistance	R,	-	30	Ω	Over Top °C
8	Frequency Variation with Temperature over T _{op}	<u>∆ f</u> f	-10	+ 10	10-6	From frequency measured at T _o °C One measurement each 2.5°C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-10	+10	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> 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	Not ap	plicable	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -10% to f _r + 10%
18	Ageing	∆ f f	-5.0	+ 5.0	10-6	After burn-in and per year
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

				N.	······································	
No.	Characteristics	Symbol	Lim Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	14.7	456	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	-	Funda	mental		A/T cut
4	Load Capacitance	CL	0	Ď	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u>	-10	+ 10	10-6	At To *C
7	Resonance Resistance	Rr	3.0	15	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-25	+ 25	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	ΔR R	-1.0	+ 1.0	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-55	+ 105	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆ R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co		7.0	pF	
16	Q Factor	Q	80 000	-	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -200kHz to f _r + 200kHz
18	Ageing	<u>4</u>	-2.0	+2.0	10-6	Per year after burn-in
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _L	12.25		MHz	Parallel resonance
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order		Fundar	mental		A/T cut
4	Load Capacitance	C _L	3:	2	pF	
5	Rated Drive Level	Pa	0.	5	mW	
6	Frequency Adjustment Tolerance	Δf 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>	-10	+10	10 ⁻⁶	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-50	+50	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-30	+ 70	*C	
11	Frequency variation with Drive Level	<u>∆ f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>∆R</u> R	-25	+ 25	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.2 \text{mW}$
13	Motional Inductance	L ₁	27	33	mH	
14	Motional Capacitance	C ₁	5.04	6,16	fF	
15	Static Capacitance	Co	-	4.0	pF	
16	Q Factor	Q	30 000	+	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _L -500kHz to f _L + 500kHz
18	Ageing	∆ f f	-10	+10	10-6	After burn-in over 10 years
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	4.0	4.096		
2	Reference Temperature	To	+ 22	+28	*C	
3	Overtone Order	*	Fundai	mental		
4	Load Capacitance	C_{L}	2	5	pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	<u>∆</u>	-10	+10	10-6	At To *C
7	Resonance Resistance	R_r	-	75	Ω	Over T _{op} °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-50	+50	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-55	+ 100	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	313	348	mH	
14	Motional Capacitance	C ₁	4.34	4.82	fF.	
15	Static Capacitance	Co	1.5	2.0	pF	
16	Q Factor	Q	130 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	10:1	*		In the frequency range: f _L -100kHz to f _L + 100kHz
18	Ageing	<u>4</u>	-10	+ 10	10-6	2 years at rated drive level
19	Terminal Length	L	Figi	ле 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

•••••						
No.	Characteristics	Symbol	Lin Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	31.99	9305	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	-		3		
4	Load Capacitance	CL	<	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At To *C
7	Resonance Resistance	Rr	~	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> 1 f	-10	+ 10	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	AR R	-10	+ 10	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+60	°C	
11	Frequency variation with Drive Level	<u>A.f.</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co	*	7.0	pF	
16	Q Factor	Q	50 000	~	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1	*		In the frequency range: f _r -200kHz to f _r + 200kHz
18	Ageing	Δ f	-1.0	+ 1.0	10-6	After burn-in per year.
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

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No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _r	74.80	74.801912		
2	Reference Temperature	То	+20	+30	°C	
3	Overtone Order	~	3	3		
4	Load Capacitance	CL	Ü	¢	ρF	
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	~	50	Ω	At To *C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	-9.0	+9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-25	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	*	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
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 IZpI/R	2:1	*		In the frequency range: f _r -7482kHz to f _r + 7482kHz
18	Ageing	<u>Δ 1</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figu	re 2	mm	
**********	***************************************	***************************************	***************************************	***************************************	***************************************	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim		Unit	Remarks
140.	Criaracteristics	Зунноон	Min.	Max.	Orm	nemarks
1	Resonance Frequency	f _r	78.21	7213	MHz	
2	Reference Temperature	Τ _O	+ 20	+30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	CL	. 0	?	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>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	Δ <u>f</u>	-9.0	+ 9.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	유	-20	+ 20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	~	mH	
14	Motional Capacitance	C1	Not ap	plicable	1F	
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 IZpl/R	2:1	~		In the frequency range: f _r -7822kHz to f _r + 7822kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0 -5.0	+3.0 +5.0	10 ⁻⁶	After burn-in, first year Over 10 years
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

				T		
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f _r	81.66	81.66667		
2	Reference Temperature	Τ _ο	+65	+ 75	°C	
3	Overtone Order	~	9	}		
4	Load Capacitance	CL	×	¢	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,	*	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> 1	Not ap	plicable	10-6	
9	Resistance Variation with Temperature over Top	$\frac{\Delta R}{R}$	-20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	-20	+70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10 ⁻⁶	
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	L1	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 IZpI/R	2:1	~		In the frequency range: f _r -8166kHz to f _r + 8166kHz
18	Ageing	Δ <u>f</u>	-3.0 -5.0	\$	10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figi	ure 2	mm	



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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	81.80	0766	MHz	
2	Reference Temperature	То	+ 65	+ 75	°C	
3	Overtone Order	~	3	3		
4	Load Capacitance	CL	ű	5	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 _f	~	40	Ω	At T₀ °C
8	Frequency Variation with Temperature over Top	∆ f f	Not ap	olicable	10 ⁻⁶	
9	Resistance Variation with Temperature over Top	AR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	<u>∆ f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	Cı	Not ap	plicable	ſF	
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 IZpI/R	2:1	*		In the frequency range: f _r -8180kHz to f _r + 8180kHz
18	Ageing	<u>Δ</u> <u>f</u>	-3.0 -5.0	+3.0 +5.0	10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	90.86	9921	MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	~		5		
4	Load Capacitance	CL	. 0	D.	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+ 10	10-6	At To °C
7	Resonance Resistance	Rr		50	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	AR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-25	+70	°C	
11	Frequency variation with Drive Level	<u>∆ f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co		3.0	pF	
16	Q Factor	Q	90 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	2:1			In the frequency range: f _r -9000kHz to f _r +9000kHz
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+5.0	10-6	After burn-in and 10 years
19	Terminal Length	L	Figi	ure 2	mm	
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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	85.41	85.412668		
2	Reference Temperature	Τ _ο	+ 59	+ 71	°C	
3	Overtone Order	~		Š		
4	Load Capacitance	CL	٥	o.	ρF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ</u> <u>f</u>	-5.0	+ 5.0	10-6	At To °C
7	Resonance Resistance	R _r	*	45	Ω	At To °C
8	Frequency Variation with Temperature over Top	41	-2.0	+2.0	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	T _{op}	-59	+71	°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	2.0	*	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	C _o	~	7.0	pF	
16	Q Factor	Q	70 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R (Zp)/R	2:1	94		
18	Ageing	<u>∆1</u> f	-1.0	+1.0	10-6	After burn-in and 10 years
19	Terminal Length	L	Figu	ıre 2	mm	



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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	14(140.0		
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order		8	5		
4	Load Capacitance	C _L	٠	٥	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,	0	70	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	-15	+15	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆ 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	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co	0	7.0	ρF	
16	Q Factor	Q	70 000	-	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpi/R	2:1	~		In the frequency range: f _r -200kHz to f _r + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in, per year
19	Terminal Length	L	Figu	ıre 2	mm	

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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	81.54	81.544502		
2	Reference Temperature	Τ _ο	+62	+72	°C	
3	Overtone Order	~	3			
4	Load Capacitance	CL	Ø		ρF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ.t</u> t	-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 <u>f</u>	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	AR R	-20 +20 or -2.0 +2.0		% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR 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	0	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 IZpI/R	2:1			In the frequency range: f _r -8100kHz to f _r +8100kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in, over 10 years
19	Terminal Length	L	Fig	ure 2	mm	



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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	81.632653		MHz	
2	Reference Temperature	Τ _o	+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	<u>Δ1</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>	Not app	olicable	10-6	
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	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	f F	
15	Static Capacitance	Co	0	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 IZpi/R	2:1	-		In the frequency range: f _r -8163kHz to f _r +8163kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0 -5.0		10-6	After burn-in, first year. Over 10 years
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	· (_	20		MHz	
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order	*	Fundai	mental		
4	Load Capacitance	CL	3	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	R _L	•	30	Ω	Over T _{op}
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-20	+20	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>∆ B</u> R	-10 or -20	+10 or +20	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-30	+70	°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	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	*	7.0	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	2:1	36		In the frequency range: f _L -200kHz to f _L + 200kHz
18	Ageing	<u>Δ</u> f	-2.0	+2.0	10-6	Per year after Burn-in.
19	Terminal Length	L	Fig	ure 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	83.133333		MHz	
2	Reference Temperature	То	+ 60	+70	°C	:
3	Overtone Order	*	3			
4	Load Capacitance	CL	×	:	ρF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> 1	-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	∆ f T	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	AR R	-20	+20	%	From resistance measured at T _a °C
10	Operating Temperature Range	Тор	-25	+80	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	$\frac{\Delta R}{R}$	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 l/R	2:1	~		In the frequency range: f _r -500kHz to f _r +500kHz
18	Ageing	<u>A.t.</u>	-5.0	+ 5.0	10-6	13 years after Burn-in - Exterpolated
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unît	Remarks
1	Resonance Frequency	f	16	16.0		
2	Reference Temperature	T _o	+ 23	+27	°C	
3	Overtone Order	~	Funda	mental		
4	Load Capacitance	C _L	3	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta t}{t}$	-10	+10	10 ⁻⁶	At To °C
7	Resonance Resistance	RL	*	20	Ω	Over T _{op}
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>∆ R</u> R	Not applicable		%	
10	Operating Temperature Range	Top	-22	+90	°C	
11	Frequency variation with Drive Level	∆ f f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	Lı	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	Not a	ipplicable	•	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	R _p /R or IZ _p I/R	Not applicable			
18	Ageing	Δt	-30	+30	10-6	Per year after Burn-in
19	Terminal Length	L	Fig	ure 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	íts	Unit	Remarks
140.	Citalacteristics	Symbol	Min.	Max.	OF BL	remarks
1	Resonance Frequency	fr	20.	0	MHz	200000000000000000000000000000000000000
2	Reference Temperature	To	+23	+ 27	*C	2.
3	Overtone Order	.	Fundan	nental		
4	Load Capacitance	CL	200	,	pF	
5	Rated Drive Level	Po	o.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+ 10	10~6	At To °C
7	Resonance Resistance	R _r		30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆_f</u> f	100	+ 100	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20 or -2.0	+20 or +2.0	% Ω	From resistance measured at T_0 °C If $R \le 10\Omega$
10	Operating Temperature Range	Тор	-30	+ 95	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not app	olicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not app	olicable	%	
13	Motional Inductance	Li	Not ap	olicable	mH	
14	Motional Capacitance	C,	Not ap	olicable	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 - 200kHz to f _r + 200kHz
18	Ageing	Δ <u>f</u>	-2.0	+2.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

. x	Manataintina		Lim	its	l turis	Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	remarks
1	Resonance Frequency	f,	83.317	2841	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	<u>Δ1</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	<u>∆1</u> f	0 9.0 9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	*C	
11	Frequency variation with Drive Level	2 <u>∆</u> † f	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	1F	
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 - 8331kHz to f _r + 8331kHz
18	Ageing	∆f f	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	O 1	A	Lim	its	1 force	Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	nemarks
1	Resonance Frequency	. fr	83.31	83.316257		
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	•	3			
4	Load Capacitance	G _L	*	}	ρF	
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	\mathbf{R}_{r}		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	<u>Δ f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	Lı	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	C _O	,	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 – 8331kHz to f _r + 8331kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L.	Figi	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	Characteristics	0	Lim	its	£ £	<u> </u>
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	83.31	9672	MHz	
2	Reference Temperature	То	+ 20	+30	°C	
3	Overtone Order	~	3	}		
4	Load Capacitance	CL	٥	>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ †</u> †	- 10	+10	10-6	At To *C
7	Resonance Resistance	Rr	•	50	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 -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	- 20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	*	mH	
14	Motional Capacitance	Cı	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 - 8331kHz to f _r + 8331kHz
18	Ageing	<u>∆</u>	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L.	Figu	ıre 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	iits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	83.32	83.326503		
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order		3	}		
4	Load Capacitance	CL	٥	3	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	∆f f	0 9.0 9.0	+9.0 +9.0 0	10-6	From T - 25 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	∆R R	- 20	+ 20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	*C	
11	Frequency variation with Drive Level	<u>∆</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R 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	2:1	*		In the frequency range: f _r = 8332kHz to f _r + 8332kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L	Figu	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

***************************************		<u> </u>			T	
No.	Characteristics	Symbol		nits	Unit	Remarks
······································			Min.	Max.		
1	Resonance Frequency	fr	83.34	10164	MHz	
2	Reference Temperature	То	+ 20	+ 30	°C	
3	Overtone Order			3		
4	Load Capacitance	CL		c	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>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	∆f f	0 - 9.0 - 9.0	+9.0 +9.0 0	10-6	From T + 25 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	- 20	+ 20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	*C	
11	Frequency variation with Drive Level	Δf f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR 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	2:1	~		In the frequency range: f _r = 8334kHz to f _r + 8334kHz
18	Ageing	<u>∆</u>	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	i L	Figu	re 2	mm	
***************************************	·*····································	<u></u>	Ł	·····	<u></u>	1

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

% f			Lim	ıits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	83.34	83.346994		
2	Reference Temperature	T _o	+ 20	+30	*C	
3	Overtone Order	*		3		
4	Load Capacitance	C _L) 	»	ρF	
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	Δ <u>f</u>	0 -9.0 -9.0	+ 9.0 + 9.0 0	10-6	From T - 25 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	<u>A</u> R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	2.0	*	mH	
14	Motional Capacitance	Cı	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 - 8334kHz to f _r + 8334kHz
18	Ageing	Δ <u>f</u>	-3.0	+ 3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L	Figu	ire 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

* (Characteristics		Lim	iits		<u></u> .
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	83.35	83.353825		
2	Reference Temperature	То	+20	+ 30	°C	
3	Overtone Order	•		}		
4	Load Capacitance	CL	٥	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>∆ !</u> f	- 10	+10	10-6	At T _a °C
7	Resonance Resistance	R _r		50	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 -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 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	plicable	%	
13	Motional Inductance	Lī	2.0	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	C _o	~	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 = 8335kHz to f _r + 8335kHz
18	Ageing	ν : <u>Δ</u> f f	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L	Figu	ure 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	iits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fe	83.36	0656	MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	*	\$	}		
4	Load Capacitance	CL	۵	0	pF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	<u>4</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	Δ <u>f</u>	0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T - 25 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	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R 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	2:1	*		In the frequency range: f _r = 8336kHz to f _r + 8336kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 720 hours
19	Terminal Length	L	Figu	re 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	A		Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	T _r	45.0	45.056		
2	Reference Temperature	То	+ 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	<u>Δ f</u>	- 10	+ 10	10~6	At T _o °C
7	Resonance Resistance	H _r	******* *	23	Ω	At To *C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	0 - 9.0 - 9.0	+ 9.0 + 9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	AR R	- 20	+20	%	From resistance measured at T _o *C
10	Operating Temperature Range	Тор	- 25	+70	*C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap _l	olicable	%	
13	Motional Inductance	Li	8.0	~	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	*	7.0	ρF	
16	Q Factor	Q	110 000	*	-	
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 - 4500kHz to f _r + 4500kHz
18	Ageing	<u>Δ</u> <u>f</u>	-5.0	+ 5.0	10-6	10 years after Burn-in
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	iits	Unit	Remarks
110.	Oran action to to co	O y	Min.	Max.	Oim.	
1	Resonance Frequency	fr	78.24	7951	MHz	
2	Reference Temperature	Τo	+ 20	+30	°C	
3	Overtone Order	•	Ş	}		
4	Load Capacitance	CL	٥	٥	ρF	
5	Rated Drive Level	Po	0.	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>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	<u> </u>	9.0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	∆R R	20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
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	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 - 7824kHz to f _r + 7824kHz
18	Ageing	Δ <u>f</u>	-5.0	+ 5.0	10-6	10 years after Burn-in
19	Terminal Length	L	Figi	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		***************************************	***************************************			T
No.	Characteristics	Symbol	Lim	its	Unit	Remarks
			Min.	Max.		
1	Resonance Frequency	fr	78.21	3798	MHz	
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order		3			
4	Load Capacitance	CL	Ú.	>	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	<u>∆</u>	0 - 9.0 - 9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	*C	
11	Frequency variation with Drive Level	<u>Δ f</u> f	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	6.5	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
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 - 7821kHz to f _r + 7821kHz
18	Ageing	Δ <u>f</u>	- 5.0	+5.0	10-6	10 years after Burn-in
19	Terminal Length	L	Figu	ure 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	A		Lim	its	t 1 2 b	0
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	78.22	7459	MHz	
2	Reference Temperature	То	+ 20	+ 30	*C	
3	Overtone Order	~	3			
4	Load Capacitance	CL	×	>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>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	¹³⁰ <u>∆ f</u> f	0 -9.0 -9.0	+9.0 +9.0 0	10 ⁻⁶	From T + 25 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	<u>Δ f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not ap	olicable	%	
13	Motional Inductance	L1	6.5	~	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 - 7822kHz to f _r + 7822kHz
18	Ageing	<u>∆</u> †	-5.0	+5.0	10-6	10 years after Burn-in
19	Terminal Length	L	Figu	ire 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	78.22	0628	MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	~	3	J		
4	Load Capacitance	CL	٥	Ď	pF	
5	Rated Drive Level	P _a	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>∆ f</u> f	0 9.0 9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	- 20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
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	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 - 7822kHz to f _r + 7822kHz
18	Ageing	<u>4</u>	- 5.0	+5.0	10-6	10 years after Burn-in
19	Terminal Length	L	Fig	ure 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	<u> </u>	Complexed	Lim	its	l bala	Damanda
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	81.66	3667	MHz	
2	Reference Temperature	τ _o	+62	+ 72	°C	
3	Overtone Order	+	5			
4	Load Capacitance	CL	×		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ.t</u>	- 10	+ 10	10-6	At T _o °C
7	Resonance Resistance	R _r	*	45	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u>	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	-20	+ 80	°C	
11	Frequency variation with Drive Level	∆ f f	Not app	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L ₁	8.0	+	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 = 8166kHz to f _r + 8166kHz
18	Ageing	Δ <u>f</u>	-3.0	+ 3.0	10-6	10 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characterístics	Symbol	Lim	its	Unit	Remarks
3 % (3)	Ondi dototi stics	Gy iribOi	Min.	Max.	Viiit	nemarks
1	Resonance Frequency	fr	121.714286		MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	•	٤	}		
4	Load Capacitance	CL	۵	>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆f	- 10	+10	10-6	At To °C
7	Resonance Resistance	R _r	- 4	50	Ω	At To *C
8	Frequency Variation with Temperature over Top	- <u>Δ f</u> f	-8.0	+8.0	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	<u> </u>	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not apı	olicable	%	
13	Motional Inductance	L ₁	Not ap	olicable	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	*	3.5	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 _r - 500kHz to f _r + 500kHz
18	Ageing	<u>∆ 1</u> f	- 1.0	+1.0	10-6	Over 5 years after Burn-in
19	Terminal Length	L	Figu	ire 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		***********	<u> </u>			
No.	Characterístics	Lim		iits	¥ f	
INO.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	116.47	71429	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order		£	•		
4	Load Capacitance	C _L	Ö	3	ρF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R,		50	Ω_{-}	At To °C
8	Frequency Variation with Temperature over Top	<u>∆f</u> f	- 8.0	+8.0	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	ΔR R	- 20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	- 50	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆</u> †	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	$\frac{\Delta R}{R}$	Not ap	olicable	%	
13	Motional Inductance	L ₁	Not ap	olicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	. •	3.5	ρF	
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, -500kHz to f, +500kHz
18	Ageing	Δ <u>f</u>	- 1.0	+1.0	10-6	Over 5 years after Burn-in
19	Terminal Length	L	Figu	ire 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Limi	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _L	4.194304		MHz	
2	Reference Temperature	то	+6	i0	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	CL	22	2	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	RL		75	Ω	Over Top
8	Frequency Variation with Temperature over Top	41	-15	+ 15	10~6	From frequency measured at +25 °C
9	Resistance Variation with Temperature over Top	AB R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not app	olicable	%	
13	Motional Inductance	L ₁	25	-	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF.	
15	Static Capacitance	C ₀	~	5.0	pF	
16	Q Factor	Q	1 000 000	*	*	
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 - 420kHz to f _L + 420kHz
18	Ageing	<u>∆f</u>	-3.0	+3.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	ıre 2	mm	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

NI.	Chanatadatian	Cumbai	Lim	its	Unit	Remarks
No.	Characteristics	Symbol	Min.	Max.	Viiii	nemarks
1	Resonance Frequency	f _L	16	16.0		
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	•	Fundar	nental		
4	Load Capacitance	C _L	3()	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	RL	-	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	- 15	+15	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	AR R	-20 or 1.0	+20 or 1.0	% Ω	From resistance measured at T _G °C
10	Operating Temperature Range	Тор	- 30	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆ f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	Not ap	olicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	65 000	*	-	
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	Δ <u>f</u>	-1.0	+1.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	ire 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	0	Lìn	rits	£ 5 ?s	<u> </u>
No.	Unaracteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _L	10	1.0	MHz	
2	Reference Temperature	То	+ 27	+ 33	°C	
3	Overtone Order	-	Funda	mental		
4	Load Capacitance	C _L	25	35	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	RL	*	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> 1	- 15	+ 15	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>≙</u>	Not applicable		%	
10	Operating Temperature Range	Тор	- 30	+70	*C	
11	Frequency variation with Drive Level	<u>Af</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R 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	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	Not applicable			
18	Ageing	<u>∆1</u> f	-1.0	+1.0	10-6	Per year after Burn-in
19	Terminal Length	L	Fig	ure 2	mm	



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	***	Q	Lim	its	\$ \$?x	m
No.	Characterístics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fL	25.0		MHz	
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order	~	Fundar	nental		
4	Load Capacitance	CL	3()	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>†</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	RL		10	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 over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-30	+80	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	2.7	-	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	-	5.0	pF	
16	Q Factor	Q	40 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or	R _p /R or	4:1	~		In the frequency range: f _L = 50kHz to f _L + 50kHz
	Response Impedance to Resonance Resistance	IZ _p I/R	5:1	*		Overtones 3 and 5
18	Ageing	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	1 year after Burn-in at To
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application		X	(O		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	Chanadadada	C	Lin	nits	Únit	Damada
No.	Characteristics	Symbol	Min.	Max.	UIII	Remarks
1	Resonance Frequency	f _L	90.0		MHz	
2	Reference Temperature	Τ _o	+ 23	+ 27	°C	
3	Overtone Order	~	(3		
4	Load Capacitance	CL	11.9	12.1	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 5.0	+5.0	10-6	At To *C
7	Resonance Resistance	RL	-	20	Ω	At To °C
8	Frequency Variation	<u>Δ</u> <u>f</u>	-5.0	+ 5.0	10-6	At $T_{op} = -20 \text{ to } +70 ^{\circ}\text{C}$
	with Temperature over Top	*	- 10	+ 10	•	At T _{op} = -20 to +85 °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 85	°C	
11	Frequency variation with Drive Level	Δ f f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>AR</u> R	Not ap	plicable	%	
13	Motional Inductance	L ₁	~	-	mH	
14	Motional Capacitance	C ₁	1.7		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	3.16:1	~		In the frequency range: f _L - 100kHz to f _L + 100kHz
18	Ageing	<u>∆_f</u>	-6.0	+6.0	10-6	Over 20 years at rated drive level
19	Terminal Length	L.	Fig	ure 2	mm	
20	Intended Application		~			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics		Lin	nits	l lais	Domado
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	83.36	6142	MHz	
2	Reference Temperature	T _o	+ 62	+ 72	°C	
3	Overtone Order	*	7	3		
4	Load Capacitance	GL		×	pF	
5	Rated Drive Level	Po	0	,1	mW	
6	Frequency Adjustment Tolerance	Δ <u>†</u>	- 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	Ơ f	Not ap	plicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Top	- 20	+80	°C	
11	Frequency variation with Drive Level	Δ f f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	oplicable	fF	
15	Static Capacitance	C _o	~	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>14</u>	-3.0	+ 3.0	10-6	10 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Fig	ure 2	mm	
20	Intended Application			*		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lin	nits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	70.97	′5328	MHz	
2	Reference Temperature	τ _o	+ 20	+ 30	*C	
3	Overtone Order			3		
4	Load Capacitance	CL	C C	ø.	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 T _{op}	<u>∆</u>	0 -9.0 -9.0	+9.0 +9.0 0	10-6	From T - 25 to + 10 °C From T + 10 to + 50 °C From T + 50 to + 70 °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at T _a °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>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	6.5	~	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	A _p /R or IZ _p I/R	2:1	*		In the frequency range: f _r = 7100kHz to f _r + 7100kHz
18	Ageing	<u>∆1</u>	-3.0	+3.0	10-6	12 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Figi	ure 2	mm	
20	Intended Application			~		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Limits		nits	3.3 (4.	Remarks
No.	Unaracteristics	Symbol	Min.	Max.	Unit	Hemarks
1	Resonance Frequency	f _r	79.9	79.93306		
2	Reference Temperature	То	+ 60	+ 70	°C	
3	Overtone Order	-	(}		
4	Load Capacitance	CL	ò	٥	ρF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <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	$\frac{\Delta f}{f}$	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	- 20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+ 80	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	Lı	2.0	-	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
15	Static Capacitance	C _o	*	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 - 8000kHz to f _r + 8000kHz
18	Ageing	Δ <u>f</u>	- 3.0	+3.0	10-6	12 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Fig	ure 2	mm	
20	Intended Application			~		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits		•		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	79.94	1257	MHz	
2	Reference Temperature	To	+60	+ 70	°C	
3	Overtone Order	~	3	}		
4	Load Capacitance	CL		٥	рF	
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	FR _r	~	40	Ω	At T _o °C
8	Frequency Variation with Temperature over Top	∆f f	Not ap	plicable	10-6	
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	- 20	+ 80	°C	
11	Frequency variation with Drive Level	<u>Δ.1</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
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 - 8000kHz to f _r + 8000kHz
18	Ageing	<u>∆</u>	-3.0	+3.0	10-6	12 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Fig	ure 2	mm	
20	Intended Application			*		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.,	Characteristics		Lin	nits	3 4 40	
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f.	9	.2	MHz	-
2	Reference Temperature	То	+27	+ 33	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	25	35	pF	
5	Rated Drive Level	Po	O	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R _L	*	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	1 <u>A</u>	- 15	+ 15	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-20 or -2.0	+20 or +2.0	% Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 30	+70	°C	
11	Frequency variation with Drive Level	<u>A</u> !	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	pplicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	oplicable	fF.	
15	Static Capacitance	Co	*	7.0	pF	
16	Q Factor	a	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	Not applicable			
18	Ageing	<u>Δ</u> !	-1.0	+1.0	10-6	Per year after Burn-in
19	Terminal Length	L	Fig	ure 2	mm	
20	Intended Application			X0		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

* *	A.		Limits			
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f.	24.	0	MHz	
2	Reference Temperature	To	+ 25	+ 29	*C	
3	Overtone Order	~	Fundan	nental		
4	Load Capacitance	CL	30)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	- 10	+ 10	10~6	At To °C
7	Resonance Resistance	RL	~	120	Ω	At To *C
8	Frequency Variation with Temperature over Top	<u>4</u>	- 40	+40	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	+ 20 or 2.0	+20 or +2.0	%	From resistance measured at T _o °C If R≤10Ω
10	Operating Temperature Range	Тор	- 55	+ 100	°C	
11	Frequency variation with Drive Level	Δ f	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not app	olicable	· · · · · % ·	
13	Motional Inductance	L ₁	Not app	olicable	mH	
14	Motional Capacitance	C ₁	Not app	olicable	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	* 1.		In the frequency range: f _L - 200kHz to f _L + 200kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application			•		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

N 5	Obasasis		Limits			
No.	Characteristics	Symbol	Mín.	Max.	Unit	Remarks
1	Resonance Frequency	f,	76.8	315	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	***	3			
4	Load Capacitance	CL	· · · · · · · · · · · · · · · · · · ·		pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> <u>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	<u>Δ f</u>	- 10	+ 10	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	+20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 25	+80	°C	
11	Frequency variation with Drive Level	∆ f f	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not app	olicable	%	
13	Motional Inductance	L ₁	Not app	olicable	mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF.	
15	Static Capacitance	Co		3.5	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 _r = 5000kHz to f _r + 5000kHz
18	Ageing	∆ f f	-2.0	+ 2.0	24 2 10 7.6 -	Over 5 years after Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application			•		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

8 . 3		Limits				**
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _L	20	.0	MHz	
2	Reference Temperature	To	+24	+ 26	°C	
3	Overtone Order	*	Fundai	mental		
4	Load Capacitance	CL	3	0	ρF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δf</u>	-20	+20	10-6	At To °C
7	Resonance Resistance	RL	* * * * * * * * * * * * * * * * * * * *	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-50	+50	10-6	From frequency measured at T _o *C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	Not applicable		%	
10	Operating Temperature Range	Тор	-30	+ 80	°C	
11	Frequency variation with Drive Level	∆f f	Not applicable		10-6	
12	Resistance variation with Drive Level	<u>∆ R</u> R	Not app	olicable	%	
13	Motional Inductance	L ₁	Not ap	olicable	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	~	4.5	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	Δ <u>f</u>	-3.0	+3.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application			• : : : : :		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lin	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	ft.	20	.0	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	~ . :'	Funda	mental		
4	Load Capacitance	C _L	29.7	30.3	pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	- 50	+50	10-6	At To °C
7	Resonance Resistance	RL		20	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δt	- 50	+50	10-6	From frequency measured at To *C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	Not applicable		%	
10	Operating Temperature Range	Тор	- 55	+ 105	°C	
11	Frequency variation with Drive Level	<u>∆f</u>	Not applicable		:::10~6:	
12	Resistance variation with Drive Level	∆B R	Not ap	plicable	%	
13	Motional Inductance	Li	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	Co	~	7.0	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 l/R	7:1			In the frequency range: f _L = 500kHz to f _L + 500kHz
18	Ageing	∆f f	- 15	+ 15	10-6	After Burn-in over 5 years
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application			~		



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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		*********	***************************************	***************************************		
* (~	Limits				
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	40.	960	MHz	
2	Reference Temperature	То	+ 20	+ 30	°C.	
3	Overtone Order	: **	(3		
4	Load Capacitance	CL	۵		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>∆</u> f f	0 9.0 9.0	+9.0 +9.0 0	10-6	From T -25 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	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	- 25	+ 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} = 0.01mW to P _{S2} = 0.1mW
13	Motional Inductance	L ₁	5.0	-	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	4:1	*** **********************************		In the frequency range: f _r - 4000kHz to f _r + 4000kHz
18	Ageing	Δ <u>f</u>	- 10	+10	10-6	10 years after Burn-in
19	Terminal Length	L.	Figu	ıre 2	mm	
20	Intended Application	1		**************************************	+	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	Abana da		Lim	its	£ £ (4	Photography
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	70.96	5082	MHz	
2	Reference Temperature	То	+20	+ 30	°C	
3	Overtone Order	*	3			
4	Load Capacitance	CL	Q	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>A.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	Δ <u>f</u> :	0 9.0 9.0	+9.0 +9.0 0	10-6	From T - 25 to + 10 °C From T + 10 to +50 °C From T + 50 to +70 °C
9	Resistance Variation with Temperature over Top	윾	-20	+ 20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тар	- 25	+ 70	°C	v
11	Frequency variation with Drive Level	Δ <u>f</u> f	Not applicable		10-6	
12	Resistance variation with Drive Level	<u>A</u> R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	4.5		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF	
15	Static Capacitance	C _o	~	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 - 7000kHz to f _r + 7000kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	10 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application			*		

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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	79.93	7158	MHz	
2	Reference Temperature	To	+ 60	+70	*C	
3	Overtone Order			3		
4	Load Capacitance	C _L		• 4	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 To °C
8	Frequency Variation with Temperature over Top	Δt	Not ap	plicable	10-6	
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-20	+ 20	%	From resistance measured at To °C
10	Operating Temperature Range	Top	- 20	+ 80	*C	
11	Frequency variation with Drive Level	<u>4</u>	Not applicable		10-6	Na diameter di la constanti di
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	- % -	
13	Motional Inductance	L ₁	2.0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	fF -	
15	Static Capacitance	C _o		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 - 7993kHz to f _r + 7993kHz
18	Ageing	γ Δ.f	-3.0	+3.0	10-6	12 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L	Figu	ure 2	mm	
20	Intended Application			~	1 1	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

* i ~	Characteristics		Lim	iits		Remarks
No.	Characteristics	Symbol	Mín.	Max.	Unit	
1	Resonance Frequency	fr	79.74	5355	MHz	
2	Reference Temperature	To	+60	+ 70	°C	
3	Overtone Order	~ .	3	.		
4	Load Capacitance	C _L	٥		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> <u>†</u>	- 10	+10	10-6	At To °C
7	Resonance Resistance	R,	•	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
9	Resistance Variation with Temperature over Top	∆R R	-20	+ 20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	-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 app	olicable	· · · · · · · · · · · · · · · · · · ·	
13	Motional Inductance	Lı	2.0		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 I/R	2:1	* 1		In the frequency range: f _r - 7994kHz to f _r + 7994kHz
18	Ageing	<u>4</u>	-3.0	+3.0	10-6	12 years after Burn-in + Ageing of 500 hours
19	Terminal Length	L.	Figu	re 2	mm	
20	Intended Application					Process to the second

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits				
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	59.35	6136	MHz	
2	Reference Temperature	То	+ 20	+ 30	°C	
3	Overtone Order			.		21 11 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4	Load Capacitance	CL	9	 	pF	
5	Rated Drive Level	Po	0.	1	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	$\frac{\Delta f}{f}$	0 - 9.0 - 9.0	+9,0 +9,0 0	10-6	From T -25 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	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	- 25	+ 70) °C	
11	Frequency variation with Drive Level	Δ 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	olicable	fF	
15	Static Capacitance	C ₀	~	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	4:1			In the frequency range: f _r - 5800kHz to f _r + 5800kHz
18	Ageing	Δ <u>f</u>	- 10	+ 10	10-6	10 years after Burn-in
19	Terminal Length	1 1 1 1 1	Figu	re 2	mm	
20	Intended Application			:	1	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Elle Leil, Sere ratio Stille (v. Elle III dille 18 19 19 19 19 19 19 19 19 19 19 19 19 19					그렇다 그 얼마 얼룩하다 하다.
No.	Characteristics	0	Lim	its		
IVO.	Graracteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	10	18	.0	MHz	
2	Reference Temperature	To	+23	+27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	3	J	ρF	
5	Rated Drive Level	Po	0.	i	mW	
6	Frequency Adjustment Tolerance	<u>Δ</u> 1	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	*	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	-25	+25	10-6	From frequency measured at T _o °C
9	Resistance Variation with Temperature over Top	∆R R ₀	Not applicable		%	
10	Operating Temperature Range	Тор	- 5 5	+ 100	°C	
11	Frequency variation with Drive Level	<u>∆</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not app	olicable	%	
13	Motional Inductance	L-1	Not app	olicable	mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF .	
15	Static Capacitance	Co	::: ₩:::	7.0	pF	
16	Q Factor	Q	90 000		~	
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 - 500kHz to f _L + 500kHz
18	Ageing	Δ <u>f</u>	-5.0	+5.0	10-6	Per year after Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application			•		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits			,	
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	81.57	6923	MHz	
2	Reference Temperature	To	+ 62	+ 72	*C	
3	Overtone Order	11 2 1	3			
4	Load Capacitance	CL	Œ	>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> <u>f</u>	- 10	+10	10-6	At To *C
7	Resonance Resistance	R,	-	40	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	-20	+20	; % ,	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 80	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not app	Not applicable		
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not apı	plicable	% '	
13	Motional Inductance	L ₁	2.0	, <u>.</u>	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	Δ <u>'</u> f'	-3.0	; ···· + 3.0	10-6	10 years after 500 hours Burn-in
19	Terminal Length	L	Figu	ıre 2	mm	
20	Intended Application		00	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	1 3 m 14	The manufacture of the state of
140.	Orial acteristics	Syllibol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	86.02	4590	MHz	
2	Reference Temperature	To	+ 20	+ 30	°C	
3	Overtone Order	-	3			
4	Load Capacitance	C _L	×	3	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>A</u> !	- 10	+10	10-6	At To °C
7	Resonance Resistance	Rr	•	40	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 + 80 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+20 (164, 31) (2	%	From resistance measured at T _o °C
10	Operating Temperature Range	Top	-20	+ 80	* ° C	
11	Frequency variation with Drive Level	Δ <u>1</u> f	Not applicable		10-6	
12	Resistance variation with Drive Level	<u>AR</u> R	Not app	olicable	* % * * * ; * * *	
13	Motional Inductance	L ₁	2.0	1	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 I/R	2:1	*		In the frequency range: f _r = 10% to f _r + 10%
18	Ageing	Δ <u>.1</u>	- 5.0	+5.0	10-6	Over 12 years after Burn-in
19	Terminal Length	L.	Figu	re 2	mm	
20	Intended Application		тс	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

* (Lin	iits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	85.98	3607	MHz	
2	Reference Temperature	T _o	+20	+ 30	°C	
3	Overtone Order	<u>:</u>	5			
4	Load Capacitance	CL	٥		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆1</u> f	-10	+10	10-6	At To °C
7	Resonance Resistance	Rr	• •	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	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 +80 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+20	%	From resistance measured at To °C
10	Operating Temperature Range	Тор	-20	+ 80	°C	
11	Frequency variation with Drive Level	<u>Δ f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	$\frac{\Delta R}{R}$	Not ap	olicable	%	
13	Motional Inductance	L ₁	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	olicable	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	2:1			In the frequency range: f _r = 10% to f _r + 10%
18	Ageing	<u>A.f</u>	- 5.0	+5.0	10-6	Over 12 years after Burn-in
19	Terminal Length	L.	Figu	ire 2	mm	
20	Intended Application		тс	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	iits	Unit	Remarks	
IVO.	Criaracteristics	Syllidoi	Min.	Max.	UIIIL	nemarks	
1	Resonance Frequency	f,	79.94	9453	MHz		
2	Reference Temperature	To	+ 60	+70	°C		
3	Overtone Order	S		3			
4	Load Capacitance	CL	٥	o i	pF		
5	Rated Drive Level	Po	0	.1	mW		
6	Frequency Adjustment Tolerance	<u>A</u> f	- 10	+10	10-6	At To °C	
7	Resonance Resistance	R,	· · · · · · · · · · · · · · · · · · ·	40	Ω	At To °C	
8	Frequency Variation with Temperature over Top	Δf f	Not ap	plicable	10-6		
9	Resistance Variation with Temperature over Top	ΔR R	- 20	+20	%	From resistance measured at T _o °C	
10	Operating Temperature Range	Тор	- 20	+80	°C		
11	Frequency variation with Drive Level	<u> </u>	Not ap	plicable	10-6		
12	Resistance variation with Drive Level	∆.R 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	2:1			In the frequency range: f _r = 10% to f _r + 10%	
18	Ageing	Δ <u>f</u>	-3.0	3.0 ° + 3.0	10-6	Over 12 years after 500 hours Burn-in	
19	Terminal Length	L	Figu	ıre 2	mm		
20	Intended Application		00	OXO		S. S. ta vanit, in	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits		its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	*** f , ***	79.95	7650	MHz	
2	Reference Temperature	To	+ 60	+ 70	°C	
3	Overtone Order	Ť.	3			
4	Load Capacitance	CL	۵	5	pF	
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	∆ f f	Not ap	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+ 80	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ſF	
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	2 <u>2 1</u> 2 2 2	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Terminal Length	L	Figi	ure 2	mm	
20	Intended Application		00	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	William and the state of the st	Oymoo.	Min.	Max.		***************************************
1	Resonance Frequency	f _r	70.97	0205	MHz	
2	Reference Temperature	To	+20	+ 30	°C	
3	Overtone Order	~	3			
4	Load Capacitance	C _L	¢.		рF	
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	Rr		40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	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 +80 °C
9	Resistance Variation with Temperature over Top	<u>∆</u>	-20	+20	%	From resistance measured at T _o *C
10	Operating Temperature Range	Тор	-25	+70	°C	
11	Frequency variation with Drive Level	Δ f	Not app	olicable	10-6	
12	Resistance variation with Drive Level	≙ R R	Not app	olicable	3/0	
13	Motional Inductance	L-1	4.5	: • • • • • • • • • • • • • • • • • • •	mH	
14	Motional Capacitance	C ₁	Not ap	olicable	fF	
15	Static Capacitance	Co	*	5.0	pF	
16	Q Factor	Q	7 0 00 0	*	.	
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	Δ <u>f</u>	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application		тс	XO	: :	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	No.	Limits		116		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _L	101.93	6620	MHz	
2	Reference Temperature	То	+23	+ 27	°C	
3	Overtone Order		5			
4	Load Capacitance	CL	11.9	12.1	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10~4	At To °C
7	Resonance Resistance	RL	*	70	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-5.0 -10	+5.0 +10	10~4	From T = 20°C to +70°C From T = 20°C to +80°C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Top	-20	+ 80	°C	
11	Frequency variation with Drive Level	Δ f	Not applicable		10-4	
12	Resistance variation with Drive Level	ΔR R	Not app	olicable	%	
13	Motional Inductance	L ₁	Not app	olicable	mH	
14	Motional Capacitance	C ₁	0.37		fF	
15	Static Capacitance	C _o	*	5.0	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	2.5:1			In the frequency range: f _L = 100kHz to f _L + 100kHz
18	Ageing	<u>∆ f</u>	6.0	+6.0	10-4	Over 5 years
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application		Vo	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

8. 3	<u> </u>	Limits) ("	
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fL.	75	75.0		
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	~	9			
4	Load Capacitance	C _L	11.9	12.1	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-2.0	+2.0	10-4	At To °C
7	Resonance Resistance	RL	~	25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆f</u>	-5.0 -10	+5.0 +10	10-4	From T = 20°C to + 70°C From T = 20°C to + 80°C
9	Resistance Variation with Temperature over Top	∆B R	Not applicable		%	
10	Operating Temperature Range	Тор	- 20	+ 80	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-4	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L ₁	Not ap	plicable	mH	
14	Motional Capacitance	C ₁	1.7	*	fF.	
15	Static Capacitance	C _o	-	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	*		In the frequency range: f _L = 100kHz to f _L + 100kHz
18	Ageing	Δ <u>.</u> 1	-6.0	+6.0	10~4-	Over 5 years
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application		VC	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Limits		its	Unit	
NO.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f_ i	80	.0	MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	· • • • • • • • • • • • • • • • • • • •	3			
4	Load Capacitance	C _L	11.9	12.1	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> 1 f	-2.0	+2.0	10-4	At To °C
7	Resonance Resistance	RL	#	25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-5.0 -10	+5.0 +10	10~4	From T – 20°C to + 70°C From T – 20°C to + 80°C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	- 20	+80	°C	
11	Frequency variation with Drive Level	Δf	Not apı	olicable	10-4	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	Lı	Not ap	olicable	mH	
14	Motional Capacitance	C ₁	1.7	~	i 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	*		In the frequency range: f _L = 100kHz to f _L + 100kHz
18	Ageing	<u>∆.f</u>	-6.0	+ 6.0	10~4	Over 5 years
19	Terminal Length	L	Figu	ıre 2	mm	
20	Intended Application		VC	XO	1.	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		IYE	PE VARIAN	Γ NO. 88		
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f _r	74.62	6318	MHz	
2	Reference Temperature	То	+20	+30	°C	
3	Overtone Order	* * * * * * * * * * * * * * * * * * *	3			
4	Load Capacitance	CL	×) 1911 - 11 1911	рF	
5	Rated Drive Level	Po	O.	i i	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> <u>f</u>	- 10	+ 10	10-6	At To °C
7	Resonance Resistance	R,		40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> <u>f</u>	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 + 80 °C
9	Resistance Variation with Temperature over Top	∆R R n	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+ 80	°C	
11	Frequency variation with Drive Level	<u> 14</u>	Not app	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not app	olicable	%	
13	Motional Inductance	L ₁	2.0	*	mH	
14	Motional Capacitance	C ₁	Not app	olicable	ſF	
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	Δ <u>.</u> <u>f</u>	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application		тс	XO OX	= ,	

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim	its	Unit	Remarks
140.	Orial actoristics	Symbol	Min.	Max.	Oint	nemars
1	Resonance Frequency	f _r	64.79	1785	MHz	
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	*	3			
4	Load Capacitance	CL	٥		pF	
5	Rated Drive Level	P _o	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	- 10	+10	10-6	At To °C
7	Resonance Resistance	Rr	· 🚅 🖰	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	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 +80 °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+ 80	°C	i susemble symmetric
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	olicable	%	
13	Motional Inductance	Lı	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	olicable	² fF	
15	Static Capacitance	Co	~	5.0	pF	
16	Q Factor	Q	70 0 00	~		
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.</u> t	- 3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application		и то	XO - F		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

4.1			Limits			
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	64.99	0091	MHz	
2	Reference Temperature	To	+20	+ 30	°C	
3	Overtone Order	. ₹ ‡	3			
4	Load Capacitance	C _L	œ		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <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	$\frac{\Delta f}{f}$	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 +80 °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+80		
11	Frequency variation with Drive Level	Δ <u>f</u> (Not applicable		10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not app	licable	** ** %	
13	Motional Inductance	L-1	2.0		mH	
14	Motional Capacitance	C ₁	Not app	licable	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	<u>Δ</u> 1 f	-3.0	+3.0	10-6	Over 12 years after 500 hours Burn-in
19	Terminal Length	L.	Figui	re 2	mm	
20	Intended Application		TC)	KO .		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	O		Limits		l lait	
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	64.99	5773	MHz	
2	Reference Temperature	То	+ 20	+30	*C	
3	Overtone Order	*	3			
4	Load Capacitance	CL	×		ρF	
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 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 +80 °C
9	Resistance Variation with Temperature over Top	AR R	- 20	+20	%	From resistance measured at T ₀ °C
10	Operating Temperature Range	Тор	- 20	+80	°C	
11	Frequency variation with Drive Level	∆ f l	Not applicable		10 76	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not app	olicable	%	
13	Motional Inductance	Li	2.0	* * * * * * * * * * * * * * * * * * * *	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	∆ f	-3.0	+ 3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	ire 2	mm	
20	Intended Application		тс	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.,	Charles and address	Limits		* **a		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	1,	74.67	7455	MHz	
2	Reference Temperature	То	+ 20	+ 30	°C	
3	Overtone Order	* **	3			
4	Load Capacitance	CL		N	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>∆ 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 +80 °C
9	Resistance Variation with Temperature over Top	<u>Δ</u> R R	-20	+20	%	From resistance measured at T _o *C
10	Operating Temperature Range	Тор	- 20	+80	*C	
11	Frequency variation with Drive Level	Δ f f	Not ap	plicable	10 76	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L ₁	2.0		mH	
14	Motional Capacitance	C ₁	Not ap	plicable	ifF :	
15	Static Capacitance	C _o	•	5.0	pF	
16	Q Factor	a	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	Δf t	- 3.0	+3.0	10~6	12 years after 500 hour Burn-in
19	Terminal Length	L	Figi	ure 2	mm	
20	Intended Application		TC	CXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

8 .1	Managaniakan	0	Lim	its	5 t	Domarko
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	66.63	8308	MHz	
2	Reference Temperature	To	+ 20	+30	°C	·····································
3	Overtone Order	<u>.</u>	S			
4	Load Capacitance	CL	o	2	ρF	
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	<u>∆_f</u> †	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 +80 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+80	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	% .	
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	R _p /R or IZ _p I/R	2:1	* * *		In the frequency range: f _r - 10% to f _r + 10%
18	Ageing	Δ f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figi	ure 2	mm	
20	Intended Application		TO	XO		1

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

.	/Na	0	Lim	its	1 d	73
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	ţ,	66.62	8692	MHz	
2	Reference Temperature	То	+20	+ 30	°C	
3	Overtone Order		3			
4	Load Capacitance	C _L	α	>	pF	
5	Rated Drive Level	Po	0.	1, 3	mW	
6	Frequency Adjustment Tolerance	<u>∆</u> 1	- 10	+10	10-6	At T _Ω °C
7	Resonance Resistance	R _f	• • • • • • • • • • • • • • • • • • •	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 +80 °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20	+20	%	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	- 20	+ 80	* °C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	olicable	%	
13	Motional Inductance	Lı	6.5	~	mH	
14	Motional Capacitance	C ₁	Not ap	plicable	iff :	
15	Static Capacitance	C _o		5.0	pF	
16	Q Factor	Q	90 000	*	*	
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	Δ f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	ıre 2	mm	
20	Intended Application		т	XO .		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	fr	60.09	1346	MHz	
2	Reference Temperature	To	+20	+30	°C	
3	Overtone Order	*	3			
4	Load Capacitance	CL	×	>	ρF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ t</u>	-10	+ 10	10-6	At To °C Factor
7	Resonance Resistance	R _r		40	Ω	At To *C
8	Frequency Variation with Temperature over Top	Δt	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 +80 °C
9	Resistance Variation with Temperature over Top	<u>AR</u> R °°	-2.0	+2.0	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 80	- 1	
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	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	R _p /R or	3:1			In the frequency range: $f_r = 10\%$ to $f_r + 10\%$
	Response Impedance to Resonance Resistance	IZ _p I/R				
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figu	re 2	mm	
20	Intended Application		тс	XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Sumbal	Lim	its	Unit	Remarks
IVO.	Characteristics	Symbol	Min.	Max.	Offic	ng garanaks panyag
1	Resonance Frequency	f,	60.08	6538	MHz	
2	Reference Temperature	To	+ 20	+30	°C	
3	Overtone Order	a ya karana k				
4	Load Capacitance	CL	٥		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>A.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>A</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 +80 °C
9	Resistance Variation with Temperature over Top	AR R	-2.0	+ 2.0	Ω	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 $P_{S1} = 0.01$ mW to $P_{S2} = 0.1$ mW
12	Resistance variation with Drive Level	AR 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	* 1 .	*	
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 <u>f</u>	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Fig	ure 2	mm	
20	Intended Application		Т(XO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	AL	O	Limits		l luis	manada
NO.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	i f _r	37.08	3333	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	<u>Δ</u> 1	- 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</u> <u>f</u>	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 +80 °C
9	Resistance Variation with Temperature over Top	ΔR R	- 2.0	+2.0 12 12 12 12 12 12 12 12	Ω	From resistance measured at T _o °C
10	Operating Temperature Range	Тор	-20	+ 80	e e °C	
11	Frequency variation with Drive Level	<u>Δ f</u> (- 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 $P_{S1} = 0.01$ mW to $P_{S2} = 0.1$ mW
13	Motional Inductance	Li	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	~	. ¹⁸ 1	
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	$\frac{\Delta f}{f}$	-5.0	+5.0	10-6	12 years after Burn-in
19	Terminal Length	L	Figi	ure 2	mm	
20	Intended Application		Т	OXO		

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Limits		\$ \$	<u></u>
			Min.	Max.	Unit	Remarks
1	Resonance Frequency	f,	66.612423		MHz	
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	<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	$\frac{\Delta f}{f}$	0 - 9.0 - 9.0	+9.0 +9.0 0	10-6	From T -25 to +10 °C From T +10 to +50 °C From T +50 to +70 °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R	-20 0 -2.0	+20 r +2.0	% Ω	From resistance measured at To °C
10	Operating Temperature Range	Тор	- 25	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆ f</u>	Not app	olicable	10-6	
12	Resistance variation with Drive Level	<u>∆ B</u> R	Not applicable			
13	Motional Inductance	L-1	6.5		mH	
14	Motional Capacitance	C ₁	Not app	olicable	fF :	
15	Static Capacitance	Co	*	5.0	ρF	
16	Q Factor	Q	90 000	*	*	
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	12 years after 500 hours Burn-in
19	Terminal Length	L	Figure 2		mm	
20	Intended Application		тсхо			

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TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics		Limits			
		Symbol -	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f _r	79.924863		MHz	
2	Reference Temperature	То	+60	+ 70	°C	
3	Overtone Order		3			
4	Load Capacitance	CL	Ó		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	i R _r		40		At To °C
8	Frequency Variation with Temperature over Top	Δf f	Not applicable		10-6	
9	Resistance Variation with Temperature over Top	<u>Δ R</u> 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	$\frac{\Delta f}{f}$	Not applicable		.: 10-5	
12	Resistance variation with Drive Level	<u>Δ R</u> R	Not applicable		*%*******	
13	Motional Inductance	L ₁	2.0	: . <u>.</u> . : : :	mH	
14	Motional Capacitance	C ₁	Not applicable		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	Δ f	-3.0	+3.0	10-6	12 years after 500 hours Burn-in
19	Terminal Length	L	Figure 2		mm	
20	Intended Application		осхо			



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APPENDIX 'A'

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AGREED DEVIATIONS FOR RAKON (F)

ITEMS AFFECTED	DESCRIPTION OF DEVIATION				
Para. 4.2.2	Para. 9.3, Shock: Shall not be performed.				
Para. 4.2.3	Para. 9.11, Radiographic Inspection: Shall not be performed.				



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APPENDIX 'B'

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AGREED DEVIATIONS FOR KVG Quartz Crystal Technology GmbH (D)

ITEMS AFFECTED	DESCRIPTION OF DEVIATION
Para. 4.2.2 Para. 4.2.3 Para. 4.2.4 Para. 4.2.5	Para. 9.5.1, Seal Test Fine Leak: The crystal units shall be subjected to MIL-STD-202, Method 112, Procedure Illa.