

Pages 1 to 123

# CRYSTAL UNITS IN METAL HOLDER, BASED ON TYPE T1507, FREQUENCY RANGE 2.5 - 50MHZ

ESCC Detail Specification No. 3501/002

ISSUE 5 November 2010





PAGE

ISSUE 5

#### LEGAL DISCLAIMER AND COPYRIGHT

European Space Agency, Copyright © 2010. All rights reserved.

The European Space Agency disclaims any liability or responsibility, to any person or entity, with respect to any loss or damage caused, or allleged to be caused, directly or indirectly by the use and application of this ESCC publication.

This publication, without the prior permission of the European Space Agency and provided that it is not used for a commercial purpose, may be:

- copied in whole in any medium without alteration or modification.
- copied in part, in any medium, provided that the ESCC document identification, comprising the ESCC symbol, document number and document issue, is removed.



PAGE 2

ISSUE 5

# **DOCUMENTATION CHANGE NOTICE**

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

DCR No.	CHANGE DESCRIPTION
582	Specification upissued to incorporate technical changes per DCR.



PAGE 3

ISSUE 5

# TABLE OF CONTENTS

		<u>Page</u>
1.	GENERAL	5
1.1	Scope	5
1.2	Type Variants	5
1.3	Maximum Ratings	5
1.4	Physical Dimensions	5
1.5	Functional Diagram	5
1.00	The safeth some manage were	~
2.	APPLICABLE DOCUMENTS	13
3.	TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS	13
4.	REQUIREMENTS	13
4.1	General	13
4.2	Deviations from Generic Specification	13
4.2.1	Deviations from Special In-process Controls	13
4.2.2	Deviations from Final Production Tests	13
4.2.3	Deviations from Burn-in Tests	13
4.2.4	Deviations from Qualification Tests	13
4.2.5	Deviations from Lot Acceptance Tests	13
4.3	Mechanical Requirements	14
4.3.1	Dimension Check	14
4.3.2	Weight	14
4.3.3	Robustness of Terminations	14
4.4 4.4.1	Materials and Finishes	14
4.4.1	Case Lead Material and Finish	14 14
4.4.2	Marking	14
4.5.1	General	14
4.5.2	The ESCC Component Number	15
4.5.3	Characteristics	15
4.5.4	Traceability Information	15
4.5.5	Manufacturer's Name, Symbol and Code	15
4.6	Electrical Measurements	15
4.6.1	Electrical Measurements at Reference Temperature	15
4.6.2	Electrical Measurements at High and Low Temperatures	15
4.6.3	Circuits for Electrical Measurements	15
4.7	Burn-in Tests	15
4.7.1	Parameter Drift Values	15
4.7.2	Conditions for Burn-in	15
4.7.3	Electrical Circuits for Burn-in	15
4.8	Environmental and Endurance Tests	18
4.8.1	Measurements and Inspections on Completion of Environmental Tests	18
4.8.2	Measurements and Inspections at Intermediate Points and on Completion of Endurance Tests	18
4.8.3	Conditions for Operating Life Test	18



PAGE 4 ISSUE 5

		<u>Page</u>
TABL	<u>es</u>	
1(a)	Type Variant Summary	6
	Type Variant Detailed Information	22
1(b)	Maximum Ratings	8
1(c)	Format for Individual Tables 1(a)	9
2	Electrical Measurements at Reference Temperature	16
3	Electrical Measurements at High and Low Temperatures	17
4	Parameter Drift Values	17
5	Conditions for Burn-in and Life Test	17
6	Measurements and Inspections on Completion of Environmental Tests and at Intermediate Points and on Completion of Endurance Testing	19
FIGUI	RES	
1	Parameter Derating Information	N/A
2	Physical Dimensions	12
3	Functional Diagram	12
4	Circuits for Electrical Measurements	N/A
5	Electrical Circuit for Burn-in and Life Test	N/A
APPE	NDICES (Applicable to specific Manufacturers only)	
Α	RAKON (F)	122
В	KVG Quartz Crystal Technology GmbH (D)	123



PAGE

ISSUE 5

5

#### 1. GENERAL

#### 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 T1507, Frequency Range 2.5 - 50MHz.

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

#### 1.2 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 Executive 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.

PAGE

ISSUE 5

6

# TABLE 1(a) - TYPE VARIANT SUMMARY

Variant	Resonance Frequency (MHz)	Load Capacitance (C <sub>L</sub> pF)	Reference Temp. (T <sub>o</sub> °C)	Operating Temp. Range (T <sub>op</sub> °C)	Lead Finish
01	3.317	19	+ 25	-20 to +60	2
02	2.496 & 2.5344	30	+ 25	-20 to +50	2
03	2.8	20	+ 25	-30 to +60	2
04	2.7 to 5.0	30	+25	-40 to +80	2
05	3.2768	<b>20</b>	+ 25	-20 to +70	2
06	4.095	×:	+ 25	-30 to +60	2
07	5.0	30	+40	-10 to +70	2
08	5.105555	30	+ 25	-55 to +105	2
09	5.333 to 5.334	140	+ 15	-20 to +60	2
10	5.661448	22 to 33	+ 25	-30 to +60	2
11	8.7 to 10.7	00	+ 25	-40 to +80	2
12	10.0	22	+60	-20 to +70	2
13	10.0	50	+ 25	-10 to +80	2
14	10.7	30	+ 25	-55 to +105	2
15	11.0	30	+ 25	-55 to +105	2
16	11.433333	20	+ 25	-20 to +80	2
17	12.8	30	+ 25	-55 to + 105	2
18	14.7456		+25	-20 to +70	2
19	12.0		+25	-20 to +70	2
20	12.288	20 to 50	+60	-30 to +70	2
21	15.0	25	+25	-30 to +80	2
22	4.096	50	+ 25	-20 to +80	2
22	4.096	50	+ 25	-20 to +80	3 or 4
23	19.109567	∞	+ 25	-30 to +60	2
24	6.4	00	+ 25	-20 to +60	2
25	7.0	- 00	+ 25	-20 to +60	2
26	12.0	30	+ 25	-20 to +60	2
27	15.0	20 to 50	+ 25	-20 to +70	2
28	6.4	30	+ 25	-20 to +60	2
29	7.0	30	+ 25	-20 to +60	2
30	12.0	50	+ 40	-20 to +80	2
31	4.608	30	+25	-35 to +70	2
32	10.0	50	+40	-20 to +80	2
33	13.3	30	+ 25	-35 to +70	2
34	3.2768	27 to 33	+27	-20 to +50	2
35	8.0	30	+27	-20 to +50	2
36	6.0	16	+ 25	-20 to +70	2
37	4.608	27 to 33	+25	-25 to +70	2
38	4.608	30	+ 25	-40 to +70	2
39	5.0	27	+25	-40 to +70	2
40	3.2768	20 to 50	+25	-20 to +70	2

PAGE 7

ISSUE 5

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

Variant	Resonance Frequency (MHz)	Load Capacitance (C <sub>L</sub> pF)	Reference Temp. (T <sub>o</sub> °C)	Operating Temp. Range (T <sub>op</sub> °C)	Lead Finish
41	4.096	50	+ 25	-10 to +80	2
42	5.0	30	+ 40	-20 to +80	2
43	5.0	30	+ 40	-10 to +70	2
44	10.0	50	+ 25	-10 to +80	2
45	12.0	×	+ 25	-20 to +70	2
46	12.0	∞	+ 25	-40 to +85	2
47	13.332	50	+ 40	-20 to +80	2
48	5.24288	22	+60	-40 to +85	2
49	3.2	30	+27	-20 to +70	2
50	4.0	30	+25	-40 to +80	2
51	4.194304	30	+30	-10 to +80	2
52	12.25	32	+ 25	-20 to +70	2
53	6.0	30	+25	-40 to +70	2
54	9.66 to 10.65	50	+ 25	-20 to +70	2
55	4.096	50	+ 25	-10 to +80	2
56	4.194304	22	+60	-20 to +70	2
57	5.24288	22	+60	-20 to +70	2
58	8.0	22	+60	-20 to +70	2
59	13.332	50	+ 40	-20 to +80	2
60	4.194304	30	+ 25	-30 to +70	2
61	12.25	32	+ 25	-20 to +70	2
62	4.096	×	+ 25	-30 to +80	2
63	4.194304	90	+ 25	-30 to +80	2
64	5.24288	22	+ 25	-20 to +70	2
65	12.25	32	+ 25	-20 to +70	2
66	5.0	20 to 40	+ 25	-10 to +40	2
67	5.0	30	+27	-20 to +70	2
68	12.0	30	+27	-20 to +70	2
69	11.0	×	+ 25	-20 to +80	2
70	12.0	32	+ 25	-25 to +90	2
71	4.9152	30	+ 25	-20 to +60	2
72	15.0	30	+25	-40 to +85	2
73	7.5	30	+ 25	-20 to +50	2
74	8.194442	30	+ 25	-20 to +50	2
75	10.0	30	+ 25	-40 to +70	2
76	4.0	50	+25	-55 to + 125	2
77	8.388	30	+ 25	-10 to +50	2
78	4.194304	30	+25	-30 to +70	2
79	3.2768	30	+ 25	-30 to +70	2
80	16.0	30	+25	-30 to +70	1 2



PAGE

ISSUE 5

8

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

Variant	Resonance Frequency (MHz)	Load Capacitance (C <sub>L</sub> pF)	Reference Temp. (To °C)	Operating Temp. Range (Top °C)	Lead Finish
81	15.0	30	+ 25	-30 to +70	2
82	4.096	œ	+ 25	-30 to +80	2
83	10.0	30	+ 25	-55 to +100	2
84	18.0	30	+ 25	-10 to +70	2
85	25.0	×	+ 25	-25 to +75	2
86	3.6864	90	+ 25	-25 to +80	2
87	5.24288	22	+60	-20 to +70	2
88	12.0	30	+25	-10 to +80	2
89	3.6864	30	+ 25	-10 to +80	2
90	12.136285	×	+ 25	-30 to +65	2
91	18.0	50	+40	-20 to +80	2
92	8.388608	90 <sub>1,1</sub>	+ 25	-40 to +75	2
93	10.0	30	+ 40	-20 to +90	2
94	6.0	30	+ 25	-45 to +75	2
95	12.5	30	+ 25	-40 to +85	2
96	11.059	50	+ 25	-35 to +70	2
97	7.3728	30	+ 25	-30 to +80	2
98	5.12	30	+ 40	-40 to +80	2
99	10.0	18 to 30	+72	-25 to +80	2

#### NOTES

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

# TABLE 1(b) - MAXIMUM RATINGS

No.	Characteristic	Symbol	Values	Unit	Remarks
1	Nominal Frequency Range	f.	2.5 to 20	MHz	Note 1
2	Drive Level Range	Р	0.01 to 0.2	mW	
3	Operating Temperature Range	Тор	-	°C	Note 2
4	Storage Temperature Range	T <sub>SfQ</sub>	-65 to +125	°C	Note 3
5	Soldering Temperature	T <sub>SOI</sub>	+260	*C	Note 4

********	<u></u>	
1,	Fundamental and Overtone Order	Approx. Frequency Range (MHz)
	Fundamental	2.5 to 20
	3	10 to 30
	5	15 to 50

- 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.



PAGE 9

ISSUE 5

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

			Lir	nits		
No.	Characteristic	Symbol	Min.	Max	Unit	Remarks
1	Resonance Frequency	f, or f <sub>L</sub>			MHz	Note 1
2	Reference Temperature	To			°C	Note 2
3	Overtone Order	•				
4	Load Capacitance	CL			ρF	Note 3
5	Rated Drive Level	Po			mW	Note 4
6	Frequency Adjustment Tolerance	At f			10-6	At T <sub>o</sub> °C Note 5
7	Resonance Resistance	R <sub>r</sub> or R <sub>L</sub>			Ω	At To °C Note 6
8	Frequency Variation with Temperature over T <sub>op</sub>	∆ f f			10 <sup>-9</sup>	From frequency measured at T <sub>o</sub> *C Note 7
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R			%	From resistance measured at T <sub>o</sub> °C Note 7
10	Operating Temperature Range	Тор			°C	
11	Frequency variation with Drive Level	<u> </u>			10-∜	From $P_{S1} = mW$ to $P_{S2} = mW$ Note 8
12	Resistance variation with Drive Level	∆R R			%	$\begin{array}{cccc} From & P_{S1} = & mW \\ to & \\ P_{S2} = & mW \\ Note 8 & \end{array}$
13	Motional Inductance	L <sub>1</sub>			mH	Notes 9 and 10
14	Motional Capacitance	C <sub>1</sub>			ſF	Note 9
15	Static Capacitance	C <sub>o</sub>			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 <sub>p</sub> /R or :Z <sub>p</sub> //R				In the frequency range: f - kHz to f + kHz
18	Ageing	왂			10-6	Note 13
19	Lead Finish	*				
20	Intended Application					Note 15

NOTES: See Pages 10 and 11.



PAGE 10

ISSUE 5

#### **NOTES TO TABLE 1(c)**

- 1. (a) If C<sub>L</sub> is not specified, Symbol and measurement shall be f<sub>r</sub>.
  - (b) If C<sub>L</sub> is specified, Symbol and measurement shall be f<sub>L</sub>.

#### 2. Reference Temperature To

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

#### 3. Load Capacitance CL

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

#### N.B

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

#### Rated Drive Level P<sub>o</sub>

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 ±10 x 10<sup>-6</sup>.
- (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<sub>L</sub> may be calculated by R<sub>L</sub> = R<sub>r</sub> 
$$\left(1 + \frac{C_0}{C_L}\right)^{-2}$$



PAGE 11

ISSUE 5

#### **NOTES TO TABLE 1(c) (Continued)**

#### 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).

#### 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 L<sub>1</sub>

Because the inductance value may be restricted by other chosen parameters, the Manufacturer shall propose the value of L<sub>1</sub> 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. Not applicable Items

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

#### 15. Intended Application

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

PAGE 12

ISSUE 5

#### FIGURE 1 - PARAMETER DEPATING INFORMATION

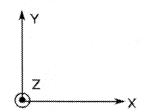
Not applicable.

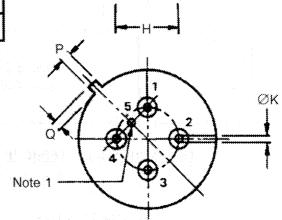
#### FIGURE 2 - PHYSICAL DIMENSIONS

SYMBOL	MILLIM	ETRES	DENA A DAZO
31WBUL	MIN.	MAX.	REMARKS
ØA		15.75	
C		6.80	
Н	6.90	7.40	Pitch 7.16mm
⊘K	0.40	0.48	
	12.70	***	
Р		0.90	Note 2
Q		0.95	Note 2

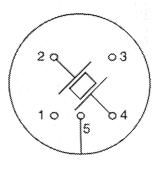
#### **NOTES**

- 1. Lead No. 5 is grounded to case.
- 2. The tag's position or presence is optional.





#### **FIGURE 3 - FUNCTIONAL DIAGRAM**



(BOTTOM VIEW)



PAGE 13

ISSUE 5

#### 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, Load Resonance Frequency = f  $= T_0$ Reference Temperature Resonance Resistance  $= R_r$ Load Resonance Resistance  $= R_1$ Rated Drive Level  $= P_0$ Static Capacitance  $= C_0$ = CL Load Capacitance Motional Capacitance  $= C_1$ Motional Inductance = L, Response Resistance  $= R_p$ Response Impedance  $= |Z_p|$ Insulation Resistance = Ri

#### 4. REQUIREMENTS

#### 4.1 GENERAL

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

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

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

#### 4.2.1 <u>Deviations from Special In-process Controls</u>

None.

#### 4.2.2 Deviations from Final Production Tests (Chart II)

None.

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

None.

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

None.

#### 4.2.5 Deviations from Lot Acceptance Tests (Chart V)

None.



PAGE 14

ISSUE 5

#### 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 Weight

The maximum weight of the crystal units specified herein shall be 3.0 grammes.

#### 4.3.3 Robustness of Terminations

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

#### 4.4 MATERIALS AND FINISHES

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

#### 4.4.1 <u>Case</u>

#### 4.4.1.1 Cap

Copper, nickel plated or nickel and gold plated.

#### 4.4.1.2 Base

Kovar, nickel plated or nickel and gold plated.

#### 4.4.2 Lead Material and Finish

The lead material shall be Type 'D' with either Type '2' or Type '3 or 4' finish in accordance with the requirements of ESCC Basic Specification No. 23500. (See Tables 1(a) for Type Variants).

#### 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.



PAGE 15

ISSUE 5

#### 4.5.2 The ESCC Component Number

Each component shall bear the ESCC Component Number, which shall be constituted and marked as follows:- 350100201B

Detail Specification Number

Type Variant (See Table 1(a))

Testing Level (B or C, as applicable)

#### 4.5.3 Characteristics

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

#### 4.5.4 Traceability Information

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

#### 4.5.5 Manufacturer's Name, Symbol or Code

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

#### 4.6 ELECTRICAL MEASUREMENTS

#### 4.6.1 Electrical Measurements at Reference Temperature

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

#### 4.6.2 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 Electrical Circuits for Burn-in (Figure 5)

Not applicable.

PAGE 16

ISSUE 5

# TABLE 2 - ELECTRICAL MEASUREMENTS AT REFERENCE TEMPERATURE

No.	Characteristics	Symbol	ESCC 3501 Test Method	Limits	Unit
1	Resonance frequency at reference temperature and rated drive level - with C <sub>O</sub> - with C <sub>L</sub>	f <sub>r</sub> (T <sub>o</sub> , P <sub>o</sub> ) f <sub>L</sub> (T <sub>o</sub> , P <sub>o</sub> )	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 <sub>O</sub> - with C <sub>L</sub>	R <sub>r</sub> (T <sub>o</sub> , P <sub>o</sub> ) R <sub>L</sub> (T <sub>o</sub> , P <sub>o</sub> )	Para. 9.2.1.1	Table 1(a), Item 7	Ω
3	Frequency variation with Drive Level	$\frac{\Delta f}{f}$ (T <sub>o</sub> , $\Delta$ P)	Para. 9.2.1.1	Table 1(a), Item 11	10-6
4	Resistance variation with Drive Level	$\frac{\Delta \ R}{R} (T_0, \Delta P)$	Para. 9.2.1.1	Table 1(a), Item 12	%
5	Motional Inductance	L <sub>1</sub>	Para. 9.2.1.3	Table 1(a), Item 13	mH
6	Static Capacitance	Co	Para. 9.2.1.4	Table 1(a), Item 15	pF
7	Unwanted response	R <sub>P</sub> /R or IZ <sub>P</sub> I/R	Para. 9.2.1.5	Table 1(a), Item 17	**************************************
8	Insulation Resistance	Ri	Para. 9.2.1.6	500 Min.	МΩ



PAGE 17

ISSUE 5

# 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	$\frac{\Delta f}{f} (\Delta T, P_0)$	Para. 9.2.1.2	Table 1(a) Item 8	10-6
10	Resistance variation with Temperature over Top	$\frac{\Delta R}{R} (\Delta T, P_0)$	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	<u>4</u> !	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 1. Whichever is the highest value.

#### TABLE 5 - CONDITIONS FOR BURN-IN AND LIFE TEST

No.	Characteristics	Symbol	Condition	Unit
1	Ambient Temperature	T <sub>amb</sub>	+85 ±5	°C

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

Not applicable.



PAGE 18

ISSUE 5

# 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 Measurements and Inspections at Intermediate Points and on Completion of Endurance Tests

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

#### 4.8.3 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.



PAGE 19

ISSUE 5

## 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 AI	ND INSPECTIONS		LIA	MITS	
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)	TEST METHOD AND CONDITIONS	IDENTIFICATION	CONDITIONS	SYMBOL	Min.	Max.	UNIT
01	Electrical Measurements at Reference Temperature	Para. 9.2.4	Electrical Measurements	Table 2		Tabl	e 1(a)	
02	Shock	(10 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 Α Δ1 1 Δ Β Α ΔR		2 Item 1 2 Item 2 +1.0 +10 +1.0	10-5 %
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	1 R Δ1 1 Δ R Β		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 corrosion or obliteration of marking			· •	*
06	External Visual Inspection	Para. 9.9	Final Measurements Visual Inspection	ESCC No. 20500		·		
07	Solderability	Para. 9.13	-			1 1 2		1 -

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



PAGE 20

ISSUE 5

# 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	D INSPECTIONS		LIM	its	
4O.	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	1		? Item 1	
			Resonance Resistance	Table 2 Item 2	R	Table 2	? Item 2	
			Final Measurements	7.11.00		2.		10-6
			Resonance Frequency Drift	Table 2 Item 1	AI	- 2.0	+ 2.0	ານາ
			Resonance Resistance	Table 2 Item 2	ΔR	~10	+ 10	%
			Drift	Taulo E Holli E	₽	or (2)	. 7 10	70
					۵R	-1.0	+1.0	Ω
09	Cold	Para. 9.14.3	Initial Measurements					· · ·
			Resonance Frequency	Table 2 Item 1	•	Para. 9	9.14.1.3	
			Resonance Resistance	Table 2 Item 2	R	Final Mea	surements	
			Final Measurements					
			Resonance Frequency	Table 2 Item 1	AI	- 2.0	+2.0	10
			Drift		f			
			Resonance Resistance	Table 2 Item 2	<u>AB</u>	~10	+10	%
			Drift		R	or (2)		١
	\$ 1.00 No. 20 No. 2	1			ΔR	~ 1.0	+1.0	Ω
10	Damp Heat (Acclerated)	Para. 9.14.4	Initial Measurements	Table & Dam 4		, no.	9.14.3.2	
	Remaining Cycles		Resonance Frequency Resonance Resistance	Table 2 Item 1 Table 2 Item 2	n f	•	a. 14.a.z asurements	
			Final Measurements	raune z nem z	13	1 11 1635 141100	l	
			Resonance Frequency	Table 2 Item 1	<u>L</u>	-2.0	+2.0	10
			Drift				1	
	The second section is a second		Resonance Resistance	Table 2 Item 2	<u> </u>	-10	+10	%
	1. 经制度基本 (A.A.A.)		Drift	도움 얼룩 보다라는	R	or (2)		
	E (A)				ΔR	-1.0	+1.0	Ω
			Insulation Resistance	Table 2 Item 8	Ri	500	•	M
11	Rapid Change of	Para. 9,15	Initial Measurements			<b>†</b>	<b></b>	<b>†</b>
* * .	Temperature	raia. 5,10	Resonance Frequency	Table 2 Item 1	1	para	ı 9.14.4.2	
	remperature		Resonance Resistance		R		asurements	
			Final Measurements	After minimum			1	
				Recovery of 2 hours				
			Resonance Frequency	Table 2 Item 1	<u> </u>	-2.0	+ 2.0	10
			Drift		1			
	and the second second		Resonance Resistance	Table 2 Item 2	<u>A.B</u>	-10	+10	9/
			Drift		R	or (2)		
					ΔR	~ 1.0	+1.0	Ω
12	Robustness of	Para. 9.16	Tensile Strength	Gen. 3501				
	Terminations			Para. 9.16.1			1	
			Visual Examination	No visible damage				
			Bending	Gen: 3501				
				Para. 9.16.2				
	1	•	Visual Examination	No visible damage			1.	

- 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.



PAGE 21

ISSUE 5

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

	ESA/SCC GENERIC S	SPEC, NO. 3501	MEASUREMENTS AND IN	SPECTIONS		LIM		
NO.	ENVIRONMENTAL AND ENDURANCE TESTS (1)	er anna anna ann an Aireann ann ann an Aireann ann an Aireann ann ann ann ann ann ann ann ann ann		CONDITIONS	SYMBOL	Min.	Max.	UNIT
13	Life Test	Para. 9,17	Initial Measurements					
			Resonance Frequency	Table 2 Item 1	in a transfer of the second	Table 2	Itam 1	
			Resonance Resistance	Table 2 Item 2	В		Item 2	
			Intermediate Measurements			( (410) W	i. sousicionii.	
			Resonance Frequency Drift	Table 2 Item 1	<u>4</u> 1	- 2.0	+ 2.0	10-6
			Resonance Resistance	Table 2 Item 2	<u>A.B</u>	~ 10	+ 10	%
			Drift	, 000 2 100 11 2	R	or (2)		
					ΔR	- 1.0	+1.0	Ω
			Intermediate Measurements	At 1000 hours				
			(Chart IV) and Final					
			Measurements (Chart V)					
		as a saist as an ann an an an airean leas.	Resonance Frequency	Table 2 Item 1	<u>∆</u> 1	~ 2.5	+ 2.5	10-6
			Drift Fig. 11 11 11 11 11 11		T			
			Resonance Resitance	Table 2 Item 2	<u> </u>	10	+10	%
			Drift a sur production of the surface of the surfac		R	or (2)		
					ΔR	~ 1.0	+1.0	Ω
		H W T	Final Measurements (Chart IV)	At 2000 hours				
			Resonance Frequency Drift	Table 2 Item 1	<u>4</u>	-3.0	+3.0	10-6
			Resonance Resistance	Table 2 Item 2	Δ <u>R</u>	- 10	+10	9%
			Drift		R	or (2)		
				paring kamen	ΔR	~ 1.0	+1.0	Ω

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

PAGE 22

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lir Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	3.	317	MHz	
2	Reference Temperature	То	+	25	°C -	
3	Overtone Order		Funda	ımental		
4	Load Capacitance	CL		19	pF	
5	Rated Drive Level	Po	(	).1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-1000	+ 1000	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>	-	50	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-1000	+1000	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u>	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+60	°C	
11	Frequency variation with Drive Level	∆ f f	-1000	+1000	10-6	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.2 \text{mW}$
12	Resistance variation with Drive Level	ΔR R	Not ap	oplicable	%	
13	Motional Inductance	L <sub>1</sub>	Not a	oplicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not a	oplicable	fF.	
15	Static Capacitance	C <sub>o</sub>	Not a	oplicable	pF	
16	Q Factor	Q	Not a	oplicable	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not applicable			
18	Ageing	<u>Δ.f.</u>	Not a	pplicable	10-6	
19	Lead Finish	-		2	* .	

PAGE 23

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Limi Min.	ts Max,	Unit	Remarks
1	Resonance Frequency	fL	2.496 &	2.5344	MHz	
2	Reference Temperature	To	+2	5	°C.	
3	Overtone Order		Fundan	nental		
4	Load Capacitance	CL	30	)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-15	+ 15	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>	•	130	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	<u>Δ</u> <u>f</u>	-20	+20	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>ΔR</u> R	Not app	oficable	%	
10	Operating Temperature Range	Тор	-20	+ 50	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not app	olicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	olicable	mH	
14	Motional Capacitance	C1	Not ap	plicable	fF 1	
15	Static Capacitance	C₀	~	3.5	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 <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta}{f}$	-5.0	+5.0	10-6	After burn-in and per year
19	Lead Finish	*		2	^	

PAGE 24

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Combol	Lim	its	Unit	Remarks
140.	Criaracteristics	Symbol	Min.	Max.	Of III	nemarks
1	Resonance Frequency	f_	2.	8	MHz	
2	Reference Temperature	To	+ 2	25	°C	
3	Overtone Order	***	Fundar	nental		
4	Load Capacitance	CL	2	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u> f	-20	+ 20	10-6	At To °C
7	Resonance Resistance	RL	*	50	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u> f	-20	+20	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not app	olicable	°/a	
10	Operating Temperature Range	Тор	-30	+60	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	<u>∆</u> R R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
	Response Impedance to Resonance Resistance	IZpi/R	3.1	*		IL TZUUKNZ
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10-6	After burn-in and per year
19	Lead Finish	~		2		
***************************************	***************************************	~ <del>*</del> ~~~~	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	·····	· <del>*</del>	·*······

PAGE 25

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f.	2.7 t	0 5.0	MHz	
2	Reference Temperature	To	+	+25		
3	Overtone Order	•	Funda	ımental		
4	Load Capacitance	CL	3	30	pF	
5	Rated Drive Level	Po	C	), 1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	RL		100	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆</u>	-40	+ 40	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	ΔR R	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-40	+80	*C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ R R	Not ap	oplicable	%	
13	Motional Inductance	L <sub>1</sub>	Not a	oplicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not a	oplicable	fF	
15	Static Capacitance	Co	Not a	oplicable	pF	
16	Q Factor	Q	Not a	oplicable	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	4:1			In the frequency range: f <sub>L</sub> -10% to f <sub>L</sub> + 10%
18	Ageing	Δ f f	Not a	pplicable	10-6	
19	Lead Finish	*		2		

PAGE 26

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f,	3.2	768	MHz	
2	Reference Temperature	То	+ :	25	°C	
3	Overtone Order	•	Funda	mental		
4	Load Capacitance	CL	٥	:	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>≙</u> <u>†</u>	-15	+ 15	10-6	At To °C
7	Resonance Resistance	R <sub>r</sub>	,	100	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	<u>∆</u> !	Not ap	olicable	10-6	
9	Resistance Variation with Temperature over Top	ΔR R	Not ap	olicable	%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{\int \int_{0}^{T} dt} dt$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	•	4.0	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 <sub>r</sub> -200kHz to f <sub>r</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
19	Lead Finish			2	4	
<b></b>	<del></del>				<u> </u>	<u> </u>

PAGE 27

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
			****	ivida.		
1	Resonance Frequency	f,	4.095		MHz	
2	Reference Temperature	Τo	1979 - ↓	25	°C	
3	Overtone Order	•	Funda	nental		
4	Load Capacitance	CL		<b>(</b>	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>1</u> Δ	-5.0	+5.0	10-6	At To °C
7	Resonance Resistance	R,	•	15	Ω	At T <sub>o</sub> °C
8	Frequency Variation with Temperature over Top	<u>1</u> <u>\( \( \) \( \</u>	-10	+ 10	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+60	°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	plicable	%	
13	Motional Inductance	L <sub>1</sub>	157.5	192.5	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	1F	
15	Static Capacitance	Co	Not ap	plicable	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	3:1			In the frequency range: f <sub>r</sub> -10kHz to f <sub>r</sub> +10kHz
18	Ageing	Δ <u>f</u>	-2.0	+2.0	10-6	After burn-in and per year
	Lead Finish	<b>†</b>	<b>†</b>	 2	<b>†</b>	1

PAGE 28

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			MINIMINI			
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	<u></u> 5.	0	MHz	
2	Reference Temperature	To	+.	+40		
3	Overtone Order	~	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>\1</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R,	~	20	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	Δ f	-10	+10	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-10	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta_{\mathbf{f}}}{\mathbf{f}}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	Lı	76.5	103.5	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	•	4.0	ρF	
16	Q Factor	Q	100 000		*	
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 <sub>L</sub> -500kHz to f <sub>L</sub> +500kHz
18	Ageing	Δf	-10	#+ 10 ## # 7 # #	10-6	Over 5 years of storage and 3000 operating hours
19	Lead Finish	-		2		

PAGE 29

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	ſĹ	5.109	5555	MHz	
2	Reference Temperature	То	+ 2	25	°C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	-10	+ 10	10-6	ALT. °C
7	Resonance Resistance	1 Rr		15	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-50	+50	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not app	olicable	%	
10	Operating Temperature Range	Тор	-55	+ 105	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	*	7.0	pF	
16	Q Factor	Q	100 000	-	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	Δ <u>f</u>	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 30

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Limits		
No.	Characteristics	Symbol	Min. Max.	Unit	Remarks
1	Resonance Frequency	ſ.	5.333 to 5.334	MHz	
2	Reference Temperature	Τ <sub>ö</sub>	+ 15	°C	
3	Overtone Order		Fundamental		
4	Load Capacitance	C <sub>L</sub>	140	pF	
5	Rated Drive Level	Po	0.1	mW	
6	Frequency Adjustment Tolerance	<u>∆</u>	-7.0          + 7.	0 10-6	At T <sub>o</sub> °C
7	Resonance Resistance	Rr	- 15	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta_{\mathbf{f}}}{\mathbf{f}}$	Not applicable	10-6	
9	Resistance Variation with Temperature over Top		Not applicable	%	
10	Operating Temperature Range	Тор	-20 +60	°C	
11	Frequency variation with Drive Level	<u>Δ</u> 1	Not applicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not applicable	%	
13	Motional Inductance	L <sub>1</sub>	Not applicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not applicable	1F	
15	Static Capacitance	Co	Not applicable	pF	
16	Q Factor	Q	Not applicable		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	Not applicable		
18	Ageing	Δf	Not applicable	10-6	
19	Lead Finish	~	2		

PAGE 31

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	ſL	5.66	1448	MHz	
2	Reference Temperature	то	+	25	°C	
3	Overtone Order	-	Funda	mental		
4	Load Capacitance	CL	22	33	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	∆ f f	Not ap	plicable	10-6	
7	Resonance Resistance	Rr		25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δf	-5.0	+5.0	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-30	+60	°C	
11	Frequency variation with Drive Level	<u>∆f</u>	Not ap	plicable	10-6	4
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	C <sub>o</sub>	3.2	4.0	pF	
16	Q Factor	Q	Not ap	plicable	-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to	Rp/R IZpi/R	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Resonance Resistance Ageing	Δ <u>f</u>	Not ap	plicable	10-6	
19	Lead Finish			2		

PAGE 32

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fr	8.7 to	10.7	MHz	
2	Reference Temperature	То	+;	25	°C	
3	Overtone Order	-	Funda	mental		
4	Load Capacitance	CL	٥	0	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 <sub>r</sub>	*	15	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-40	+40	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-40	+80	°C	
11	Frequency variation with Drive Level	<u>∆</u> <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>A.B.</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF -	
15	Static Capacitance	Co	Not ap	plicable	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	4:1	•		In the frequency range: f <sub>r</sub> -10% to f <sub>r</sub> +10%
18	Ageing	Δ f	Not ap	plicable	10-6	
19	Lead Finish	*		2		

PAGE 33

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f,	10	.0	MHz	
2	Reference Temperature	T <sub>o</sub>	+	60	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	۵	×	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	Rr		20	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> 1	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	유	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆</u> t	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	-	4.5	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	3:1	*		In the frequency range: f <sub>r</sub> -200kHz to f <sub>r</sub> + 200kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	*		2		

PAGE 34

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

····	***************************************					
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	10	.0	MHz	
2	Reference Temperature	Τo	+	25	°C	
3	Overtone Order		Funda	mental	- X	
4	Load Capacitance	CL	5	0	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	RL	* .	20	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	<u>4</u> f	-10	+10	10 <sup>-6</sup>	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	유	Not ap	olicable	%	
10	Operating Temperature Range	Тор	-10	+80	°C	
11	Frequency variation with Drive Level	2 <u>Δ f</u> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	12.15	16.45	mH	
14	Motional Capacitance	C <sub>1</sub>	Not app	olicable	fF	
15	Static Capacitance	Co	•	5.0	pF	
16	Q Factor	Q	100 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	3:1			In the frequency range: f <sub>L</sub> -500kHz to f <sub>L</sub> +500kHz
18	Ageing	<u> </u>	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish			2		

PAGE 35

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	>y
2 Reference Temperature $T_0$ +25 °C 3 Overtone Order - Fundamental 4 Load Capacitance $C_L$ 30 pF 5 Rated Drive Level P <sub>0</sub> 0.1 mW 6 Frequency Adjustment Tolerance $T_0$ 10-6 At $T_0$ °C 7 Resonance Resistance $T_0$ 15 $T_0$ Over $T_0$ °C 8 Frequency Variation with Temperature over $T_0$ 10-6 From frequency measured at $T_0$ 10-6 Resistance Variation with Temperature over $T_0$ 10-6 Resistance $T_0$ 10-6 Resistanc	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
6 Frequency Adjustment Δf f -10 +10 10-6 At To °C  7 Resonance Resistance R <sub>L</sub> - 15 Ω Over Top °C  8 Frequency Variation with Temperature over Top  9 Resistance Variation with Temperature over Top  with Temperature over Top	
8 Frequency Variation with Temperature over T <sub>op</sub> 9 Resistance Variation with Temperature over T <sub>op</sub> A R R Not applicable % with Temperature over T <sub>op</sub>	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
with Temperature R over Top	
	***************************************
10 Operating Temperature T <sub>op</sub> -55 +105 °C Range	
11 Frequency variation $\Delta f$ Not applicable 10-6 with Drive Level $f$	
12 Resistance variation ΔR Not applicable % with Drive Level R	
13 Motional Inductance L <sub>1</sub> Not applicable mH	
14 Motional Capacitance C <sub>1</sub> Not applicable fF	
15 Static Capacitance Co - 7.0 pF	
16 Q Factor Q 70 000	
Resonance Resistance Rp/R to	ncy 100kHz 200kHz
18 Ageing Δf -2.0 +2.0 10-6 After burn-in an per year	and
19 Lead Finish - 2	

PAGE 36

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lím Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f.	11	.0	MHz	
2	Reference Temperature	Τα	*	25	°C	
3	Overtone Order	* *	Funda	mental		
4	Load Capacitance	C <sub>L</sub>	3	0	ρF	
5	Rated Drive Level	Pa	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+ 10	10-6	At To *C
7	Resonance Resistance	R <sub>L</sub>		15	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f f	-50	+ 50	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-55	+ 105	°C	
11	Frequency variation with Drive Level	Δ <u>1</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level		Not ap	plicable	**************************************	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	3:1	***		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	~		2		

PAGE 37

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	11.43	3333	MHz	
2	Reference Temperature	To	*:	25	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	CL	2	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10-6	At T <sub>o</sub> *C
7	Resonance Resistance	RL		15	Ω	Over Top°C
8	Frequency Variation with Temperature over Top	∆ f f	-8.0 -	+ 8.0	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	AR R	Not applicable		%	
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	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	*	5.0	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 <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 38

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	•	,				
	Characteristics	Symbol	Lirr Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f <u>L</u>	12	.8	MHz	
2	Reference Temperature	To	+:	25	°C	
3	Overtone Order	•	Fundai	mental		
4	Load Capacitance	CL	3	0	рЕ	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+ 10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		15	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> <u>f</u>	-50	+50	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not ap	olicable	%	
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	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	3:1		**************************************	In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	~		2	·	

PAGE 39

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

				<u></u>		
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f,	14.7	456	MHz	
2	Reference Temperature	To	+:	25	*C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	CL	Œ	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	R <sub>r</sub>	*	25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-15	+15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top		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	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	Lı	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	tF.	6 - 10 - 10 - 10 - 10 - 10 - 10 - 10 - 1
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	Not ap	plicable		
18	Ageing	Δ <u>f</u>	-5.0	+5.0	10-6	After burn-in and per year
19	Lead Finish	~		2	*	

PAGE 40

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

					H. A. Mall. 380 8874	Elitaria (N. E. S.
No.	Characteristics	Symbol	Lin Min.	nits Max,	Unit	Remarks
1	Resonance Frequency	1,	12	2.0	MHz	
2	Reference Temperature	To	+	25	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL		×	ρF	
5	Rated Drive Level	Pa	0	.1	mW	
6	Frequency Adjustment Tolerance	<u>Δ1</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	Rr	*	25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top		-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> 2 R 2 2	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	Rp/R IZpI/R	Not ap	plicable		
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+ 5.0	10-6	After burn-in and per year
19	Lead Finish	*		2		

PAGE 41

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	12.2	288	MHz	
2	Reference Temperature	To	+1	30	°C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	20	50	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	RL	*	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 ( -1.5	+10 yr +1.5	%.	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 70	°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 ap	plicable	%	
13	Motional Inductance	L-1	4.76	6.44	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF /	
15	Static Capacitance	Co	~	7.0	pF	
16	Q Factor	Q	25 000	•		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or	Rp/R	2:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
	Response Impedance to Resonance Resistance	IZpI/R	****			The second secon
18	Ageing	<u>∆</u> <u>f</u>	-10	+10	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 42

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lirr Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f,	15	.0	MHz	
2	Reference Temperature	То	+	25	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	2	5	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	∆f f	-10	+ 10	10-6	At To °C
7	Resonance Resistance	RL	•	35	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> (a) (a) (a) (b) (b) (b) (b) (b) (b) (b) (b) (b) (b	-20	+20	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 80	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	Not applicable		
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	·····	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>		8.5	1F	
15	Static Capacitance	C <sub>0</sub>	-	8.5	ρF	
16	Q Factor	Q	65 000		*	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	Δ <u>f</u>	-10	+ 10	10-6	After burn-in and per year
19	Lead Finish	~		2	V V	

PAGE 43

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	i,	4.0	4.096		
2	Reference Temperature	То	+:	25	*C	
3	Overtone Order	2	Fundar	nental		
4	Load Capacitance	CL	5	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 <sub>L</sub>	~	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-10	+ 10	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	∆ <u>R</u> R	-10 c -1.5	+10 or +1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
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	∆R R	Not ap	plicable	* **	
13	Motional Inductance	L	131.75	178.25	mH	
14	Motional Capacitance	C <sub>1</sub>	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	Rp/R IZpI/R	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
	Resonance Resistance					
18	Ageing	Δ <u>f</u> f	-5.0	+5.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 44

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f_	4.0	96	MHz	
2	Reference Temperature	То	+:	25	°C	
3	Overtone Order	•	Fundai	mental	•••••	
4	Load Capacitance	GL	5	0	ρF	
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	RL	*	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	-10	+10	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> 2 2 2 R 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
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	AR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	131.75	178.25	mH	
14	Motional Capacitance	C <sub>1</sub>	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	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	Δ <u>f</u> :	-5.0	+ 5.0	10-6	After burn-in and per year
19	Lead Finish	~	3 (	or 4		

PAGE 45

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	19.10	9567	MHz	
2	Reference Temperature	T <sub>o</sub>	+	25	*C	
3	Overtone Order	~	Funda	mental		
4	Load Capacitance	CL		r	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	Rr	·	15	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u>	-10	+ 10	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 60	°C	
11	Frequency variation with Drive Level	<u>Δ f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L-1	2.25	2.75	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	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 applicable			
18	Ageing	<u>∆</u> f	-1.0	+1.0	10-6	After bum-in and per year
19	Lead Finish	~		2		

PAGE 46

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

<del>~~~~~</del>	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	·•		·····		
No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>r</sub>	6	6.4		
2	Reference Temperature	To	+	25	*C	
3	Overtone Order	-	Funda	mental		
4	Load Capacitance	CL		×	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	Rr	~	180	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f f	-40	+40	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	유	-10	or		From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+60	°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	Lı	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	Not ap	plicable	ρF	
16	Q Factor	Q	Not ap	plicable	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	Not applicable			
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	~		2	* ::	

PAGE 47

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	Triber	7.	.0	MHz	
2	Reference Temperature	То	+	25	°C	
3	Overtone Order		Funda	mental		
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	ALT <sub>o</sub> °C
7	Resonance Resistance	Rr	-	180	Ω	At T <sub>o</sub> °C
8	Frequency Variation with Temperature over Top	∆ f f	-40	+ 40	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆ R R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at $T_0$ °C If R<10 $\Omega$
10	Operating Temperature Range	Тор	-20	+60	°C	
11	Frequency variation with Drive Level	Δ <u>t</u>	Not applicable		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 <sub>1</sub>	Not ap	plicable	fF	
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	Rp/R	Not applicable			
18	Ageing	Δ.f	-3.0	+ 3.0	10-6	After burn-in and per year
19	Lead Finish			2		

PAGE 48

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f.	12.0		MHz	
2	Reference Temperature	То	+	25	°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	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>	*	180	Ω	At T <sub>o</sub> °C
8	Frequency Variation with Temperature over Top	Δf	-40	+ 40	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-10 -1.5	+ 10 >r + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+ 60	°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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	Not ap	plicable	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to	Rp/R IZpI/R	Not applicable			
	Resonance Resistance	, , , , , , ,				
18	Ageing	Δ <u>1</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 49

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fL	15	.0	MHz	
2	Reference Temperature	То	+	25	°C	
3	Overtone Order	*	Funda	nental		
4	Load Capacitance	G <sub>L</sub>	20	50	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>		20	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	2 2 4 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-40	+40	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	Not applicable		%	
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	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	Not ap	plicable		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance	Rp/R				
	or Response Impedance to Resonance Resistance	iZpi/R	Not ap	plicable		
18	Ageing	Δ f ······	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	~		2		

PAGE 50

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fu	6.	4	MHz	
2	Reference Temperature	То	+;	25	*C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.		mW	
6	Frequency Adjustment Tolerance	<u>∆</u> f	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>		20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> .	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	유	-10 0 -1.5	+ 10 r + 1.5	%	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+60	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>		50	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	150 000		-	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	<u>\_f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 51

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	IL.	7.	0	MHz	
2	Reference Temperature	To	+;	25	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	CL	3(	3	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>	~	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>A</u> f	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 0 -1.5	+10 r +1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+ 60	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	% % ·	
13	Motional Inductance	L <sub>1</sub>	· · · · · · · · · · · · · · · · · · ·	40	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	1F	
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	Rp/R	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	*		<u>1                                    </u>	· · · · · · · · · · · · · · · · · · ·	

PAGE 52

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f	12	.0	MHz	
2	Reference Temperature	То	+	40	*C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	GL	5	0	pF	
5	Rated Drive Level	Po	0	1	mW	
6	Frequency Adjustment Tolerance	<u>∆f</u>	-10	+ 10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		13	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	∆R R	-10 -1.5	+ 10 or + 1.5	%	From resistance measured at T <sub>o</sub> °C If R<10Ω
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	<u>A</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	6.97	9.43	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	*	7.0	pF	
16	Q Factor	Q	75 000	***************************************		
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		<u></u> 2		

PAGE 53

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

						<u></u>
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f	4.6	08	MHz	
2	Reference Temperature	To	+2	25	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	CL	3(	)	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>	-	20	Ω	At To *C
8	Frequency Variation with Temperature over Top	∆f f	-12	+ 12	10 <sup>-6</sup>	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.5	+10 or +1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-35	+ 70	°C	
11	Frequency variation with Drive Level	Δf ::	Not app	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	-20	+20	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.2 \text{mW}$
13	Motional Inductance	L <sub>1</sub>	Not ap	olicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	olicable	fF	
15	Static Capacitance	Co		7.0	pF	
16	Q Factor	Q	800 000	•	· · · · · · · · · · · · · · · · · · ·	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not ap	plicable		
18	Ageing	Δ <u>f</u>	-10	+ 10	10-6	After burn-in, after 5 years
19	Lead Finish	*		2		

PAGE 54

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	10	.0	MHz	
2	Reference Temperature	To	+ 4	40	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	G <sub>L</sub>	5	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	RL	•	13	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-15	+15	10-6	From frequency measured at T <sub>a</sub> °C
9	Resistance Variation with Temperature over Top	AR R	-10 c -1.5	+10 r +1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	*	10	ρF	
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	3:1	*		In the frequency range: ft200kHz to ft_ +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+ 3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 55

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f	13	.3	MHz	
2	Reference Temperature	Τ <sub>o</sub>	+;	25	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆f f	-10	+10	10-6	At To °C
7	Resonance Resistance	RL		20	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 	+ 10 or + 1.5	% Ω	From resistance measured at $T_0$ °C If R < 10 $\Omega$
10	Operating Temperature Range	Тор	-35	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>.1</u>	Not ap	Not applicable		
12	Resistance variation with Drive Level	AR R	-20	+20	* **	From $P_{S1} = 0.05$ mW to $P_{S2} = 0.2$ mW
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	*	10	pF	
16	Q Factor	Q	100 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpl/R	Not ap	plicable		
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-6	After bum-in, after 5 years
19	Lead Finish			2		

PAGE 56

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	3.27	768	MHz	
2	Reference Temperature	To		27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	27	33	рЕ	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At T <sub>o</sub> *C
7	Resonance Resistance	RL	ž	180	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> t	-5.0	+5.0	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.5	+10 r +1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R < 10Ω
10	Operating Temperature Range	Тор	-20	+50	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	% ***	
13	Motional Inductance	L <sub>1</sub>	300	400	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>		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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	<u>∆f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 57

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	1		0	MHz	
2	Reference Temperature	То	+ 25	+ 29	°C	
3	Overtone Order	7	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>A</u>	-20	+20	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	Not ap	olicable	%	
10	Operating Temperature Range	Тор	-20	+ 50	°C	
11	Frequency variation with Drive Level	<u>Δ</u> 1	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	L-1	23	30	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co		7.0	ρF	
16	Q Factor	Q	100 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	Not ap	plicable		
18	Ageing	Δf	-5.0	+5.0	10-6	After burn-in and per year
19	Lead Finish	* :		2	×	

PAGE 58

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <u>.</u>	6	.0	MHz	
2	Reference Temperature	T <sub>O</sub>	+	25	°C	
3	Overtone Order	*	Funda	mental	1128 (* 1128 ) 1128 (* 1128 )	
4	Load Capacitance	CL	1	6	pF	
5	Rated Drive Level	Po	0	,1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> !	-50	+50	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-10 +10 		% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	Not ap	plicable	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 applicable			
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 59

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	4.6	808	MHz	
2	Reference Temperature	To	+	25	°C	
3	Overtone Order	-	Funda	mental		
4	Load Capacitance	CL	27	33	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u> f	-10	+ 10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL	*	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-10 (	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-35	+ 70	°C	
11	Frequency variation with Drive Level	Δ't	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	Not ap	plicable	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	Not ap	plicable		
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10 <sup>-6</sup>	After burn-in and per year
19	Lead Finish	~	<b>†</b>	2		

PAGE 60

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		38 3 H 1 2 B 3	8a - 4 Bill - 1 Bill - 1			
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	l.	4.60	4.608		
2	Reference Temperature	Тр	+2	15	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	Cį	3(		pF	
5	Rated Drive Level	Po	O.		mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u> f	-8.0	+8.0	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		10	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>A</u> !	-15	+15	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	∆R R	-10 0 -1.5	+10 r +1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-40	+ 70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not app	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	-20	+20	%	From $P_{S1} = 0.05 \text{mW}$ to $P_{S2} = 0.2 \text{mW}$
13	Motional Inductance	L <sub>1</sub>	Not app	olicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	olicable	1F	
15	Static Capacitance	C <sub>o</sub>	•	7.0	pF	Aggregation of the control of the co
16	Q Factor	Q	400 000			
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not applicable			
18	Ageing	△ f	-10	+10	10-6	After burn-in over 5 years
19	Lead Finish	-		2		

PAGE 61

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f.	5	.0	MHz	
2	Reference Temperature	T <sub>o</sub>	+	25	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	2	7	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	*	200	Ω	Over To *C
8	Frequency Variation with Temperature over Top	<u>Δ</u> <u>f</u>	-50	+50	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-40	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>t</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	From $P_{S1} = 0.05$ mW to $P_{S2} = 0.2$ mW
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	Not ap	plicable	11 11 11 11 11 11 11 11 11 11 11 11 11	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not applicable			
18	Ageing	$\frac{\Delta f}{f}$	-50	+50	10-6	Over 6 years
19	Lead Finish	~ ~ ~		2	*	

PAGE 62

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f_	3.27	768	MHz	
2	Reference Temperature	To	+:	25	*C	
3	Overtone Order	<u> </u>	Fundar	nental		
4	Load Capacitance	C <sub>L</sub>	20	50	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	ΑL	~	12	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	<u>∆</u>	-5.0	+ 5.0	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	$\frac{\Delta R}{R}$	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 70	°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 ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	200	*	mH	: ::::::::::::::::::::::::::::::::::::
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF <sub>1</sub>	
15	Static Capacitance	Co		2.7	ρF	
16	Q Factor	Q	400 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance	Rp/R				In the frequency range: f <sub>L</sub> -300kHz to
***************************************	or Response Impedance to Resonance Resistance	IZpI/R	2:1	*		f <sub>L</sub> +300kHz
18	Ageing	Δ <u>f</u>	-5.0	+5.0	10-6	After burn-in, per year
19	Lead Finish	~		2		

PAGE 63

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits				
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	4.0	4.096		
2	Reference Temperature	То	<b>.</b>	25	°C	
3	Overtone Order	~	Fundar	nental		
4	Load Capacitance	C <sub>L</sub>	5	)	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		20	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	∆f f	-10	+ 10	10-6	From frequency measured at To *C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-10	+ 80	°C	
11	Frequency variation with Drive Level	Δ <u>1</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	78	-	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	-	5.0	pF	
16	Q Factor	Q	100 000	*	a a žisara	
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: ft400kHz to ft_+400kHz
18	Ageing	$\frac{\Delta}{df}$	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	~		2		

PAGE 64

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

*******			·····			
	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	5	0	MHz	
2	Reference Temperature	То	+	40	°C	
3	Overtone Order	*	Funda	mental		
4	Load Capacitance	C <sub>L</sub>	3	0	pF	
5	Rated Drive Level	Po	0	1	mW	
6	Frequency Adjustment Tolerance	<u>4</u>	-5.0	+ 5.0	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL	*	20	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	∆ f f	-8.0	+8.0	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+80	*C	
11	Frequency variation with Drive Level	<u>Δ</u> 1	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	64	-	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	*	4.0	pF	
16	Q Factor	Q	100 000	*	-	
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 <sub>L</sub> -500kHz to f <sub>L</sub> +500kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish			2		

PAGE 65

ISSUE 5

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lím Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	5.(	5.0		
2	Reference Temperature	To	*4	10	*C	
3	Overtone Order	*	Fundan	nental		
4	Load Capacitance	CL	30	)	рF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>1</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>	. · ·	20	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Top	-10	+70	*C	
11	Frequency variation with Drive Level	Δ <u>1</u>	Not app	olicable	10-6	e de la companya de l
12	Resistance variation with Drive Level	∆R R	Not app	olicable	%	
13	Motional Inductance	Lı	64	~	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	•	4.0	pF	
16	Q Factor	Q	100 000	* .		
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 <sub>L</sub> -300kHz to f <sub>L</sub> +300kHz
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-6	After burn-in, per year
19	Lead Finish	*		2		

PAGE 66

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Qumbai	Lim	its	Unit	Remarks
IVO.	Characteristics	Symbol	Min.	Max.	O III	remarks
1	Resonance Frequency	f.	10	10.0		
2	Reference Temperature	To	+;	25	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	C <sub>L</sub>	51	)	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	RL	~	20	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-10	+80	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	32		mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	olicable	fF.	
15	Static Capacitance	C <sub>o</sub>	*	5.0	pF	
16	Q Factor	Q	100 000		i i	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	3:1	*		In the frequency range: f <sub>L</sub> -500kHz to f <sub>L</sub> + 500kHz
18	Ageing	Δ <u>f</u>	-3.0	+ 3.0	10-6	After burn-in, per year
19	Lead Finish	~		5	*	

PAGE 67

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	12	.0	MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	•	Fundar	nental		
4	Load Capacitance	CL	4	3	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>r</sub>	•	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T $_{\rm o}$ °C If R<10 $\Omega$
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	<u>∆ f</u> f	Not ap	Not applicable		
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	24	*	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	Not ap	plicable	ρF	
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 <sub>r</sub> -300kHz to f <sub>r</sub> +300kHz
18	Ageing	Δ <u>f</u>	-3.0	+ 3.0	10-6	After burn-in, per year
19	Lead Finish	*		2		

PAGE 68

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	12.0		MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	Q.		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 <sub>r</sub>		20	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ f f	-30	+30	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> (R)	-10 -1.5	+10 or +1.5	% Ω	From resistance measured at $T_0$ °C If R < 10 $\Omega$
10	Operating Temperature Range	Тор	-40	+ 85	°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 <sub>1</sub>	8.0		mH	
14	Motional Capacitance	C <sub>1</sub>	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	2:1	*		In the frequency range: f <sub>r</sub> -300kHz to f <sub>r</sub> +300kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	~		2		

PAGE 69

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		T				
	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	13.3	132	MHz	
2	Reference Temperature	Ta		10	°C	
3	Overtone Order	2 148 2 <del>4</del> 2 2 4 2	Fundar	nental	er Marie	
4	Load Capacitance	CL	5	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 To °C
7	Resonance Resistance	, R <sub>L</sub>	•	13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Ơ †	-8.0	+8.0	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	8.0	~	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>		5.0	pF	
16	Q Factor	Q	50 000	*	*	1 de como estados
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 <sub>L</sub> -1.0MHz to f <sub>L</sub> +1.0MHz
18	Ageing	Δf f	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	~		2	· ·	

PAGE 70

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

				11.5		
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	l.	5.24288		MHz	
2	Reference Temperature	То	+1	30	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	Cį	2	2	рЕ	
5	Rated Drive Level	Po	0.		mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>		13	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	14	-15	+15	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-40	+ 85	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	20	-	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	1F	
15	Static Capacitance	Co	*	5.0	pF	
16	Q Factor	Q	50 000	*	* 1	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpl/R	3:1	*		In the frequency range: f <sub>L</sub> -525kHz to f <sub>L</sub> + 525kHz
18	Ageing		-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	~		2		

PAGE 71

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

<b>3</b> 3.0		C	Lim	Limits		
No.	Characteristics	Symbol	Min.	Max.	Unit	Remarks
1	Resonance Frequency	f.	3.	3.2		
2	Reference Temperature	То	+ 25	+29	°C	
3	Overtone Order	: : : : : : : : : : : : : : : : : : :	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL	*	50	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> 1	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	olicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	olicable	fF.	
15	Static Capacitance	C <sub>o</sub>	• "	7.0	pF	
16	Q Factor	Q	Not ap	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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	<u>4</u>	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	.*		<u></u> 2		

PAGE 72

ISSUE 5

#### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

·····			<b>,</b>			
No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fL	4	4.0		
2	Reference Temperature	То	+ 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>\1</u>	-10	+ 10	10-8	At To *C
7	Resonance Resistance	RL	-	25	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δf	-12	+12	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-40	+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 <sub>1</sub>	230	~	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	: fF	
15	Static Capacitance	Co		5.0	pF	
16	Q Factor	۵	125 000		~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to	Rp/R IZpl/R	2:1			In the frequency range: f <sub>L</sub> -500kHz to f <sub>L</sub> +500kHz
	Resonance Resistance					
18	Ageing	∆ f f	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish			2		

PAGE 73

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	4.194	304	MHz	At cut
2	Reference Temperature	To	+ (	30	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	C <sub>L</sub>	3(	)	pF	
5	Rated Drive Level	Pa	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆1</u> 1	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>		10	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> <u>f</u>	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 0 -1.5	+ 10 r + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-10	+80	°C	
11	Frequency variation with Drive Level	Δ f	Not ap	Not applicable		
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	~	4.0	pF	
16	Q Factor	Q	500 000	-	*	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	Δf f	-10	+10	10-6	Over 5 years of storage and 3000 hours operating
19	Lead Finish			2	, <del>, , , , , , , , , , , , , , , , , , </del>	

PAGE 74

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	12.	25	MHz	
2	Reference Temperature	To	+2	25	*C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	33	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 <sub>L</sub>	-	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Af</u>	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	ΔR R	-10 1.5	+10 r +1.5	% Ω	From resistance measured at $T_0$ °C If $R < 10\Omega$
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	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	12.6	15.4	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	-	3.0	pF	
16	Q Factor	Q	100 000	*	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance	Rp/R				In the frequency range:
	or Response Impedance to Resonance Resistance	IZpI/R	25:1 4:1	*		f <sub>L</sub> ±30kHz f <sub>L</sub> - 50 to f <sub>L</sub> -500kHz and f <sub>L</sub> +50 to f <sub>L</sub> +500kHz
18	Ageing	<u>∆ f</u>	-10	+10	10-6	After burn-in, over 5 years
19	Lead Finish	~ .		2		

PAGE 75

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	6.	0	MHz	
2	Reference Temperature	To	72 B. 47	25	°C	
3	Overtone Order	-	Fundar	mental		
4	Load Capacitance	GL	3	0	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		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	A A f f	-10	+10	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	AR R	-10		%	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-40	+ 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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	600 000	~	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not ap	plicable		
18	Ageing	$\frac{\Delta f}{f}$	-10	+ 10	10-6	After burn-in, over 5 years
19	Lead Finish	*		2		
•	<del></del>	·····A·······	<del></del>		<del></del>	

PAGE 76

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			<u></u>			
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f.	9.66 to	10.65	MHz	
2	Reference Temperature	То	+;	25	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	GL	5	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		15	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δt	-20	+20	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not app	olicable	%	
10	Operating Temperature Range	Тор	-20	+ 70	*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	olicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	Not ap	plicable	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	4:1	*		In the frequency range: f <sub>L</sub> -500kHz to f <sub>L</sub> + 500kHz
18	Ageing	Δf	-2.0	+2.0	10-6	After burn-in and per year
19	Lead Finish	-		<u>1                                    </u>	*	

PAGE 77

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	4.0	196	MHz	
2	Reference Temperature	То	+	25	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	5	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	*	20	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-10	+ 80	°C	
11	Frequency variation with Drive Level	. Δ1 (1) f (1)	Not ap	Not applicable		
12	Resistance variation with Drive Level	∆ R R	Not ap	plicable	%	
13	Motional Inductance	L-1	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	~	5.0	pF	
16	Q Factor	Q	100 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	Δf	Not ap	plicable	10-6	
19	Lead Finish	-		2		

PAGE 78

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	4.194	4304	MHz	
2	Reference Temperature	To	+	60	°C	
3	Overtone Order	*	Fundai	mental		
4	Load Capacitance	CL	2	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>		13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>1</u> 4	-15	+ 15	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	ΔR 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>AR</u> R	Not ap	plicable	%	
13	Motional Inductance	Lı	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	50 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	<u> </u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	·		2		
*************		·····	······································	<del></del>	A	4

PAGE 79

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	5.24288		MHz	
2	Reference Temperature	То	+ (	80	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	2	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL	~	13	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	<u>∆</u>	-15	+ 15	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆ R</u> R 7 2 2	Not applicable		%	
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L-1	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	1F	
15	Static Capacitance	Co	Not ap	plicable	ρF	
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	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish			2		

PAGE 80

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	그 항상 동안이 되어서 한번에게 하는 사람이 없었다. 그는	<u> </u>			26.636.00.00.00.00.00	
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	I.	8.	8.0		
2	Reference Temperature	То	+	30	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	2	2	ρF	
5	Rated Drive Level	Po	0		mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+ 10	10-6	At To °C
7	Resonance Resistance	RL		13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	∆ f	-15	+ 15	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top		Not applicable		%	
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	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	C <sub>0</sub>	Not ap	plicable	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	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 81

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

·····		<u></u>	<u> </u>			
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f.	13.	332	MHz	
2	Reference Temperature	Ta	+	40	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	C <sub>L</sub>	5	0	pF	
5	Rated Drive Level	Po	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	*	13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u></u>	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	Not ap	plicable	%	
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	\\ \frac{\Delta f}{f}	Not ap	Not applicable		
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	Li	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	Not ap	plicable	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	3:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	<u>A</u> f	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	~		2	*	

PAGE 82

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

· · · · · · · · · · · · · · · · · · ·						
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fL	4,194	1304	MHz	
2	Reference Temperature	Τ <sub>α</sub>	+:	25	°C	
3	Overtone Order	*	Fundar	mental		
4	Load Capacitance	C <sub>L</sub>	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ</u> <u>f</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	•	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ f</u>	-10	+10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆R</u> R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	Not applicable		
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	120		mH	
14	Motional Capacitance	C <sub>1</sub>	*	*	ſF	
15	Static Capacitance	Co	~	4.0	pF	
16	Q Factor	Q	300 000	*	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpl/R	Not ap	plicable		
18	Ageing	<u>Δ.f</u>	-3.0	+3.0	10-6	After burn-in, over 5 years
19	Lead Finish	-		2		
***************************************	<del></del>	<del></del>	······································		<del>*************************************</del>	·····

PAGE 83

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	e de la companya de					
No.	Characteristics	Symbol	Lim Min.	ts Max.	Unit	Remarks
1	Resonance Frequency	f	12.5	25	MHz	
2	Reference Temperature	То	+2	<u>'</u> 5	°C	
3	Overtone Order	1 2 2	Fundar	nental		
4	Load Capacitance	CL	32	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	14	-8.0	+8.0	10-6	At To °C
7	Resonance Resistance	R <sub>L</sub>		100	Ω	At To *C
8	Frequency Variation with Temperature over Top	∆t f	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 0 -1.5	+ 10 r + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	Δ f a d	Not ap	olicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	4.5	5.5	mH	
14	Motional Capacitance	C <sub>1</sub>	•	•	fF.	
15	Static Capacitance	C <sub>o</sub>		3.0	pF	
16	Q Factor	Q	30 000	:: <u>.</u> :		
17	Unwanted Response Resistance	Rp	25	*	kΩ	In the frequency range: f <sub>L</sub> -30kHz to f <sub>L</sub> +30kHz
18	Ageing	Δ <u>f</u>	-10	+10	10-6	After burn-in, over 5 years
19	Lead Finish	-	:::	2	*	

PAGE 84

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fr	4.0	4.096		
2	Reference Temperature	То	+ ;	25	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	4	3	рF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-10	+10	10-6	At To *C * 1
7	Resonance Resistance	R,		50	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-15	+ 15	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	∆ R R	Not applicable		%	
10	Operating Temperature Range	Тор	-30	+80	°C	
11	Frequency variation with Drive Level	Δ <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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	<b>f</b> F	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	۵	75 000	e <sup>mi</sup> ne <b></b>	•	
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 <sub>r</sub> -200kHz to f <sub>r</sub> +200kHz
18	Ageing	Δ <u>1</u>	-3.0	+ 3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 85

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f,	4.194	304	MHz	
2	Reference Temperature	To	+2	25	°C	
3	Overtone Order	•	Fundar	nental		
4	Load Capacitance	CL	æ		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ1</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R,	*	50	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δf	-15	+15	10-6	From frequency measured at T <sub>o</sub> °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	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>0</sub>	Not ap	plicable	pF	
16	Q Factor	Q	75 000	*		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R I	3:1	*		In the frequency range: f <sub>r</sub> -10% to f <sub>r</sub> +10%
18	Ageing	<u>\</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2		

PAGE 86

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

·····	*	***************************************				
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	ſĻ	5.24	288	MHz	
2	Reference Temperature	То	+20	+30	°C	
3	Overtone Order	: : <u>:</u>	Fundar	nental		
4	Load Capacitance	CL	2	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	RL	*	13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>A</u> f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	AR R	Not applicable		%	
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	∆R R	Not ap	olicable	9/6	
13	Motional Inductance	L <sub>1</sub>	Not ap	olicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	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	3:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	<u>∆</u> f	-3.0	+ 3.0	10-6	After burn-in and per year
19	Lead Finish	*		2		
***************************************	······································	***************************************	<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>		***************************************	····

PAGE 87

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f.	12.	25	MHz	
2	Reference Temperature	То	+	25	°C	
3	Overtone Order	4	Funda	mental		
4	Load Capacitance	CL	3	2	pF	
5	Rated Drive Level	Po	0	1	mW	
6	Frequency Adjustment Tolerance	<u>Δ f</u>	-8.0	+8.0	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 <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	∆R R	-50	+ 50	%	From resistance measured at T <sub>o</sub> °C
10	Operating Temperature Range	Тор	-20	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	9.0	11	mH	
14	Motional Capacitance	C <sub>1</sub>	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	10:1			In the frequency range: f <sub>L</sub> -300kHz to f <sub>L</sub> +200kHz
18	Ageing	Δf f	-10	+ 10	10-6	After burn-in, over 5 years
19	Lead Finish	-		2		

PAGE 88

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	5.	0	MHz	
2	Reference Temperature	To	+;	25	°C	
3	Overtone Order	: · · · · · · · · · · · · · · · · · · ·	Fundai	nental		
4	Load Capacitance	CL	20	40	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	RL		10	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u> </u>	-2.5	+2.5	10 <sup>-6</sup>	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -1.5	+ 10 or + 1.5	% · Ω	From resistance measured at $T_{\alpha}$ °C If $R < 10\Omega$
10	Operating Temperature Range	Тор	-10	+40	°C	
11	Frequency variation with Drive Level		Not ap	Not applicable		
12	Resistance variation with Drive Level	<u>∆ R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	70	120	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	3.0	5.0	pF	
16	Q Factor	Q	350 000		-	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpI/R	Not ap	plicable		
18	Ageing	Δ <u>f</u>	-65	+ 65	10-6	After burn-in, per year
19	Lead Finish	~		2	¥.	

PAGE 89

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	5.	5.0		
2	Reference Temperature	To	+ 25	+ 29	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	1401 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6	Frequency Adjustment Tolerance	<u>Δ f</u> f	-10	+10	10 <sup>-6</sup>	At To °C
7	Resonance Resistance	RL	*	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ t T	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>A</u> R R	-10 1.5	+ 10 r + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
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	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mΗ	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	200 000	-	-	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	∆⊥ f	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	~		2		

PAGE 90

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		A. S				
No.	Characteristics	Symbol	Lin Min.	rits Max	Unit	Remarks
1	Resonance Frequency	ſ	12	12.0		
2	Reference Temperature	To	+ 25	+29	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	3	0	ρF	
5	Rated Drive Level	Po	0	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>		30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> .t	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	AR R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
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	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	ρF	
16	Q Factor	Q	80 000	1 2 7 2 1 1 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	~	· ·
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or	Rp/R	2:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
	Response Impedance to Resonance Resistance	IZpI/R				
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish			2	• .	

PAGE 91

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

·····		~~~~~	·····			<b>;</b>
No.	Characteristics	Symbol	Lin Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	i f <sub>res</sub>	11	.0	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	114	Funda	mental		
4	Load Capacitance	CL		x)	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	Rr		15	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-12	+ 12	10-6	From frequency measured at To °C
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-10 +10 or -1.5 +1.5		% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	<u> </u>	Not applicable		10-6	
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	11.2	16.8	mH	
14	Motional Capacitance	C <sub>1</sub>	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	Rp/R IZpI/R	2:1	*		In the frequency range: f <sub>r</sub> -200kHz to f <sub>r</sub> + 200kHz
18	Ageing	2 <u>Δ</u> <u>f</u> σ	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish	· ·		2		

PAGE 92

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		[	•••••			
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency		12	12.0		Swept
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	* *	Funda	mental		
4	Load Capacitance	CL	31.7	32.3	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 <sub>L</sub>	•	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-2.0	+20 or +2.0 r is greater	%	From resistance measured at T <sub>o</sub> *C
10	Operating Temperature Range	Top	-25	+ 90	2 - 1 <b>°C</b> - 1	
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 <sub>1</sub>	7.0	***	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	90 000	~	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2;1	**		In the frequency range: f <sub>L</sub> -300kHz to f <sub>L</sub> +300kHz
18	Ageing	<u>∆</u> f	-3.0	+3.0	10-6	After burn-in, per year over 3 years
19	Lead Finish	~		2		

PAGE 93

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f.	4.91	52	MHz	
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	CL	3	0	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	RL	~	40	Ω	At To *C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-20	+20	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-10 -2.0	+10 or +2.0	% Ω	From resistance measured at T <sub>o</sub> °C
10	Operating Temperature Range	Тор	-20	+60	*C	
11	Frequency variation with Drive Level	Δf f	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	, i v <u>.</u>	7.0	ρF	
16	Q Factor	Q	250 000		~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to	Rp/R	2:1			In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Resonance Resistance Ageing		-2.0	+2.0	10-6	Per year after burn-in
19	Lead Finish	~		2	*	
Ł	<u> </u>	I				

PAGE 94

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	15	.0.	MHz	: ::::::::::::::::::::::::::::::::::::
2	Reference Temperature	T <sub>o</sub>	+ 23	+ 27	°C	
3	Overtone Order	*	Fundar	mental		
4	Load Capacitance	C <sub>L</sub>	3	0	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	RL		20	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	∆ f f	-30	+30	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	Not applicable		%	
10	Operating Temperature Range	Тор	-40	+85	°C	
11	Frequency variation with Drive Level	Δ <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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
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	Rp/R IZpl/R	2:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	$\frac{\Delta f}{f}$	-1.0	+ 1.0	10-6	Per year after burn-in
19	Lead Finish			2		

PAGE 95

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	7.	7.5		
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-50	+50	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL	*	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-50	+50	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	AR R	-10 +10 or -1.5 +1.5		% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+50	°C	
11	Frequency variation with Drive Level	Δ f · · · · · · · · · · · · · · · · · ·	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u>∆ B</u> B	Not ap	plicable	%	
13	Motional Inductance	L,	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co		5.0	ρF	
16	Q Factor	Q	80 000	* ************************************	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	2:1	-		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-6	Over 10 years
19	Lead Finish			2		

PAGE 96

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lím Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f.	8.194	8.194442		
2	Reference Temperature	То	+23	+27	*C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	∆ f f	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	RL		40	Ω	At To °C
8	Frequency Variation with Temperature over Top	∆ t f	-10	+ 10	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	∆ R R	-10 c -1.5	+10 )r +1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+ 50	°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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF fF	
15	Static Capacitance	Co		7.0	ρF	
16	Q Factor	Q	80 000		<b>~</b>	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	∆f f	-5.0 -10	+5.0 +10	10-6	After burn-in. Over 10 years
19	Lead Finish			2		

PAGE 97

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lir Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f	1(	),0	MHz	
2	Reference Temperature	To	+ 2	25	°C	
3	Overtone Order	* 1	Funda	ımental		
4	Load Capacitance	C <sub>L</sub>	(	30	pF	
5	Rated Drive Level	Po	C	1.1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-50	+50	10-6	At To °C
7	Resonance Resistance	RL	~	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-50	+50	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	T <sub>ap</sub> 1	-40	+70	*C	
11	Frequency variation with Drive Level	<u>Δ</u> 1	Not ap	oplicable	10-6	
12	Resistance variation with Drive Level	∆R R	Not a	oplicable	%	
13	Motional Inductance	L <sub>1</sub>	Not a	pplicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not a	pplicable	fF.	
15	Static Capacitance	C <sub>o</sub>	Not a	pplicable	pF	
16	Q Factor	Q	Not a	pplicable		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	Not a	pplicable		
18	Ageing	$\frac{\Delta f}{f}$	-50	+50	10-6	Over 5 years
19	Lead Finish			2		
<b></b>					<del></del>	

PAGE 98

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency		4.	4.0		Synthetic swept
2	Reference Temperature	To	+;	25	°C	High temperature cured
3	Overtone Order	*	Fundar	nental		AT cut
4	Load Capacitance	CL	5(		pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At T <sub>o</sub> °C
7.	Resonance Resistance	RL	***	20	Ω	Over Top *C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C measured each 2.5°C
9	Resistance Variation with Temperature over Top	<u>AR</u> R	Not applicable		%	
10	Operating Temperature Range	Тор	-35	+ 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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	•	7.0	pF	
16	Q Factor	Q	100 000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpi/R	Not applicable			
18	Ageing	$\frac{\Delta f}{f}$	-5.0	+5.0	10-6	After burn-in and per year
19	Lead Finish	_		2		

PAGE 99

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f <u>.</u>	8.3	8.388		
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	C <sub>L</sub>	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	<u>∆ f</u>	-20	+20	10-6	At To °C
7	Resonance Resistance	RL	-	40	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆</u> f	-50	+50	10 <sup>-6</sup>	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-10	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> *C If R<10Ω
10	Operating Temperature Range	Тор	-10	+50	°C	
11	Frequency variation with Drive Level	<u>A</u> 1	Not ap	plicable	10-6	· .
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L1	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	Rp/R IZpI/R	2:1	**************************************		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
	Resonance Resistance					
18	Ageing	<u>\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ </u>	-5.0	+5.0	10-6	Per year after burn-in at To
19	Lead Finish	~		2	*	

PAGE 100 ISSUE 5

#### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		Limits			Remarks	
No.	Characteristics	Symbol	Min.	Max.	Unit	Nellialks
1	Resonance Frequency		4.194	1304	MHz	
2	Reference Temperature	To	+23	+ 27	°C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	3	0	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	FL		40	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-15	+15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+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	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	*	7.0	pF	
16	Q Factor	Q	200 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance	Rp/R				In the frequency range: f <sub>L</sub> -200kHz to
	or Response Impedance to Resonance Resistance	IZpI/R	2:1	*		f <sub>L</sub> +200kHz
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	Per year after burn-in at To
19	Lead Finish			2		



PAGE 101

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		<b>,</b>				<del></del>
No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f,	3.2	768	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order		Funda	mental		
4	Load Capacitance	CL	3	0	рF	
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	RL	-	50	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-20	+20	10⁻6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 or -1.0	+20 or +1.0	%	From resistance measured at T <sub>o</sub> °C
10	Operating Temperature Range	Тор	-30	+70	°C	
11	Frequency variation with Drive Level	<u>Δ</u> <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	*	7.0	pF	
16	Q Factor	Q Q	200 000		*	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	Δf f	-1.0	+1.0	10-6	Per year after burn-in
19	Lead Finish			2		



PAGE 102

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		<b>,</b>		······································		<del></del>
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	f	16	16.0		
2	Reference Temperature	Τo	+ 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	Δ <u>f</u>	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>		30	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-10 +10 or -1.5 +1.5		% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 70	°C	
11	Frequency variation with Drive Level	Δ <u>f</u>	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 <sub>1</sub>	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 IZpl/R	2:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	Δ <u>f</u>	-1.0	+ 1.0	10-6	Per year after burn-in at To
19	Lead Finish	~		2		



PAGE 103

ISSUE

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f)	15	.0	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order	*	Fundar	nental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10 <sup>-6</sup>	At To °C
7	Resonance Resistance	RL		30	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	-15	+ 15	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	AR R	-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at $T_{\alpha}$ °C If R<10 $\Omega$
10	Operating Temperature Range	Тар	-30	+ 70	*C	
11	Frequency variation with Drive Level	<u>\1</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	Li	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	-	7.0	ρF	
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	Δ <u>f</u>	-1.0	+ 1.0	10-6	Per year after burn-in
19	Lead Finish	~		2		



PAGE 104 ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f <sub>r</sub>	4.0	4.096		The second secon
2	Reference Temperature	То	+ 23	+27	°C	
3	Overtone Order		Fundai	mental		
4	Load Capacitance	CL	b	•	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 <sub>r</sub>		50	$\Omega$	At To °C
8	Frequency Variation with Temperature over Top	Δf	-15	+15	10-6	From frequency measured at T <sub>o</sub> °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 <sub>0</sub> °C
10	Operating Temperature Range	Тор	-30	+80	°C	
11	Frequency variation with Drive Level	Δ <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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C,	Not ap	plicable	ı fF	
15	Static Capacitance	C <sub>0</sub>	Not ap	plicable	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	3:1	~		In the frequency range: f <sub>r</sub> -10% to f <sub>r</sub> +10%
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	
19	Lead Finish	~ *		2		



PAGE 105 ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			7 (37) (37)			
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f	10	.0	MHz	
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order	-	Fundar	nental		
4	Load Capacitance	CL	3(	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>1</u>	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	*	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δf f	-30	+30	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-20 or -2.0	+20 or +2.0	%	From resistance measured at T <sub>0</sub> °C If R≤10Ω
10	Operating Temperature Range	Тор	-55	+ 100	°C	
11	Frequency variation with Drive Level	<u>∆</u> <u>1</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	<u> </u>	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	~	7.0	ρF	
16	Q Factor	Q	100 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Ap/R	2:1	~		In the frequency range: ft200kHz to ft_+200kHz
18	Ageing	<u></u>	-2.0	+2.0	10-6	Per year after burn-in at To
19	Lead Finish			2	<u> </u>	



PAGE 106

5

ISSUE

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	18	.0	MHz	
2	Reference Temperature	$T_{O}$	+23	+27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	28	32	pF	
5	Rated Drive Level	Po	0.	2	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 with Temperature over Top	Δ <u>f</u> f	(a) -5.0 (b) -8.0	+5.0 +8.0	10-6	From frequency measured at T <sub>0</sub> °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-10 -1.5	+10 or +1.5	% Ω	From resistance measured at $T_0$ °C If R < 10 $\Omega$
10	Operating Temperature Range	Тор	(a) 0 (b) -10	+ 60 + 70	°C	
11	Frequency variation with Drive Level	<u>∆</u> 1	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	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	3:1	~		In the frequency range: f <sub>L</sub> -10% to f <sub>L</sub> +10%
18	Ageing	∆f f	-2.0	+2.0	10-6	Per year
19	Lead Finish	-		2		



PAGE 107

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lím Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f,	25	.0	MHz	Swept
2	Reference Temperature	To	+	25	°C	
3	Overtone Order		3			
4	Load Capacitance	CL	α	,	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δf	-10	+10	10-6	At To °C
7	Resonance Resistance	R <sub>r</sub>		15	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-10	+ 10	10-6	From frequency measured at T <sub>a</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	-20	+ 20	%	From resistance measured at T <sub>o</sub> °C
10	Operating Temperature Range	Тор	-25	+75	*C	
11	Frequency variation with Drive Level	Δ f	: 1:4 <b>+1</b> 0 .	+ 10	10-6	From $P_{S1} = 0.05$ mW to $P_{S2} = 0.2$ mW
12	Resistance variation with Drive Level	ΔR R	-10	+ 10	%	From $P_{S1} = 0.05$ mW to $P_{S2} = 0.2$ mW
13	Motional Inductance	L <sub>1</sub>	17	21	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	*	5.0	pF	
16	Q Factor	Q	300 000	*	*	
17	Unwanted Response Resistance	Rp	500 1.0 3.5 35.0	*	Ω kΩ kΩ kΩ	In the frequency range: $f_r$ to $f_r$ + 200kHz $f_r$ + 200 to $f_r$ + 300kHz $f_r$ + 300 to $f_r$ + 500kHz $f_r$ + 500 to $f_r$ + 2000kHz
18	Ageing	$\frac{\Delta f}{f}$	-10	+ 10	10-6	After burn-in and per year
19	Lead Finish	.*.		2	3	



PAGE 108

ISSUE

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	fr	3.68	364	MHz	
2	Reference Temperature	To	*	25	°C	
3	Overtone Order	•	Fundar	mental		
4	Load Capacitance	CL	۵		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	a R <sub>r</sub>		50	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u> f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	Not applicable		%	
10	Operating Temperature Range	Тор	-25	+80	*C	
11	Frequency variation with Drive Level	<u>∆</u> <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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF 1	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	75 000	* **		
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpl/R	5:1	***************************************		In the frequency range: f <sub>r</sub> -10% to f <sub>r</sub> +10%
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-	1	2		



PAGE 109

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lìmi Min.	ts Max.	Unit	Remarks
1	Resonance Frequency	f <sub>L</sub>	5.24%	288	MHz	
2	Reference Temperature	To	+6	0	*C	
3	Overtone Order		Fundan	nental		
4	Load Capacitance	CL	22	2	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+10	10-6	At T <sub>o</sub> *C
7	Resonance Resistance	RL	~	13	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	∆f f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	AR 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	Δ <u>R</u> R	Not ap	olicable	%	
13	Motional Inductance	L-1	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	50 000		~	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	3:1	~		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	<u>A</u> f	-3.0	+3.0	10-6	After burn-in and per year
19	Lead Finish	-		2	•	

PAGE 110 ISSUE 5

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency		12	.0	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	28	32	pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-10	+10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R		25	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>A</u> f	-25	+ 25	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	△ <u>R</u> R	-10 +10 or -1.5 +1.5		% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Top	-10	+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	9/0	
13	Motional Inductance	Lı	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	C <sub>o</sub>	-	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	3:1			In the frequency range: f <sub>L</sub> -10% to f <sub>L</sub> + 10%
18	Ageing	Δ <u>f</u>	-3.0	+3.0	10-6	Per year
19	Lead Finish	-		<u>1</u> 2		

PAGE 111

ISSUE 5

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	ſ,	3.68	364	MHz	
2	Reference Temperature	То	+ 23	+ 27	°C	
3	Overtone Order		Fundai	mental		
4	Load Capacitance	CL	28	32	pF	
5	Rated Drive Level	Po	0.	2	mW	
6	Frequency Adjustment Tolerance	<u>Δ</u> .	-10	+10	10-6	At To °C
7	Resonance Resistance	RL	•	100	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-25	+25	10 <sup>-6</sup>	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	A AR R P	-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	-10	+80	°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	Li	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co		7.0	pF	
16	Q Factor	۵	75 000	-	+	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance	Rp/R				In the frequency range: f <sub>L</sub> -10%
	or Response Impedance to Resonance Resistance	IZpI/R	5:1	*		ή <sub>L</sub> + 10%
18	Ageing	<u>\</u>	-3.0	+3.0	10-6	Per year
19	Lead Finish	-		2		



PAGE 112

ISSUE (

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lin	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Unit	Remarks
		<b>O</b> ,o.	Min.	Max.	•	
1	Resonance Frequency	f,	12.13	12.136285		Synthetic swept
2	Reference Temperature	То	+23	+27	°C	High temperature cured
3	Overtone Order		Funda	mental		AT cut
4	Load Capacitance	CL		0	pF	
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,		20	Ω	At T <sub>0</sub> °C
8	Frequency Variation with Temperature over Top	∆ <u>f</u>	-10	+ 10	10-6	From frequency measured at To °C measured each 2.5°C
9	Resistance Variation with Temperature over Top	<u>∆B</u> R	-10 -1.5	+10 or +1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+ 65	°C	
11	Frequency variation with Drive Level	<u>A</u> 1	-5.0	+ 5.0	10-6	From $P_{s1} = 0.05$ mW to $P_{s2} = 0.1$ mW
12	Resistance variation with Drive Level	Δ <u>R</u> R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	150 000		*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	5:1	*		In the frequency range: f <sub>r</sub> -10% to f <sub>r</sub> +10%
18	Ageing	$\frac{\Delta f}{f}$	-10	+10	10-8	Over 10 years after burn-in
19	Lead Finish		<b>†</b>	<u>1</u> 2	1	



PAGE 113

ISSUE 5

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	fL	18	18.0		
2	Reference Temperature	То	+38	+ 42	°C	The same of the sa
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	5	0	pF	
5	Rated Drive Level	Po	0.	1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta t}{t}$	-10	+ 10	10-6	At T <sub>o</sub> °C
7	Resonance Resistance	R <sub>L</sub>	~	20	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆1</u>	-15	+15	10 <sup>-6</sup>	From frequency measured at T <sub>a</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-10 -1.5	+10 r +1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+80	°C	
11	Frequency variation with Drive Level	Δ1 1	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 <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C₀		7.0	pF	
16	Q Factor	Q	75 000		~	
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 <sub>L</sub> -200kHz to f <sub>L</sub> + 200kHz
18	Ageing	∆ f f	-3.0	+ 3.0	10-6	After burn-in and per year
19	Lead Finish	*		2		



PAGE 114 ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f,	8.38	8.388608		
2	Reference Temperature	To	+23	+27	°C	
3	Overtone Order	*	Funda	mental		
4	Load Capacitance	CL	4	•	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	R,		20	Ω	At To °C
8	Frequency Variation with Temperature over Top	Δ f	(a) -12 (b) -20	+20 +12	10-6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top	<u>AB</u> R	-10 or -2.0	+ 10 or + 2.0	- % Ω	From resistance measured at T <sub>0</sub> °C
10	Operating Temperature Range	Тор	(a) -30 (b) -40	+ 75 + 30	°C	
11	Frequency variation with Drive Level	Δf	-5.0	+5.0	10-6	From $P_{s1} = 0.05 \text{mW}$ to $P_{s2} = 0.1 \text{mW}$
12	Resistance variation with Drive Level	∆R R	Not ap	plicable	. %	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	plicable	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	5:1	*		In the frequency range: f <sub>r</sub> -200kHz to f <sub>r</sub> + 200kHz
18	Ageing	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	-3.0	+3.0	10-6	After burn-in, per year
19	Lead Finish			2	*	

PAGE 115

ISSUE 6

## TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	iits Max.	Unit	Remarks
1	Resonance Frequency	f	10	10.0		
2	Reference Temperature	То	+36	+ 44	°C	
3	Overtone Order		Funda	mental	18 Fi	
4	Load Capacitance	CL	28	32	ρF	
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		15	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-30	+30	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>Δ R</u> R	-10 -1.5	+10 or +1.5	% : Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-20	+ 90	°C	1997 - John J. B
11	Frequency variation with Drive Level	Δ <u>f</u>	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	ΔR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	2.8		mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	C <sub>o</sub>	: *	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 IZpl/R	2:1	*		In the frequency range: f <sub>L</sub> -50kHz to f <sub>L</sub> +50kHz
18	Ageing	Δ <u>Δ</u> <u>f</u> · · ·	-3.0	+3.0	10-6	Per year after burn-in
19	Lead Finish			2	· ·	
<del></del>	<del></del>	· <del></del>				<del></del>

PAGE 116

5

ISSUE

#### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

			Lim	its	1134	Remarks
No.	Characteristics	Symbol	Min.	Max.	Unit	nemarks
1	Resonance Frequency	fL	6.	6.0		
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	3		pF	
5	Rated Drive Level	Po	0.		mW	
6	Frequency Adjustment Tolerance	Δ <u>f</u>	-10	+ 10	10-6	At To °C
7	Resonance Resistance	RL		50	Ω	At To °C
8	Frequency Variation with Temperature over Top	$\frac{\Delta f}{f}$	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	∆R R	-20 or -2.0	+20 or +2.0	% Ω	From resistance measured at T <sub>0</sub> °C
10	Operating Temperature Range	Top	-45	+ 75	*C	
11	Frequency variation with Drive Level	Δ <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 <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF.	
15	Static Capacitance	Co	Not ap	plicable	pF	
16	Q Factor	Q	200 000		· .	
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: ft50kHz to ft_ +50kHz
18	Ageing	<u>Δ</u> 1	-3.0	+3.0	10-6	Per year after burn-in
19	Lead Finish	*		2	v	



PAGE 117

5

ISSUE

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	fL	12	2.5	MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order	*	Funda	mental		
4	Load Capacitance	CL	3	0	pF	
5	Rated Drive Level	P <sub>o</sub>	0	.1	mW	
6	Frequency Adjustment Tolerance	$\frac{\Delta f}{f}$	-20	+20	10-6	At To °C
7	Resonance Resistance	RL	•	30	Ω	At T <sub>o</sub> °C
8	Frequency Variation with Temperature over Top	<u>Ơ</u>	-30	+30	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	<u>∆</u> R R	-20 or -2.0	+20 or +2.0	% : Ω	From resistance measured at T <sub>o</sub> °C
10	Operating Temperature Range	Тор	-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 <sub>1</sub>	Not ap	pplicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co	Not ap	oplicable	ρF	
16	Q Factor	Q	Not ap	oplicable		
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 <sub>L</sub> -50kHz to f <sub>L</sub> +50kHz
18	Ageing	Δ <u>.</u>	-10	+ 10	10-6	5 years after burn-in
19	Lead Finish	-		2		

PAGE 118

ISSUE 5

#### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

					····	
No.	Characteristics	Symbol	Lim Min.	nits Max.	Unit	Remarks
1	Resonance Frequency	i f	11,0	059	MHz	
2	Reference Temperature	To	+ 23	+ 27	°C	
3	Overtone Order		Fundar	mental		
4	Load Capacitance	CL	5	0	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	RL	~	20	Ω	Over Top °C
8	Frequency Variation with Temperature over Top	<u>∆ f</u> f	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	ΔR R	Not applicable		%	
10	Operating Temperature Range	Top	-35	+70	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not ap	plicable	10-6	
12	Resistance variation with Drive Level	AR R	Not ap	plicable	%	
13	Motional Inductance	L <sub>1</sub>	Not ap	plicable	mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	
15	Static Capacitance	Co		7.0	pF	
16	Q Factor	Q	100 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R IZpl/R	2:1	*		In the frequency range: ft200kHz to ft_+200kHz
18	Ageing	<u>∆</u> f	-5.0	+5.0	10-6	Per year after burn-in
19	Lead Finish	~		2		



PAGE 119

ISSUE 5

# TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

		<u> </u>				
No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f,	7.37	7.3728		
2	Reference Temperature	To	+ 23	+27	°C	
3	Overtone Order		Fundar	nental		
4	Load Capacitance	CL	3	0	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 <sub>L</sub>	•	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>∆1</u> f	-15	+ 15	10⁻6	From frequency measured at T <sub>o</sub> *C
9	Resistance Variation with Temperature over Top		-10 -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>o</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-30	+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 <sub>1</sub>	Not ap	plicable	mH	·
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	fF	na n
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 <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Ageing	$\frac{\Delta f}{f}$	-3.0	+3.0	10-6	Per year after burn-in
19	Lead Finish	~		2	**	



PAGE 120 ISSUE 5

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

No.	Characteristics	Symbol	Lim Min.	its Max.	Unit	Remarks
1	Resonance Frequency	f.	5.12		MHz	
2	Reference Temperature	To	+ 38	+ 42	°C	
3	Overtone Order		Fundamental			
4	Load Capacitance	CL	30		pF	
5	Rated Drive Level	Po	0.1		mW	
6	Frequency Adjustment Tolerance	2 <u>Δ f</u>	-10	+ 10	10-6	At To °C
7	Resonance Resistance	RL	0	30	Ω	At To °C
8	Frequency Variation with Temperature over Top	<u>Δ</u> 1	-15	+15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	Δ <u>R</u> R	-10 or -1.5	+ 10 or + 1.5	% Ω	From resistance measured at T <sub>0</sub> °C If R<10Ω
10	Operating Temperature Range	Тор	-40	+80	°C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not applicable		%	
13	Motional Inductance	Lı	Not applicable		mH	
14	Motional Capacitance	C <sub>1</sub>	Not applicable		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	Rp/R	2:1	*		In the frequency range: f <sub>L</sub> -200kHz to f <sub>L</sub> +200kHz
18	Resonance Resistance Ageing	<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	-3.0	+ 3.0	10-5	Per year after burn-in
19	Lead Finish	,	2		·	

PAGE 121

ISSUE 5

### TABLE 1(a) - TYPE VARIANT DETAILED INFORMATION

<b>.</b> 1	Characteristics	Symbol	Limits		11,232	Remarks
No.			Min.	Max.	Unit:	nemarks
1	Resonance Frequency	i i i f	1(	0.0	MHz	
2	Reference Temperature	То	+ 65	+ 78	°C	Turn point
3	Overtone Order					SC cut
4	Load Capacitance	CL	18	32	pF	
5	Rated Drive Level	Po	0.1		mW	
6	Frequency Adjustment Tolerance	<u>Δ t</u> f	Not applicable		10-6	
7	Resonance Resistance	RL		90	Ω	Over T <sub>op</sub> °C
8	Frequency Variation with Temperature over Top	Δ <u>f</u>	-15	+ 15	10-6	From frequency measured at T <sub>o</sub> °C
9	Resistance Variation with Temperature over Top	유	Not applicable		% **	From resistance measured at T <sub>0</sub> °C
10	Operating Temperature Range	Тор	-25	+80	*C	
11	Frequency variation with Drive Level	$\frac{\Delta f}{f}$	Not applicable		10-6	
12	Resistance variation with Drive Level	ΔR R	Not applicable		%	
13	Motional Inductance	L <sub>1</sub>	Not applicable		mH	
14	Motional Capacitance	C <sub>1</sub>	Not ap	plicable	ſF	
15	Static Capacitance	Co	-	7.0	pF	
16	Q Factor	Q	800 000	*	*	
17	Ratio of Unwanted: Response Resistance to Resonance Resistance or Response Impedance to Resonance Resistance	Rp/R	Not applicable			
18	Ageing	<u>∆</u> <u>f</u>	-0.5	+0.5	10-6	Per year after burn-in
19	Lead Finish	-	2			



PAGE 122 ISSUE 5

#### APPENDIX 'A'

Page 1 of 1

#### 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.			



PAGE 123

ISSUE 5

#### APPENDIX 'B'

Page 1 of 1

## 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.				