Approved by
Checked by:
Issued by:

SPECIFICATION

Product: 1-port SAW Resonator
Model: NDR303.325S2

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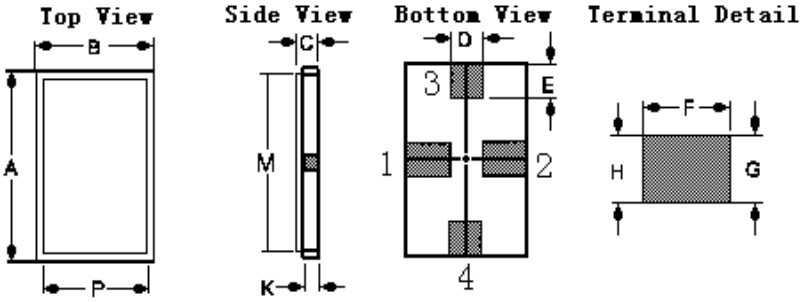
1.Package Dimension (SM-2)



Dimensions	Millimeters	
	Min.	Max.
A		6.30
B		4.44
C		2.08
D	0.94	1.10
E	0.83	1.20
F	1.16	1.53
G	0.94	1.10
H	0.43	0.59
K	1.96	2.00
M		4.8
P		2.9

2.Marking

NDR303.325S2

2-1 Color: White

2-2 Center Frequency (MHz): 303.325

3.Performance

3-1.Absolute Maximum Ratings

Rating	Value	Units
CW RF Dissipation	0	dBm
DC Voltage Between Terminals (Observe ESD Precautions)	±30	VDC
Case Temperature	-40 to +85	℃
Soldering Temperature	+250	℃

3-2 Electronic Characteristics

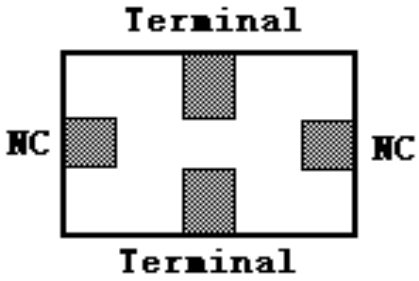
Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency at +25℃	Absolute Frequency	fc	303.250		303.400	MHz
	Tolerance from 303.325MHz	Δfc			±75	kHz
Insertion Loss		IL		1.3	2.0	dB
Quality Factor	Unloaded Q	Q_U		14,200		
	50 Ω Loaded Q	Q_L		1,900		
Temperature Stability	Turnover Temperature	T_0	24	39	54	℃
	Turnover Frequency	f_0		fc		
	Frequency Temperature Coefficient	FTC		0.032		ppm/℃^{2}
Frequency Aging Absolute Value during the First Year		|fA|		10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	R_M		19	26	Ω
	Motional Inductance	L_M		119.245		μH
	Motional Capacitance	C_M		2.25143		fF
	Shunt Static Capacitance	C_P	2.0	2.2	2.4	pF

☺ **CAUTION: Electrostatic Sensitive Device. Observe precautions for handling!**

Notes:

1. Frequency aging is the change in f_C with time and is specified at +65°C or less. Aging may exceed the specification for prolonged temperatures above +65°C.Typically, aging is greatest the first year after manufacture, decreasing in subsequent years.
2. The center frequency, f_C , is measured at the minimum insertion loss point, IL_{MIN}, with the resonator in the 50Ω test system (VSWR ≤1.2:1). The shunt inductance, L_{TEST}, is tuned for parallel resonance with C_O at f_C . Typically, $f_{oscillator}$ or $f_{transmitter}$ is approximately equal to the resonator f_C.
3. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
4. Unless noted otherwise, case temperature TC = +25°C±2°C.
5. The design, manufacturing process, and specifications of this device are subject to change without notice.
6. Derived mathematically from one or more of the following directly measured parameters: f_C, IL, 3 dB bandwidth, f_C versus T_C, and C_O.
7. Turnover temperature, T_O, is the temperature of maximum (or turnover) frequency, f_O. The nominal frequency at any case temperature, TC, may be calculated from: $f = f_0 [1 - FTC (T_O - T_C)2]$. Typically *oscillator* T_O is approximately equal to the specified *resonator* T_O.
8. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C_O is the static (nonmotional) capacitance between the two terminals measured at low frequency (10 MHz) with a capacitance meter. The measurement includes parasitic capacitance with "NC" pads unconnected. Case parasitic capacitance is approximately 0.05 pF. Transducer parallel capacitance can by calculated as: $C_P = C_O$ - 0.05 pF.

4. Electrical Connections



5.Typical Test Circuit