Approved by:
Checked by:
Issued by:

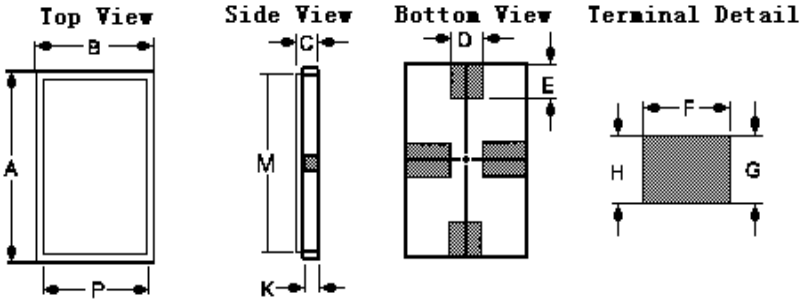
SPECIFICATION

PRODUCT: 1-port SAW Resonator

MODEL: NDR304S2

NEDI

1. Package Dimension (SM-2)



	Millimeters	
		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

NDR304S2

2-1.Color: White

2-2.Center Frequency (MHz): 304.30

3. Performance

3-1.Absolute Maximum Ratings

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

3-2Electronic Characteristics

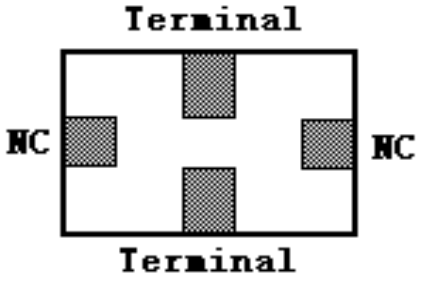
Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency at +25℃	Absolute Frequency	fc	304.225		304.375	MHz
	Tolerance from 304.30MHz	Δfc			±75	kHz
Insertion Loss		IL		1.2	1..8	dB
Quality Factor	Unloaded Q	Q_U	10,600	16,328		
	50 Ω Loaded Q	Q_L	1,990	2,129		
Temperature Stability	Turnover Temperature	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		15	23	Ω
	Motional Inductance	L_M		128.16596		μH
	Motional Capacitance	C_M		2.136506		fF
	Shunt Static Capacitance	C_O		2.5		pF

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

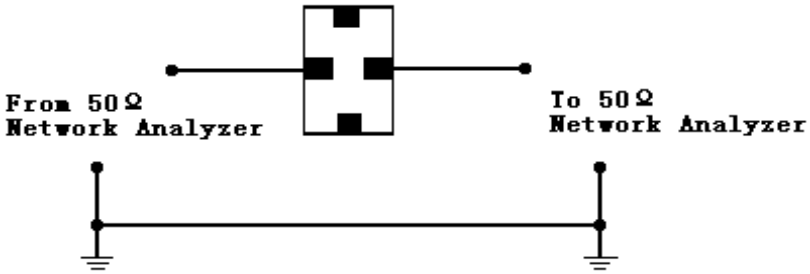
NOTES:

1. Lifetime (10 year) frequency aging.
2. The center frequency, f_c is measured at the minimum insertion loss point, IL_{MIN} with the resonator in the 50 Ω test system (VSWR ≤ 1.2 : 1).
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 T_c=+25℃±2℃.
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_0.
7. Turnover temperature, T_O, is the temperature of maximum (or turnover) frequency, f_O, The nominal center frequency at any case temperature , TC, may be calculated from: $f = f_O [1\text{-}FTC (T_O\text{-}T_C)^2]$.
8. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only . The capacitance C_0 is the static (nonmotional) capacitance between the two terminals measured at low frequency (10MHz) with a capacitance meter. The measurement includes parasitic capacitance with "NC" pads unconnected. Case parasitic capacitance is approximately 0.05pF,Transducer parallel capacitance can by calculated as: $C_P=C_O-0.05pF$.

4. Electrical Connections



5. Test Circuit



6. Typical Frequency Response