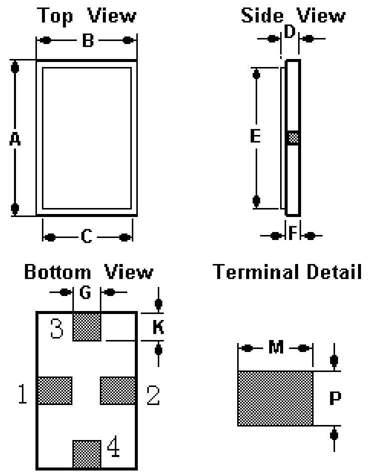
The NDR315S2 is a true one-port, surface-acoustic-wave (**SAW**) resonator in a low-profile **SM-2** case**.** It provides reliable, fundamental-model, quartz frequency stabilization of fixed-frequency transmitters operating at **315 MHz.**

1.Package Dimension (SM-2)



Pin	Connection
1	Terminal1
2	Terminal2
3/4	Case Ground

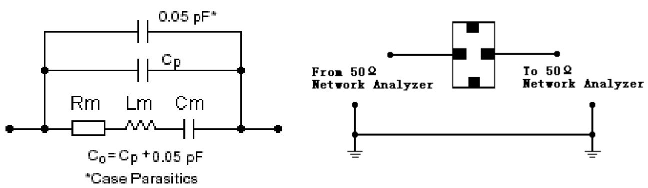
Sign	Data (unit: mm)	Sign	Data(unit:mm)
A	6.30	F	2.00
B	4.44	G	1.10
C	2.90	K	1.20
D	2.08	M	1.53
E	4.80	P	1.10

2.Marking

NDR315S2

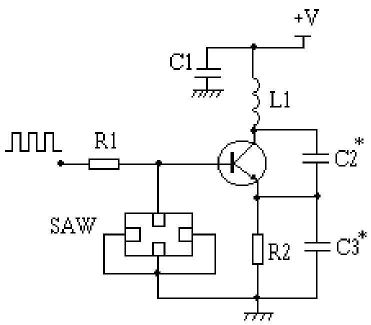
Color: Black or Blue

3.Equivalent LC Model and Test Circuit

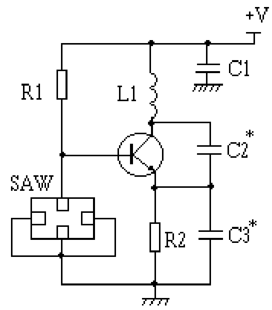


4.Typical Application Circuit

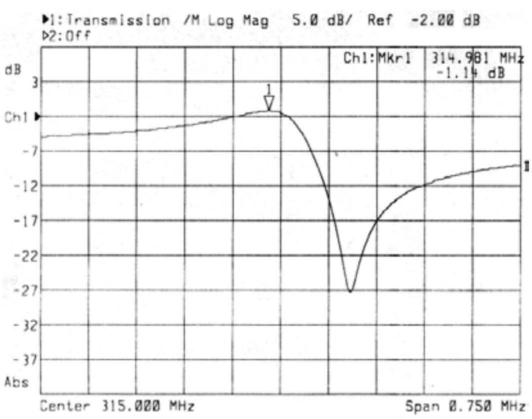
1) Telecontrol Circuitry



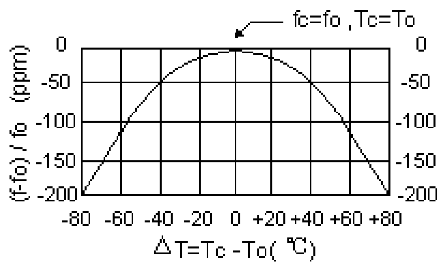
2) Local Oscillator Application



5.Typical Frequency Response



6.Temperature Characteristics



The curve shown above accounts for resonator contribution only and does not include oscillator temperature characteristics.

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7.Performance

7-1.Maximum Rating

Rating	Value	Units
CW RF Power Dissipation	+0	dBm
DC Voltage Between Any Two Pins	±30V	VDC
Case Temperature	-40 to +85	℃

7-2.Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Units
Center Frequency (+25℃)	Absolute Frequency	f_C	314.925		315.075	MHz
	Tolerance from 315 MHz	Δf_C		±75		kHz
Insertion Loss		IL		1.5	2.2	dB
Quality Factor	Unloaded Q	Q_U		12,500		
	50 Ω Loaded Q	Q_L		2,000		
Temperature Stability	Turnover Temperature	T_O	25	40	55	℃
	Turnover Frequency	f_O		fc		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/℃^{2}
Frequency Aging	Absolute Value during the First Year	$\|f_A\|$		≤10		ppm/yr
DC Insulation Resistance Between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	R_M		19	29	Ω
	Motional Inductance	L_M		120.311		µH
	Motional Capacitance	C_M		2.1240		fF
	Pin 1 to Pin 2 Static Capacitance	C_O		2.5		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℃ or less. Aging may exceed the specification for prolonged temperatures above +65 ℃ .Typically, aging is greatest the first year 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 50 Ω test system (VSWR ≤1.2:1). The shunt inductance, L_{TEST}, is tuned for parallel resonance with C_0 at f_C. Typically, $f_{oscillator}$ or $f_{transmitter}$ is less than 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 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-FTC $(T_O-T_C)^2$] . Typically, oscillator T_O is 20℃ less than 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_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: $C_P=C_O-0.05$pF.

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