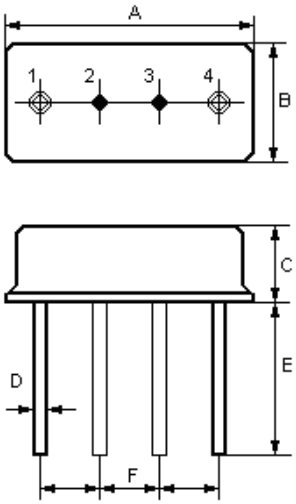
Features

- 1-port Resonator
- Provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators
- In a low-profile metal **F-11** case
- Lead-free production and RoHS compliance

Package Dimensions



Pin	Configuration
1, 4	Input / Output
2 / 3	Case Ground
Dimensions	**Data (unit: mm)**
A	11.0±0.3
B	4.5±0.3
C	3.2±0.3
D	0.45±0.1
E	5.0±0.5
F	2.54±0.2

Marking

NDR433.92

Ink OR Laser Marking

**ink Color: Black or Blue*

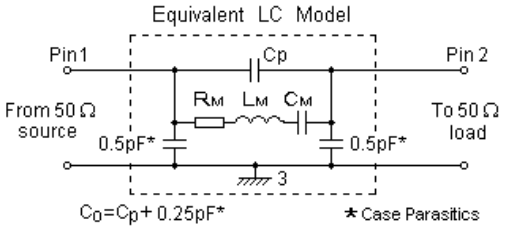
Top View:

"**ND**": Manufacturer's mark

"**R**": SAW resonator

"**433.92**": center Frequency

Equivalent LC Model



Maximum Ratings

Rating		Value	Unit
CW RF power dissipation	P	0	dBm
DC voltage between any terminals	V_{DC}	±30	V
Operating temperature range	T_A	-40 ~ +85	°C
Storage temperature range	T_{stg}	-40 ~ +85	°C

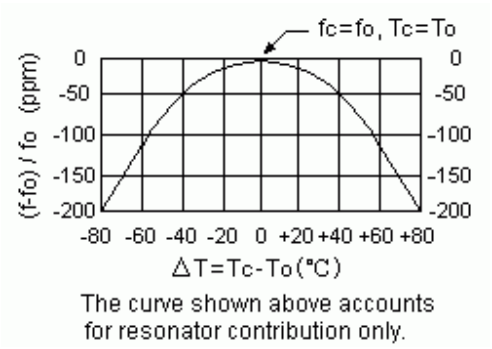
Electrical Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Unit
Center Frequency (+25℃)	Absolute Frequency	f_C	433.845		433.995	MHz
	Tolerance from 433.920MHz	Δf_C		±150		kHz
Insertion Loss		IL		1.5	2.2	dB
Quality Factor	Unloaded Q	Q_U		10,350		
	50 Ω Loaded Q	Q_L		1,650		
Temperature Stability	Turnover Temperature	T_0	25		55	℃
	Turnover Frequency	f_0		f_C		kHz
	Frequency Temperature Coefficient	FTC		0.032		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		72.0546		μH
	Motional Capacitance	C_M		1.8690		fF
	Pin 1 to Pin 4 Static Capacitance	C_0	1.8	2.1	2.4	pF

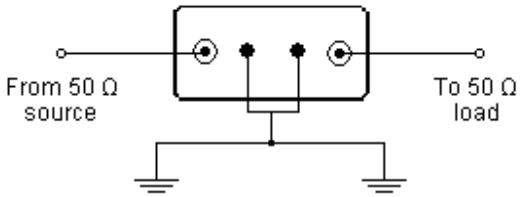
RoHS Compliant **Electrostatic Sensitive Device**

1. Unless noted otherwise, case temperature T_C = +25°C±2°C.
2. The center frequency, f_C, is measured at the minimum insertion loss point with the resonator in the 50Ω test system.
3. 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.
4. Turnover temperature, T_O, is the temperature of maximum (or turnover) frequency, f_O. The nominal frequency at any case temperature, T_C, may be calculated from: $f = f_O [1 - FTC (T_O - T_C)^2]$.
5. This equivalent RLC model approximates resonator performance near the resonant frequency and is provided for reference only. The capacitance C_O is the static capacitance between the two terminals measured at low frequency (10MHz) with a capacitance meter. The measurement includes case parasitic capacitance.

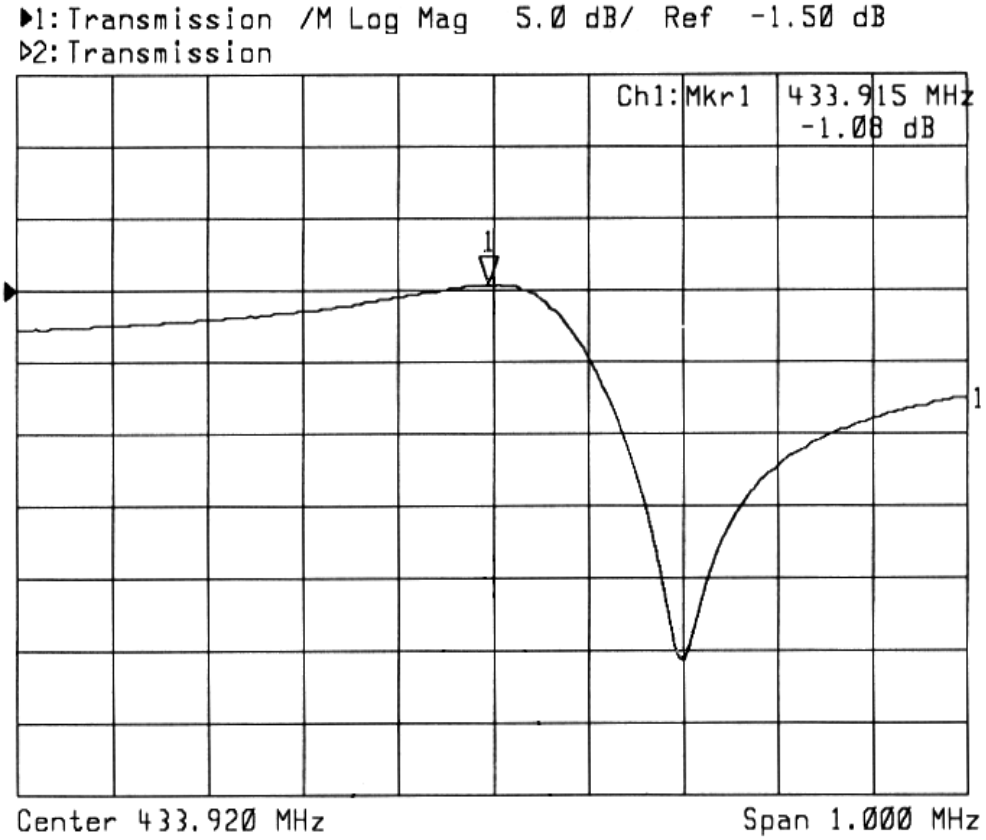
Temperature Characteristics



Test Circuit

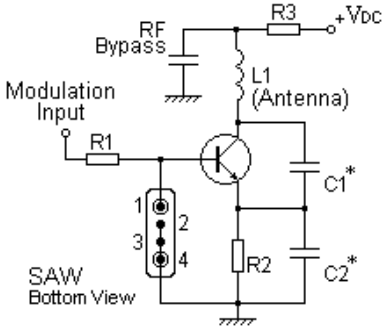


Typical Frequency Response

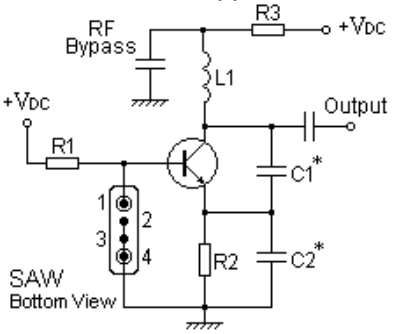


Typical Application Circuits

1) Low-Power Transmitter Application



2) Local Oscillator Application



1. The specifications of this device are subject to change or obsolescence without notice.
2. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
3. Our liability is only assumed for the Surface Acoustic Wave (SAW) component(s) per se, not for applications, processes and circuits implemented within components or assemblies.
4. For questions on technology, prices and delivery, please contact our sales offices or e-mail winnsky@winnsky.com