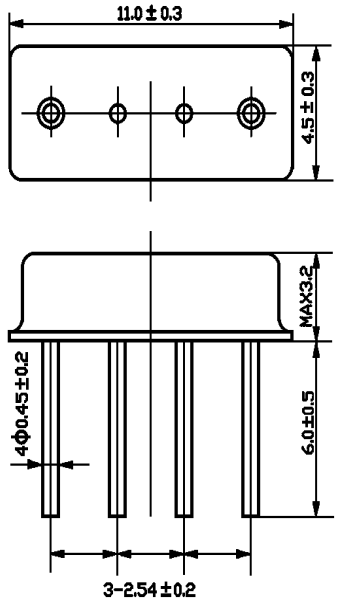
1.Package Dimension(F-11 SMD)



NO.	Function
1	Output/Input
2	GND
3	GND
4	Input/Output

Unit:mm

2. Marking

NDR433.92

2-1.Color: Black or Blue
2-2.Center Frequency(MHz):433.92

3.Performance
3-1.Maximum Rating

DC Voltage V_{DC}	10V
AC Voltage V_{PP}	10V(50Hz/60Hz)
Operation Temperature	-40°C to +85°C
Storage Temperature	-40°C to +85°C
RF Power Dissipation	0 dBm

3-2Electronic Characteristics

Characteristic		Sym	Minimum	Typical	Maximum	Unit
Center Frequency(+25□)	Absolute Frequency	fc	433.845		433.995	MHz
	Tolerance from 433.92 MHz	Δfc		±75		kHz
Insertion Loss				1.5	2.0	dB
Quality Factor	Unloaded Q	Q_U		12,800		
	50 Ω Loaded Q	Q_L		2,000		
Temperature Stability	Turnover Temperature	T_0	24	39	54	°C
	Turnover Frequency	f_0		fc+2.7		kHz
	Frequency Temperature Coefficient	FTC		0.037		ppm/□ ²
Frequency Aging	Absolute Value during the First Year			≤10		ppm/yr
DC Insulation Resistance between Any Two Pins			1.0			MΩ
RF Equivalent RLC Model	Motional Resistance	R_M		18	26	Ω
	Motional Inductance	L_M		86.0075		μH
	Motional Capacitance	C_M		1.56417		fF
	Pin 1 to Pin 2 Static Capacitance	C_O	—	1.9		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 frequency f_c id the frequency of minimum IL with the resonator in the specified test fixture in a 50 Ω test system with VSWR ≤ 1.2 : 1. 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=+22°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_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 $T_0$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 measured static (nonmotional) capacitance between either pin 1 and ground or pin 4 and ground .The measurement includes case parasitic capacitance.

Note: Reference temperature shall be 25 ± 2°C.However, the measurement may be carried out at 5°C to 35°C unless there is a dispute.

4.Reliability

4.1 Mechanical Shock: The components shall remain within the electrical specifications after 1000 shocks, acceleration 392m/s^2,duration 6 milliseconds.

4.2 Vibration Fatigue: The components shall remain within the electrical specifications after loaded vibration at 20 Hz , amplitude 1.5mm , for 2 hours.

4.3 Terminal Strength: The components shall remain within the electrical specifications after pulled 2 Kgs weight for 10 seconds towards an axis of each terminal.

4.4 High Temperature Storage: The components shall remain within the electrical specifications after being kept at the 85°C ±2°C for 48 hours, then kept at room temperature for 2 hours.

4.5 Low Temperature Storage: The components shall remain within the electrical specifications after being kept at the -25°C ±2°C for 48 hours ,then kept room temperature for 2 hours.

4.6 Temperature Cycle: The components shall remain within the electrical specifications after 5 cycles of high and low temperature testing(one cycle: 80°C for 30 minutes → 25°C for 5 minutes→ -25°C for 30 minutes) than kept at room temperature for 2 hours.

4.7 Solder-heat Resistance : The components shall remain within the electrical specifications after dipped in the solder at 260°Cfor 10±1seconds,then kept at room temperature for 2 hours .(Terminal must be dipped leaving 1.5 mm from the case).

4.8 Solder ability: Solder ability of terminal shall be kept at more than 80% after dipped in the solder flux at 230°C ± 5°C for 5±1 seconds.

5. Remarks

5.1Static voltage

Static voltage between signal load & ground may cause deterioration & destruction of the component. Please avoid static voltage .

5.2Ultrasonic cleaning

Ultrasonic vibration may cause deterioration & destruction of the component. Please avoid ultrasonic cleaning.

5.3Soldering

Only leads of component may be soldered. Please avoid soldering another part of component.