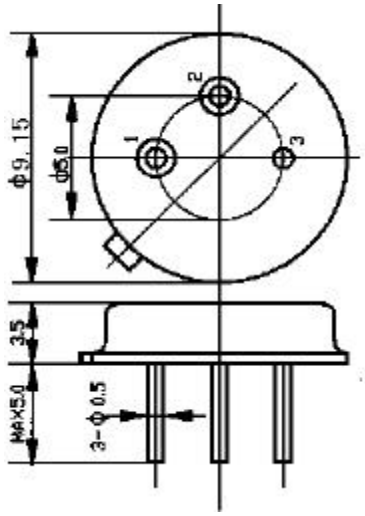
1.Package Dimension
(TO-39)
Unit:mm

| NO. | Function |
|---|---|
| 1 | Input/Output |
| 2 | Output/Input |
| 3 | GND |




2. Marking

Rugular ( Display the frequency)

2-1.Color: Black or Blue
2-2.Center Frequency(MHz):315.0

3.Performance
3-1.Maximum Rating

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

## 3-2Electronic Characteristics

| Characteristic | | Sym | Minimum | Typical | Maximum | Units |
|---|---|---|---|---|---|---|
| Center Frequency (+25¡ æ | Absolute Frequency | fc | 314.925 | | 315.075 | MHz |
| | Tolerance from 315.00.MHz | Δfc | | ¡ Ã5 | | kHz |
| Insertion Loss | | IL | | 1.5 | | dB |
| Quality Factor | Unloaded Q | $Q_U$ | | 13,900 | | |
| | 50 Ω Loaded Q | $Q_L$ | | 2,100 | | |
| Temperature Stability | Turnover Temperature | T0 | 10 | 25 | 40 | ¡ æ |
| | Turnover Frequency | f0 | | fc | | kHz |
| | Frequency Temperature Coefficient | FTC | | 0.037 | | ppm/¡ æ$^2$ |
| Frequency Aging Absolute Value during the First Year | | \|fA\| | | ¡ Ü0 | | 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 | $L_M$ | | 96.1991 | | μH |
| | Motional Capacitance | $C_M$ | | 2.83921 | | fF |
| | Shunt 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¡ æor less. Aging may exceed the specification for prolonged temperatures above +65¡ æTypically, 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 $T_c$=+25¡ æ Â¡ æ
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 = $f_O$£ Û-FTC ($T_O$-$T_C$)$^2$£ ÝTypically, oscillator $T_0$is 20$^o$ less than the specified resonator $T_o$.

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 2 and ground .The measurement includes case parasitic capacitance.

Note: Reference temperature shall be 25 ± 2¡ æHowever,the measurement may be carried out at 5¡ æto 35¡ æunless 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¡ æ2¡ æfor 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¡ æ2¡ æfor 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¡ æfor 30 minutes →25 ¡ æfor 5 minutes → -25¡ æfor 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¡ æfor 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¡ æ± 5¡ æfor 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.