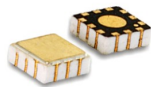


5.0X5.0 / 3.8X3.8 / 2.5X2.0 / 2.0X1.6

RoHS Compliant
Lead-free soldering

RoHS Compliant
Lead free
Lead-free soldering

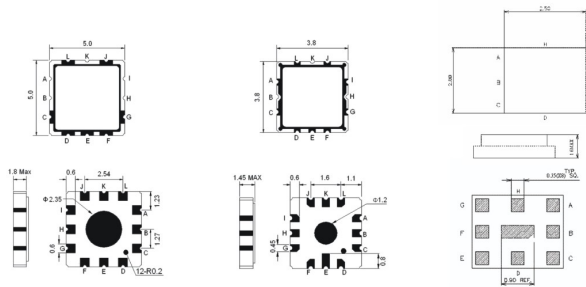


Features

- Ceramic Seam-Welded Package
- Excellent Reliability
- Ultra Miniature Package
- Suitable for Surface Mount Technology and IR Reflow Process
- For application in wireless communications system

Type(TF)	Duplexer
Size(mm)	5.0X5.0/3.8X3.8/2.5X2.0/2.0X1.6
Frequency(MHz)	400~2655
Input / Output	Single or Balanced
Bandwidth	4.5MHz~70MHz
Operating Temp Range(°C)	-40 ~ +85
Applications	CDMA450, CDMA800, WCDMA/UMTS

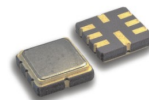
Consult factory representative for special requirements.



5.0X5.0 / 5.0X3.5/3.8X3.8/3.0X3.0/2.5X2.0

RoHS Compliant
Lead-free soldering

RoHS Compliant
Lead free
Lead-free soldering



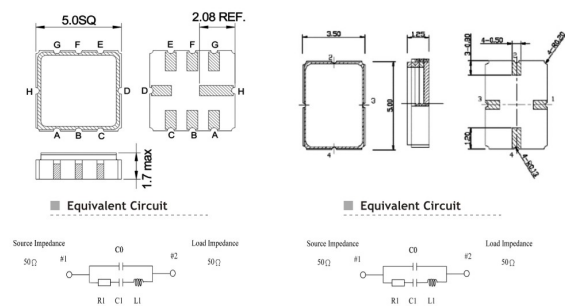
Features

- Ceramic Seam-Welded Package
- Excellent Reliability
- Ultra Miniature Package
- Suitable for Surface Mount Technology and IR Reflow Process
- For application in wireless communications system

Type(TC)	SAW Resonator
Size(mm)	5.0X5.0 / 5.0X3.5 / 3.8X3.8/3.0X3.0/2.5X2.0
Frequency(MHz)	300~2400
Port	I
Insertion Loss	< 1.5dB Typical
Tolerance	±15KHz ~ ±200KHz
Operating Temp Range(°C)	-40 ~ +85

Applications

provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators



TO-39 / F-11

TO-39



F-11



RoHS Compliant
Lead-free soldering

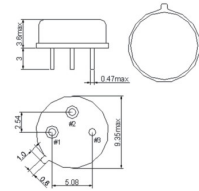
Features

- Metal dip Package
- Excellent Reliability Performance
- Rugged, Hermetic, Low-Profile F11 case
- For application in wireless communications systems

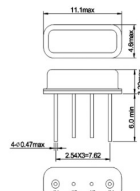
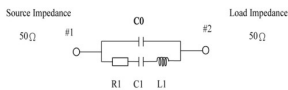
Type(TC)	SAW Resonator
Size(mm)	TO-39 / F-11
Frequency(MHz)	200 ~ 1000
Port	I
Insertion Loss	< 1.5dB Typical
Tolerance	±15KHz ~ ±200KHz
Operating Temp Range(°C)	-40 ~ +85

Applications

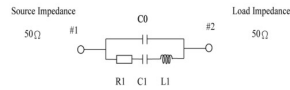
provides reliable, fundamental mode, quartz frequency stabilization i.e. in transmitters or local oscillators



Equivalent Circuit



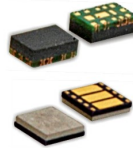
Equivalent Circuit



2.5x2.5x0.535/ 3.3x2.1x1.1/ 1.5x1.1x0.5

RoHS compliant and Halogen Free, MSL1

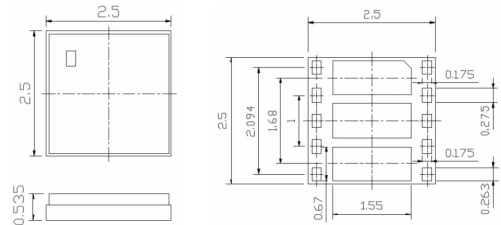
RoHS Compliant
Lead free
Lead-free soldering



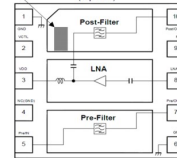
Features

- Hermetically sealed package
- Excellent Reliability Performance
- Low Noise, High Gain High out band rejection with small package

Type(TN)	Front End Module
Size(mm)	2.5x2.5x0.535/ 3.3x2.1x1.1/ 1.5x1.1x0.5
Frequency(MHz)	1575~1606/1575/1575~1606
Low noise	1.0~ 1.90 dB typical
High Gain	14.5~18.5 dB typical
Applications	GPS/GLONASS Band, Front-End Module for PND, Smart phone



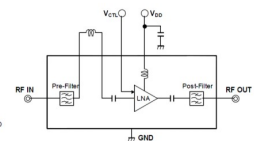
Index mark



Pin connection

1. GND
2. VCTL
3. VDD
4. NC(GND)
5. Pre-IN
6. GND
7. Post-OUT
8. LNA-IN
9. NC
10. Post-OUT

Exposed pad: GND



2.5x2.0/ 2.0x1.6

RoHS Compliant
Lead-free soldering

RoHS Compliant
Lead-free
Lead-free soldering



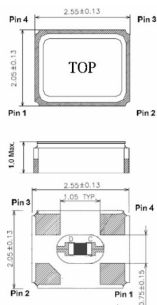
Features

- Surface Mount Hermetic Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Ultra Miniature Package
- With temperature sensor

Type(TM)	Temperature Sensing Crystal
Size(mm)	2.5x2.0/ 2.0x1.6
Frequency(MHz)	19.2~52
Overtone	Fundamental
Tolerance	±10ppm
Operating Temp Range(°C)	+30 ~ +85
Temperature Characteristics	±10ppm~±12ppm
Rs(Ω)	30max~80max
C Load(pF)	7pF~16pF

Applications

used in wireless communications devices, especially for a need of ultra miniature package for mobility



Symbol	Function
Pin 1	XT1 XTAL Terminal 1
Pin 2	RT2 Thermistor Terminal 2
Pin 3	XT2 XTAL Terminal 2
Pin 4	RT1 Thermistor Terminal 1

Pin 2 is connected to the metal lid and thermistor
Pin 4 is connected to the thermistor only

Block Diagram



RT2 shall be connected to GND is recommended

8.0X3.8 / 8.0X3.0 / 7.0X1.5 / 3.2X1.5 / 2.0X1.2

RoHS Compliant
Lead-free soldering

RoHS Compliant
Lead-free
Lead-free soldering



Features

- Excellent Reliability Performance
- Ultra Miniature Package
- Suitable for Surface Mount Technology and IR Reflow Process

Type(TZ)	Crystal Resonator
Size(mm)	8.0x3.8/ 8.0x3.0/7.0x1.5/ 3.2x1.5/2.0x1.2
Frequency(KHz)	32.768
Operating Temp Range(°C)	-40 ~ +85
Applications	Metering, wireless communication devices

