

# DIP Seam Tuning Fork 3.0 x 9.0 mm YT-39M Series



### Features

- Rugged AT-cut crystal construction.
- Wide Frequency range, High shock tolerance.
- Small size, Reliable frequency stability.
- Pb-free and RoHS/Green compliant.

### Applications

- Microprocessor Systems.
- Consumer Electronics.
- Instrumentation.
- Automotive electronics.

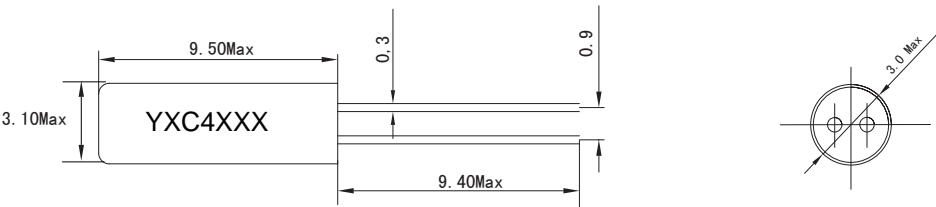


Electrical Specifications	
Item / Type	YT-39M
Frequency Range	4 MHz
Vibration Mode	AT Fundamental
Load Capacitance	20 pF , or specify
Frequency Stability Overall	± 20 ppm, or specify
Frequency Tolerance (at 25 °C)	± 20 ppm, or specify
Operating Temperature Range	-20 ~ +70 °C, or specify
Storage Temperature Range	-40 ~ +85 °C, or specify
Shunt Capacitance (C0)	7 pF Max.
Aging (at 25 °C)	± 3 ppm / year Max.
Drive Level	1 ~ 100 μW (1 0 μW Tvp )
Insulation Resistance	More Than 500MΩ at DC 100V

Equivalent Series Resistance(ESR)	
Frequency Range	ESR ( Ω )
4MHz	150max

Mode Of Operation	
Temperature Range	Frequency Stability
	±10ppm ±20ppm ±25ppm ±30ppm
-10℃ ~+60℃	✓ ✓ ✓ ✓
-20℃ ~+70℃	✓ ✓ ✓ ✓
-40℃ ~+85℃	✓ ✓ ✓

### Dimensions



Units: mm( ±0.1mm)

Quartz Crystal Resonator	Dimensions	Frequency (Hz)	Load Capacitance (Pf)	Frequency Stability Overall (ppm)	Pin	Material	Operating Temp. Range
X	3090	4M	S	D	2	S	C

Definition	Description
Operating Temperature Range	C: -20~+70℃
	I: -40~+85℃

### 内部结构 The internal structure

编号	名称	材料	数量	颜色
1	外壳	Nickel Silver	1	银白
2	玻璃绝缘子. (基座)	Glass	2	褐色
3	支架 (基座)	S.P.C	1	银白
4	引线(镀层) (基座)	Fe-Ni (Sn-Cu-Ag)	2	银白
5	晶片	Synthetic Quartz Crystal	1	透明
6	银胶	Conductible Bond	2	银白

【可靠性试验项目 Reliability Test Items】

1. 机械性能试验 Mechanical Performance Tests

	试验项目 Test Item	试验方法 Test Method	规格No. Spec.No
1-1	耐冲击 shock	从40厘米高,3次,自由落在3厘米的硬木板上 Orient the sample in any attitude and drop it three times from a height of 40cm onto a hardwood board with a thickness of 3cm	A
1-2	耐振性 Vibration	振动频率10~55Hz,振幅0.75mm时间1.5分钟循环,在X、Y、Z轴方向各1小时,总计3小时。 Subject the sample to 1.5-minute cycles of frequencies of 10 to 55 Hz and amplitudes of 0.75mm for two hours in each of the X, Y, and Z directions, or 3 hours in total.	A
1-3	引出端强度 Tensile strength of terminal	每端子加1.5Kg负荷,保持30±5秒 Apply a 1.5Kg tensile load to each terminal and sustain it for 30 ± 5 seconds.	A, C
1-4	引线弯曲度 Bending strength of terminal	每端子加0.5Kg负荷并弯曲成90°,恢复原状后,再反方向弯曲成90°。 Apply a 0.5Kg load to one of the terminals, and after tilting the main unit for 90°, restore to its original attitude. Then, tilt it in an opposite direction for 90°, and restore to its original attitude.	AC
1-5	可焊性 Solder ability	槽焊法,浸锡温度260±5°C时间5±0.5秒,端子浸助焊剂时间5±0.5秒,浸锡高度2mm。 Dip terminals in RMA flux for 5 ± 0.5 seconds. Under room temperature. Dip terminals in a 260 ± 5°C solder bath for 5 ± 0.5 seconds. The solder shall leave an undipped terminal length of 2mm at their base.	D
1-6	耐焊接热 Resistance to Soldering Heat	槽焊法,温度260±5°C时间10±0.5秒,锡面离基座高度2mm以上。 Dip terminals in a 260 ± 5°C solder bath for 10 ± 0.5 seconds. The solder shall leave an undipped terminal length of 2mm at their base.	A
1-7	气密性 Leaking Test	用氦质谱仪测试或加压测绝缘电阻 Take measurements with a helium leakage detector, or measure insulation resistance under pressure.	E

【可靠性试项目 Reliability Test Items】

2. 环境测试 Environmental Tests

	试验项目 Test Item	试验方法 Test Method	规格No. SpecNo.
2-1	耐寒性 Cold	在-40℃环境中非工作状态放置500 小时 Expose the sample in an inoperative mode to 500 hours in a -40℃	A
2-2	耐温性 Dry heat	在+85℃环境中非工作状态放置 500小时 Expose the sample in an inoperative mode to 500 hours in a 85℃	B
2-3	耐湿性 Damp heat	在温度+65℃，湿度 95% 环境中非工作状态放置500小时 Expose the sample in an inoperative mode to 500 hours in a 65℃, and 95%RH	B
2-4	热冲击 Thermal shock	在40℃保持30分钟,100℃保持30分钟，循环 5 次。 Subject the sample to 5 temperature variation cycles at -40℃ for 30 minutes and +100℃ for the next 30 minutes in each cycles.	A
SPECIFICATIONS 规格			
	规格 No. Spec No.	规 格 Specification	
	A	试验前后,频率变化在±5ppm以内,等效电阻变化在要求范围内。 Any variation between the pre- and post-test frequencies shall remain within ±5ppm. The post-test equivalent series resistance shall remain within its specified tolerance range.	
	B	试验前后,频率变化在±10ppm 以内,等效电阻变化在要求范围内。 Any variation between the pre- and post-test frequencies shall remain within ±10ppm. The post-test equivalent series resistance shall remain within its specified tolerance range.	
	C	试验前后,外观未见明显损伤，气密性未破坏。 After each test, no visible damage shall be manifested, nor shall the hermetic seal break down.	
	D	上锡量至少在90% 以上。 At least 90% of each dipped area shall be covered by fresh solder	
	E	$1 \times 10^{-2} \mu\text{Pa} \cdot \text{m}^3/\text{s}$ Max or $IR \geq 500\text{M}\Omega$	

※测试在室温  $25 \pm 2^\circ\text{C}$  环境中进行，每次试验后，样品必须在  $25 \pm 2^\circ\text{C}$  环境中恢复 2 小时以上。

※Measurements shall be taken at  $25 \pm 2^\circ\text{C}$ , and after each test, the sample be exposed to two hours at  $25 \pm 2^\circ\text{C}$