

## 2.5x2.0 SMD Crystal

### Part Number Guide

T-M-FF.FFFM-LC-FTFS-OT-ESR-TR-S

T (Type型号): N=2.5x2.0 SMD 4pads

M (Mode of Operation振荡模式): F=Fundamental

F (Frequency标称频率): Normal - 5 digitals of Frequency, e.g. 16.000M

Special - All digitals of Frequency, e.g. 28.63636M

LC (Load Capacitance负载电容): 20=20pf 00=series, etc

FT (Frequency Tolerance调整频差): 30=±30 ppm, etc

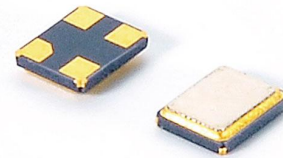
FS (Frequency Stability温度频差): 50=±50 ppm, etc

OT (Operating Temperature工作温度): 1060=-10°C to +60°C 4085=-40°C to +85°C, etc

ESR (Equivalent Series Resistance等效阻抗)

TR (Tape and Reel编带)

S (Special Requirement特殊要求)



Pb Free

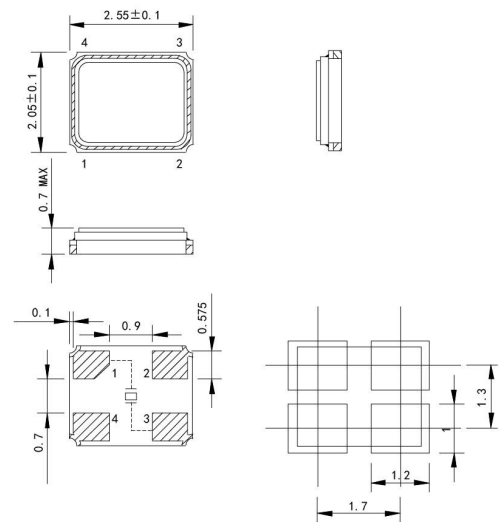
RoHS Compliant  
Directive 2002/95/EC

### Electrical Specifications 电气参数

型号	Holder Type	2.5x2.0mm Ceramic Surface Mount
频率范围	Frequency Range	16.000MHz to 60.000MHz
调整频差	Frequency Tolerance ( $\Delta F$ ) (at 25°C)	±10ppm to ±100ppm
温度频差	Frequency Stability	±10ppm to ±100ppm
工作温度范围	Operating Temperature Range	-10°C ~ +60°C to -40°C ~ +85°C
储存温度范围	Storage Temperature Range	-40°C ~ +85°C / -55°C ~ +125°C
老化	Aging (25°C)	±5ppm/year Maximum
静电容	Shunt Capacitance (CO)	7pF Maximum
激励功率	Drive Level	10μW Typical
绝缘阻抗	Insulation Resistance (Rs)	500 Megaohms Minimum at D.C.100V
负载电容	Load Capacitance (CL)	Suggested by customer

### Mechanical Dimensions 外型尺寸

UNIT (单位): mm (毫米)



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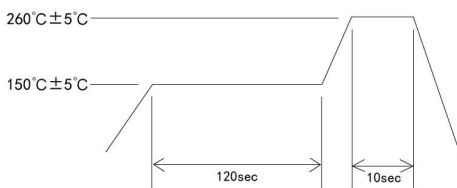
### Equivalent Series Resistance and Mode of Operation 等效阻抗和振荡模式

Frequency Range 频率范围	ESR (Ω) 等效阻抗	Mode 振荡模式
16.000-20.000MHz	80Max	Fundamental
20.000-30.000MHz	60Max	Fundamental
30.000-35.000MHz	50Max	Fundamental
≥35.000MHz	40Max	Fundamental

suggested solder pad layout

Note) #2, #4 is connected with a cover  
(Please connect with a GND or a power supply)

### Reflow Condition 回流焊条件



CYCLE TIME: 200sec Max.