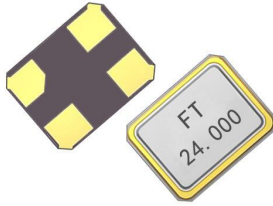


**SMD QUARTZ CRYSTAL RESONATOR**

**4 Pad Version 5.0×3.2 mm**



- ±10 ppm type available
- Excellent Reliability Performance
- EMI shielding possible by grounded lid
- Reflow soldering temperature: 260°C max
- Ceramic Seam Weld package



RoHS compliant

**★ PARAMETERS**

PARAMETERS	SPECIFICATION
Frequency Range	8~54MHz
Operation Mode	Fundamental
Loading Capacitance	18pF Std. 8 to 32pF Series available
Drive Level	10 μ W ( 300 μ W Max )
Frequency Tolerance	±10ppm~±30ppm ( at 25°C )
Equivalent Resistance	100Ω Max
Frequency Stability	±10ppm~±50ppm
Operating Temp. Range:	-10~+60°C to -40~+125°C
Storage Temp. Range:	-55~+125°C

○ All specification subject change without notice.

**★ FREQUENCY STABILITY VS. TEMPERATURE**

Operation Temperature Range	Frequency Stability				
	±10ppm	±15ppm	±20ppm	±30ppm	±50ppm
-10°C~+60°C	●	○	○	○	○
-20°C~+70°C	○	○	●	○	○
-40°C~+85°C	○	○	○	●	○

● standard ○ available

**★ ESR (SERIES RESISTANCE RS)**

Frequency	Vibration Mode	ESR
8-9.999MHz	AT CUT/FUND.	100Ω Max.
10-11.999MHz	AT CUT/FUND.	60Ω Max.
12-15.999MHz	AT CUT/FUND.	50Ω Max.
16-24.999MHz	AT CUT/FUND.	40Ω Max.
25-54.000MHz	AT CUT/FUND.	30Ω Max.

**★ DIMENSIONS& LAND PATTERN LAYOUT (Unit: mm)**

Marking #2, #4 is connected with metal cap of top.  
Marking #1, #3 is IN/OUT

<TOP VIEW>

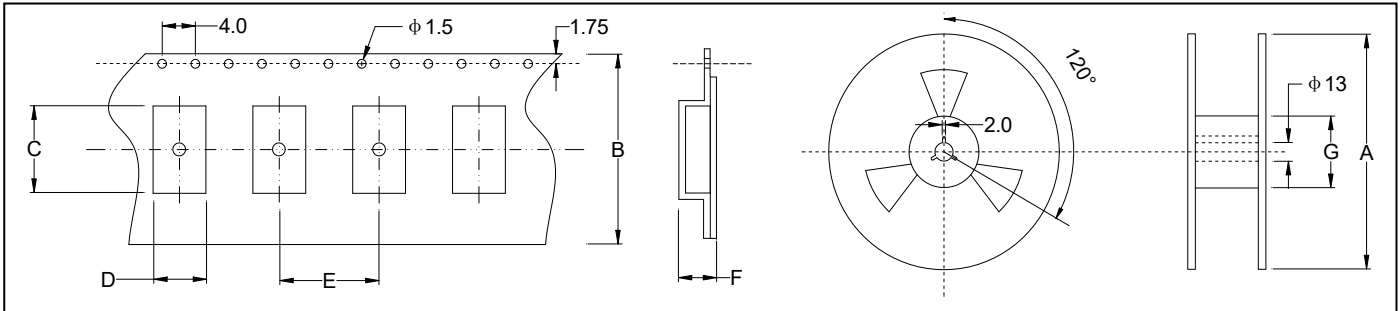
Recommended land Pattern

**★ PART NUMBER GUIDE** e.g. *FTX12.000M18SM5S-20/20B* (\*SM5S=5.0×3.2 SMD SEAM TYPE)

Logo	Quartz Crystal Resonator	Frequency Hz	Load Capacitance pF	Package	Frequency Tolerance ppm	Frequency Stability ppm	Operating Temp. Range
FT	X	12.000M	18	SM5S	20	20	B

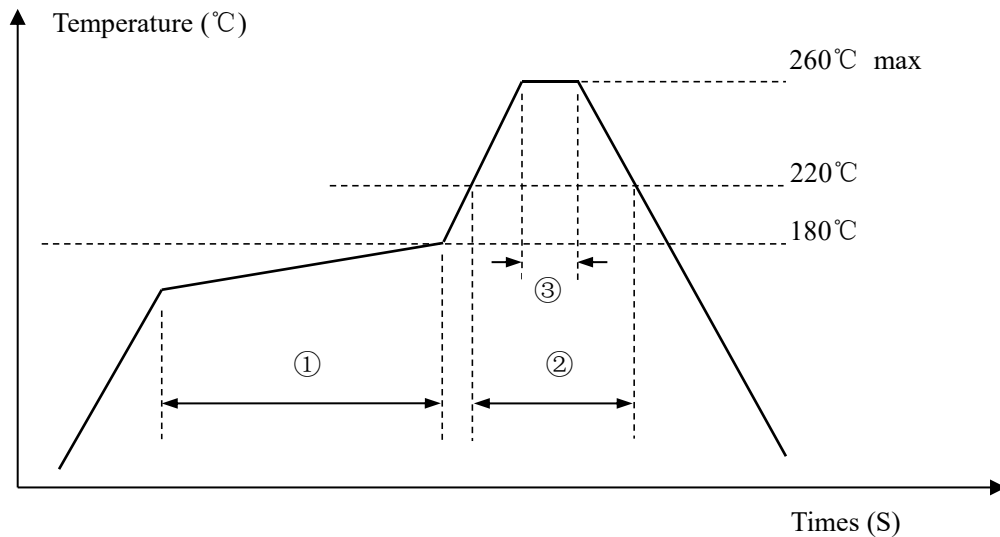
Definition	Description	
Operating Temperature Range	<b>A:</b> -10~+60°C	<b>B:</b> -20~+70°C
	<b>C:</b> -30~+80°C	<b>D:</b> -40~+85°C
	<b>E:</b> -30~+105°C	<b>F:</b> -40~+105°C
	<b>G:</b> -40~+125°C	<b>S:</b> Customer specified

★ TAPING SPECIFICATION (Unit: mm)



	A	B	C	D	E	F	G
SMD5032	178±2.0	12.0±0.3	5.40±0.10	3.60±0.10	8.0±0.1	1.1±0.1	60.5±1.0
1000 pcs per reel							

★ REFLOW SOLDERING PROFILE



Pb free reflow A	①	Preheat	160~180°C	120sec. max
	②	Primary heat	220°C	60sec. max
	③	Peak	260°C	10sec. max.