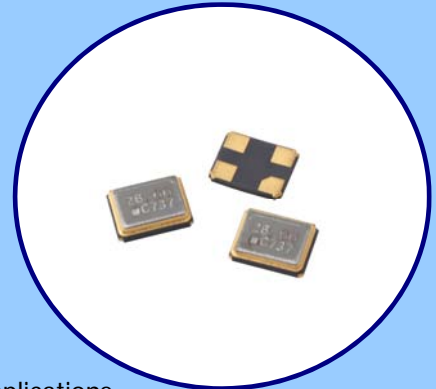


### FEATURES

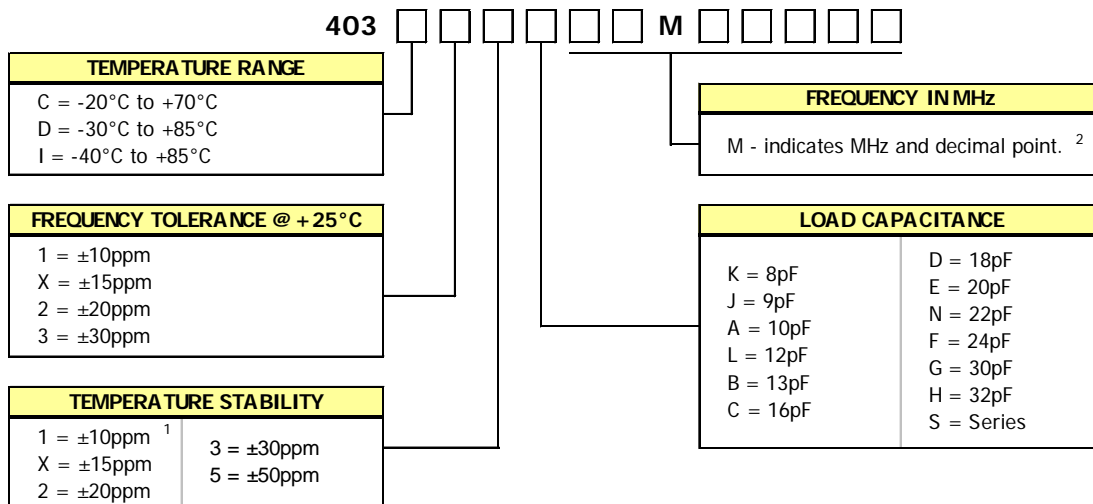
- Standard 3.2mm x 2.5mm Seam Weld Package
- Fundamental Crystal Design
- Frequency Range 10 – 60MHz
- Frequency Tolerance,  $\pm 30\text{ppm}$  Standard
- Frequency Stability,  $\pm 30\text{ppm}$  Standard
- Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Stable Frequency Over Temperature and Drive Level
- Tape & Reel Packaging Standard, EIA-481
- RoHS/Green Compliant [6/6]



### APPLICATIONS

Model 403 is a low cost quartz resonator used in a wide range of commercial applications including WLAN/WiMax/WiFi, A/V, Bluetooth, ZigBee and USB interfaces, notebooks, computer peripherals and portable equipment.

### ORDERING INFORMATION



1. Available with temperature range codes C and D.

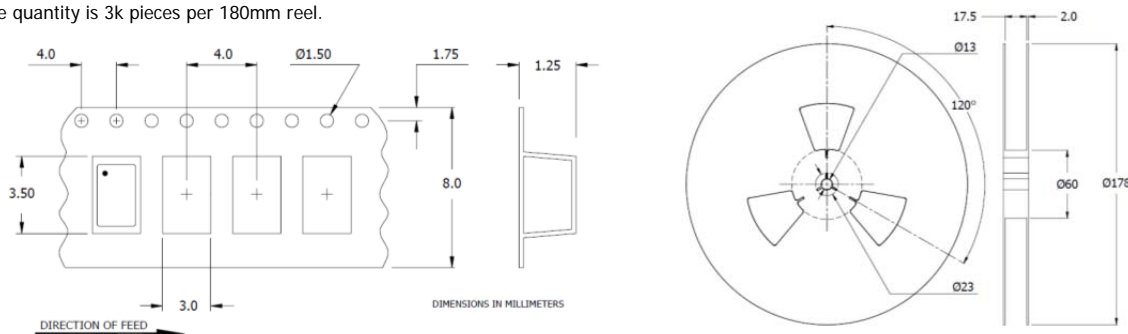
2. Frequency is recorded with two leading digits before the 'M' and 5 significant digits after the 'M' [including zeros].  
[Ex. XXMXXXXX (16M38400), XXMXXXXX (14M31818)]

**Not all performance combinations and frequencies may be available.**

**Contact your local CTS Representative or CTS Customer Service for availability.**

### PACKAGING INFORMATION [Reference]

Device quantity is 3k pieces per 180mm reel.

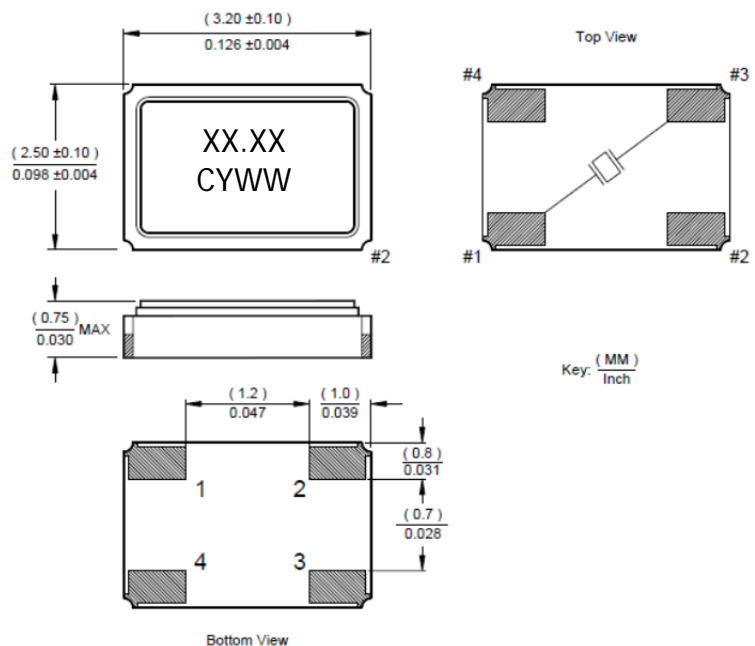


## ELECTRICAL CHARACTERISTICS

ELECTRICAL PARAMETERS	PARAMETER	VALUE
	Frequency Range	10MHz to 60MHz
	Operating Mode	Fundamental
	Crystal Cut	AT-Cut
	Frequency Tolerance @ +25°C	±30ppm, Standard
	Frequency Stability Tolerance [Operating Temperature Range, Referenced to +25°C Reading]	±30ppm, Standard
	Operating Temperature Ranges	-20°C to +70°C
		-30°C to +85°C      -40°C to +85°C
	Equivalent Series Resistance [Maximum]	10MHz - <14MHz      120 Ohms
		14MHz - <16MHz      100 Ohms
		16MHz - <20MHz      80 Ohms
		20MHz - 60MHz      60 Ohms
	Load Capacitance	See Ordering Information
	Shunt Capacitance [C <sub>0</sub> ]	3.0pF Typical, 5.0pF Maximum
	Drive Level	10µW Typ., 200µW Max.
	Aging @ +25°C	±3ppm/yr Typical
	Insulation Resistance	500M Ohms @ DC 100V
	Storage Temperature Range	-40°C to +100°C

## MECHANICAL SPECIFICATIONS

### PACKAGE DRAWING



### MARKING INFORMATION

- XX.XX – Frequency marked with 2 significant digits after the decimal.
- C – CTS and Pin 1 identifier.
- YWW – Date Code, Y – Last Digit of Year, WW – Week.

### NOTES

- Complete CTS part number, frequency value, date code and manufacturing site code information must appear on reel and carton labels.
- Terminations #2, #4 and the metal lid are connected internally. End user may connect these pins to circuit ground for EMI suppression.
- Termination pads (e4); barrier plating is nickel [Ni] with gold [Au] flash plate.
- Reflow conditions per JEDEC J-STD-020; +260°C maximum, 10 seconds.
- MSL = 1.

### SUGGESTED SOLDER PAD GEOMETRY

