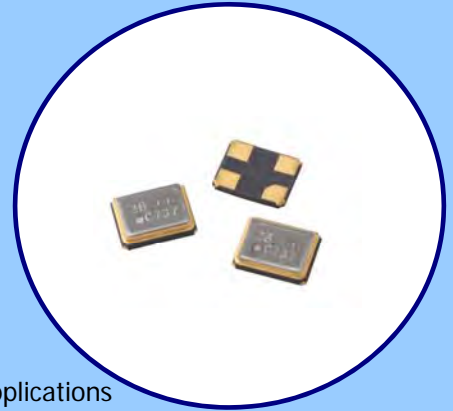


### FEATURES

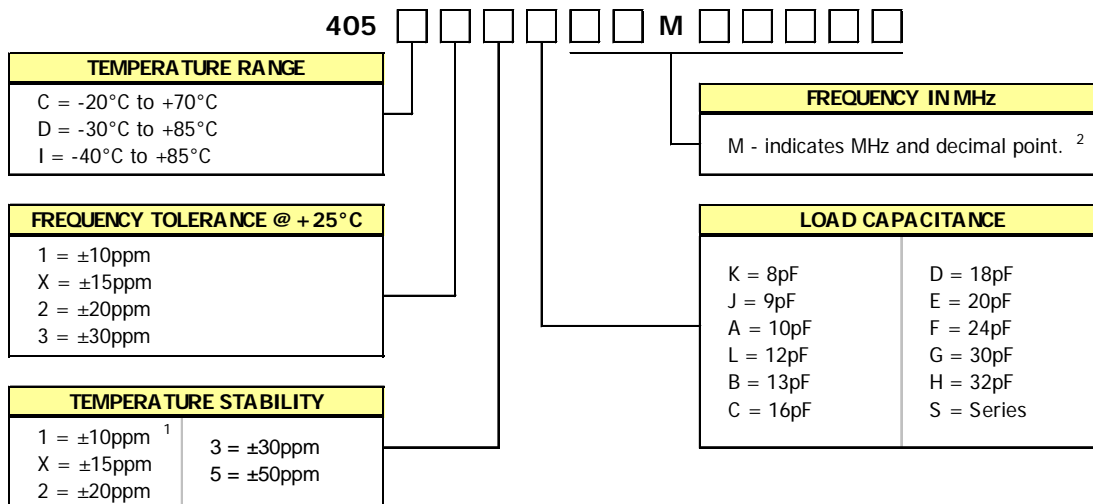
- Standard 5.0mm x 3.2mm Seam Weld Package
- Fundamental Crystal Design
- Frequency Range 6.76438 – 54MHz
- Frequency Tolerance,  $\pm 30\text{ppm}$  Standard
- Frequency Stability,  $\pm 30\text{ppm}$  Standard
- Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Stable Frequency Over Temperature and Drive Level
- Tape & Reel Packaging Standard, EIA-481
- **RoHS/Green Compliant [6/6]**



### APPLICATIONS

Model 405 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.

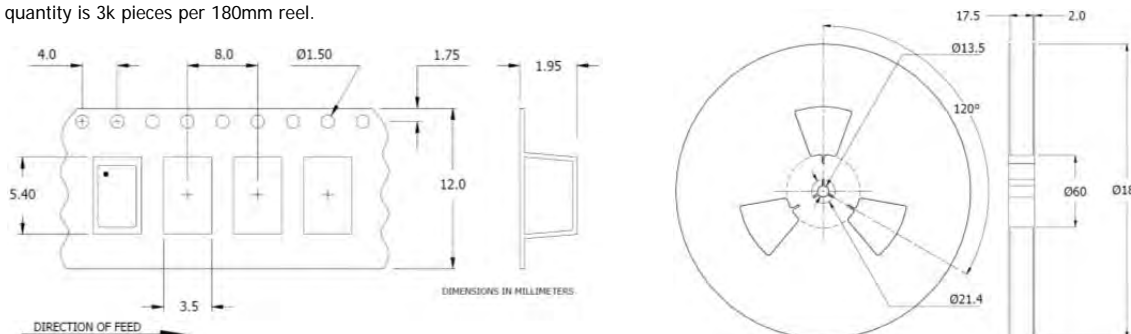
2. Frequency is recorded with two leading digits before the 'M' and 5 significant digits after the 'M' [including zeros].  
[Ex. XXMXXXXX (16M38400), XXMXXXXX (14M31818)]

**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.

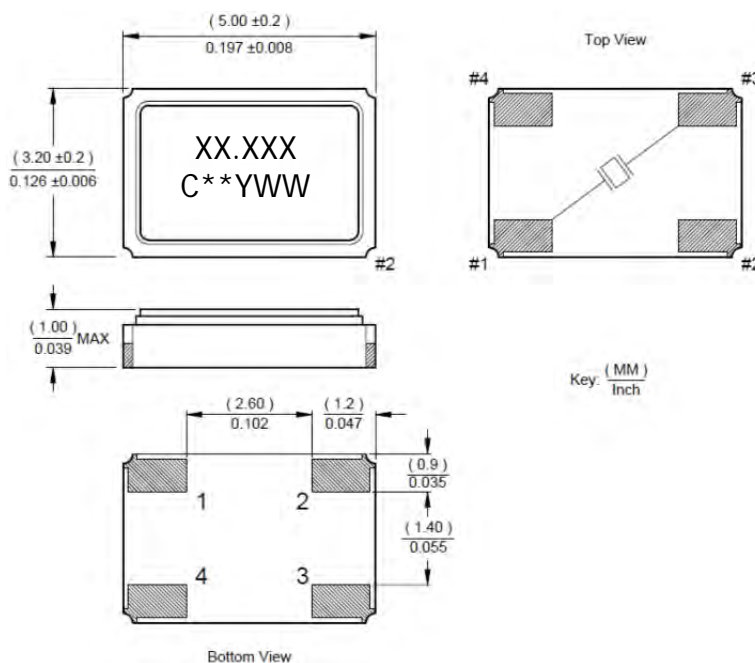


## ELECTRICAL CHARACTERISTICS

ELECTRICAL PARAMETERS	PARAMETER	VALUE
	Frequency Range	6.76438MHz to 54MHz
	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]	6.76438MHz - <11MHz      80 Ohms
		11MHz - <15MHz      60 Ohms
		15MHz - <35MHz      50 Ohms
		35MHz - 54MHz      40 Ohms
	Load Capacitance	See Ordering Information
	Shunt Capacitance [C <sub>0</sub> ]	5.0pF Typical, 7.0pF 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

1. XX.XXX – Frequency marked with 3 significant digits after the decimal.
2. C – CTS and Pin 1 identifier.
3. \*\* - Manufacturing Site Code.
4. YWW – Date Code; Y – Last Digit of Year, WW – Week.

### NOTES

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

### SUGGESTED SOLDER PAD GEOMETRY

