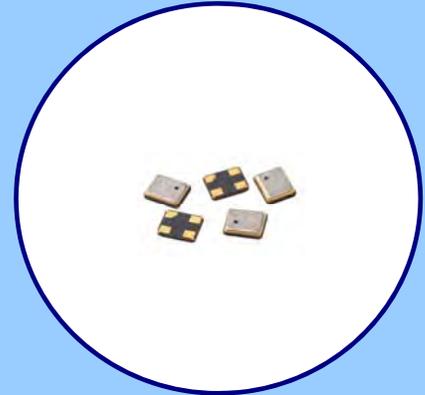




**FEATURES**

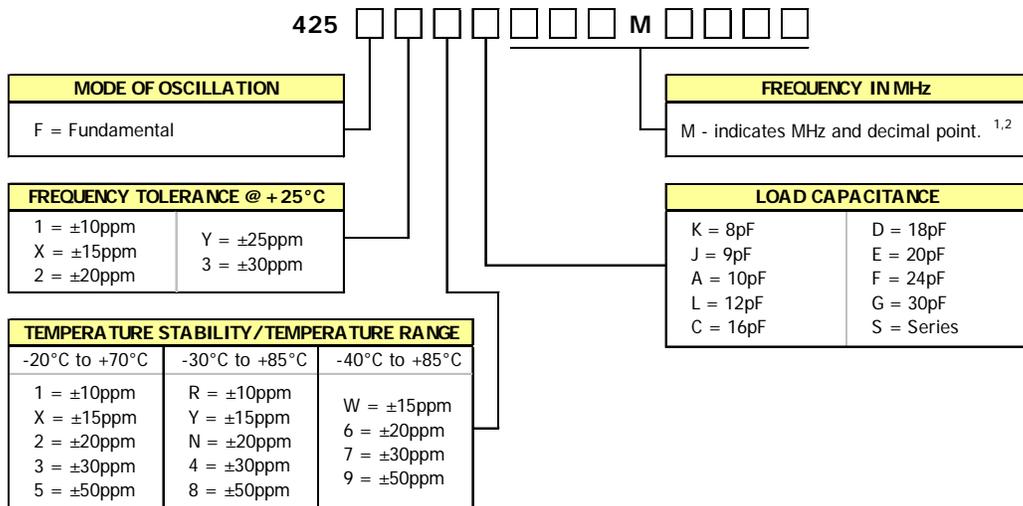
- Standard 2.5mm x 2.0mm Seam Weld Package
- Fundamental Crystal Design
- Frequency Range 12 – 60MHz
- Frequency Tolerance,  $\pm 20\text{ppm}$  Standard
- Frequency Stability,  $\pm 20\text{ppm}$  Standard
- Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Tape & Reel Packaging Standard, EIA-481
- **RoHS/Green Compliant [6/6]**



**APPLICATIONS**

Model 425 is a low cost quartz resonator used in a wide range of commercial applications including wearable and handheld electronics, notebooks, tablets, computer peripherals, Bluetooth, ZigBee and USB interfaces.

**ORDERING INFORMATION**

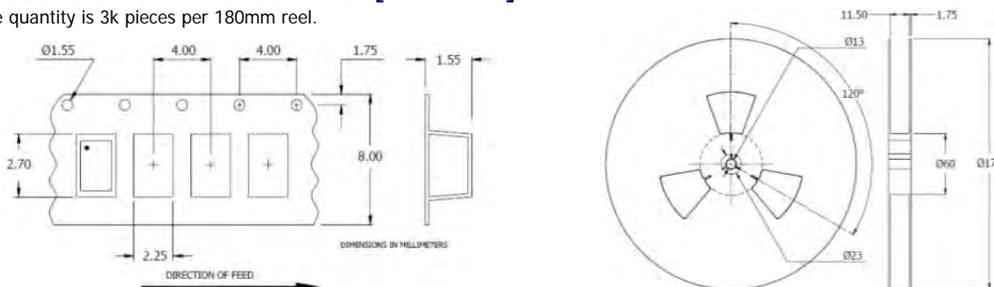


1. Frequency is recorded with 3 leading digits before the 'M' and 4 significant digits after the 'M' [including zeros].  
[Ex. XXXMXXXX (016M3840), XXXMXXXX (022M1184)]
- 2] There are frequencies that have significant digits after the 'M' that exceed the 4 digits. The remaining digits will be truncated from the CTS part number, but the factory will calibrate to the full frequency desired. Ex. P/N Frequency = Actual Frequency  
13M5537 = 13.553750 MHz      14M3181 = 14.318180 MHz      16M6666 = 16.666670 MHz      28M6363 = 28.636360 MHz

**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.

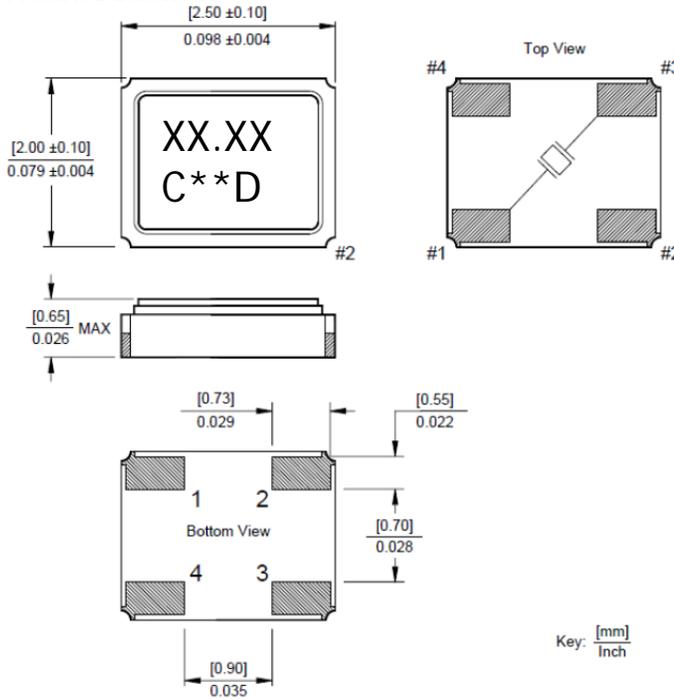


**ELECTRICAL CHARACTERISTICS**

PARAMETER		VALUE	
ELECTRICAL PARAMETERS	Frequency Range	12MHz to 60MHz	
	Operating Mode	Fundamental	
	Crystal Cut	AT-Cut	
	Frequency Tolerance @ +25°C	±20ppm, Standard	
	Frequency Stability Tolerance [Operating Temperature Range, Referenced to +25°C Reading]	±20ppm, Standard	
	Operating Temperature Ranges	-20°C to +70°C	
		-30°C to +85°C	-40°C to +85°C
	Equivalent Series Resistance [Maximum]	12MHz - <20MHz	120 Ohms
		20MHz - <30MHz	80 Ohms
		30MHz - <36MHz	60 Ohms
		36MHz - 60MHz	50 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 +90°C		

**MECHANICAL SPECIFICATIONS**

**PACKAGE DRAWING**



**MARKING INFORMATION**

1. XX.XX – Frequency in MHz.
2. C – CTS and Pin 1 identifier.
3. \*\* – Manufacturing Site Code.
4. D – Date code. See Table I for codes.

**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**

