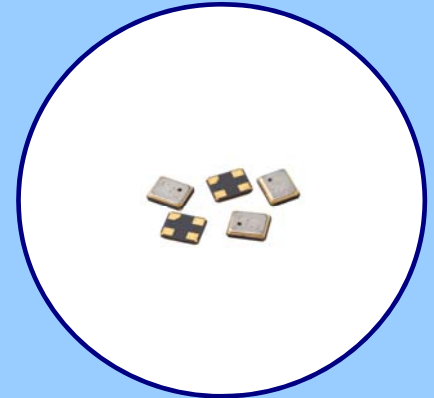




FEATURES

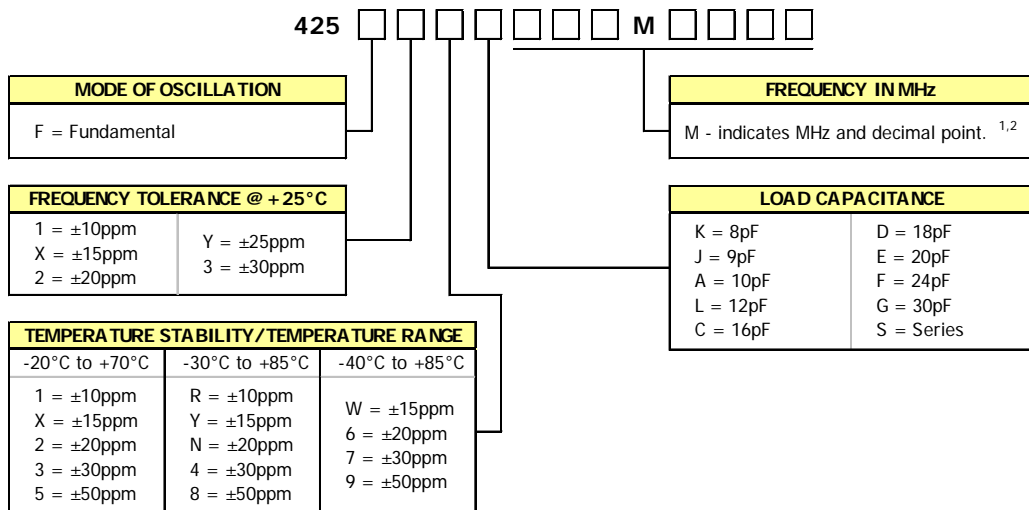
- Standard 2.5mm x 2.0mm Seam Weld Package
- Fundamental Crystal Design
- Frequency Range 12 – 60MHz
- Frequency Tolerance, ± 20 ppm Standard
- Frequency Stability, ± 20 ppm Standard
- Operating Temperature to -40°C to $+85^{\circ}\text{C}$
- Tape & Reel Packaging Standard, EIA-481
- **RoHS/Green Compliant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

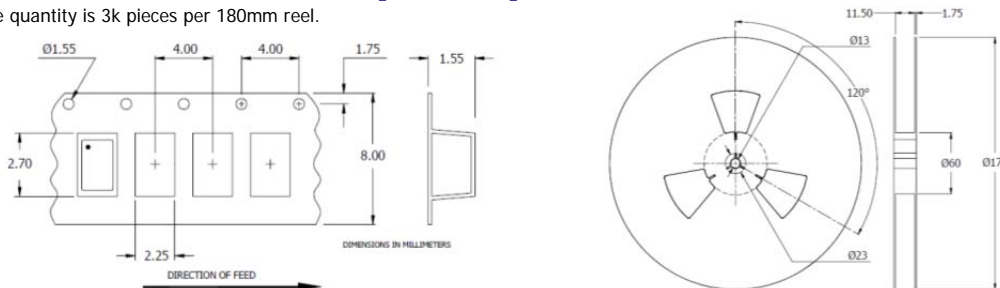


1. Frequency is recorded with 3 leading digits before the 'M' and 4 significant digits after the 'M' [including zeros].
[Ex. XXXMXXXX (016M3840), XXXMXXXX (022M1184)]
- 2] There are frequencies that have significant digits after the 'M' that exceed the 4 digits. The remaining digits will be truncated 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.

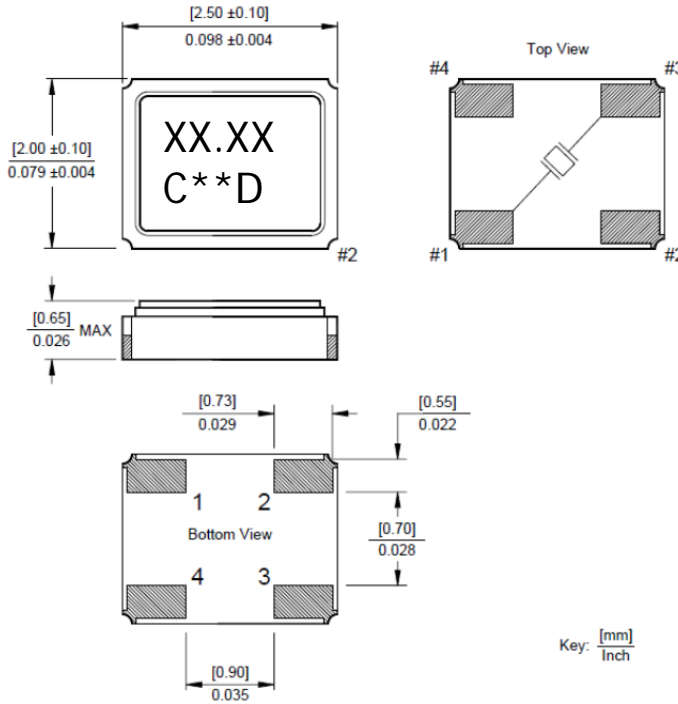


ELECTRICAL CHARACTERISTICS

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 ₀]	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

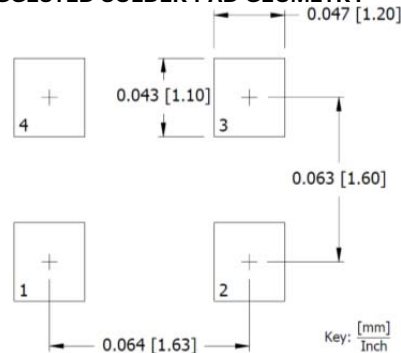


TABLE I – DATE CODE

YEAR		MONTH				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
		2001	2005	2009	2013												
2001	2005	2009	2013	2017	A	B	C	D	E	F	G	H	J	K	L	M	
2002	2006	2010	2014	2018	N	P	Q	R	S	T	U	V	W	X	Y	Z	
2003	2007	2011	2015	2019	a	b	c	d	e	f	g	h	j	k	l	m	
2004	2008	2012	2016	2020	n	p	q	r	s	t	u	v	w	x	y	z	