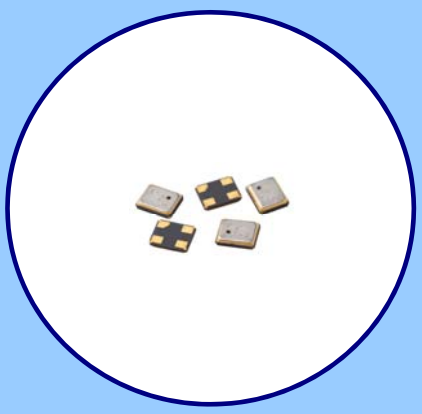
MODEL 425

SURFACE MOUNT QUARTZ CRYSTAL

FEATURES

- **Standard 2.5mm x 2.0mm Seam Weld Package**
- **Fundamental Crystal Design**
- **Frequency Range 12 – 60MHz**
- **Frequency Tolerance, ±20ppm Standard**
- **Frequency Stability, ±20ppm Standard**
- **Operating Temperature to -40°C to +85°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

425 □ □ □ □ □ □ □ M □ □ □ □

MODE OF OSCILLATION

F = Fundamental

FREQUENCY IN MHz

M - indicates MHz and decimal point. [1,2]

FREQUENCY TOLERANCE @ +25°C

1 = ±10ppm	Y = ±25ppm
X = ±15ppm	3 = ±30ppm
2 = ±20ppm	

LOAD CAPACITANCE

K = 8pF	D = 18pF
J = 9pF	E = 20pF
A = 10pF	F = 24pF
L = 12pF	G = 30pF
C = 16pF	S = Series

TEMPERATURE STABILITY / TEMPERATURE RANGE

-20°C to +70°C	-30°C to +85°C	-40°C to +85°C
1 = ±10ppm	R = ±10ppm	W = ±15ppm
X = ±15ppm	Y = ±15ppm	6 = ±20ppm
2 = ±20ppm	N = ±20ppm	7 = ±30ppm
3 = ±30ppm	4 = ±30ppm	9 = ±50ppm
5 = ±50ppm	8 = ±50ppm	

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)]

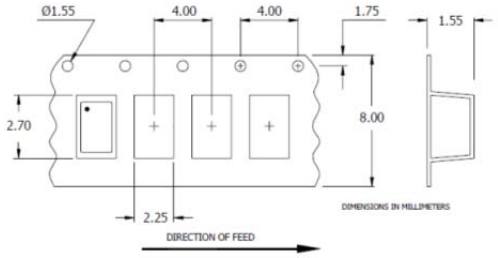
2] There are frequencies that have significant digits after the 'M' that exceed the 4 digits. The remaining digits will be truncated from the CTS part number, but the factory will calibrate to the full frequency desired. Ex. P/N Frequency = Actual Frequency

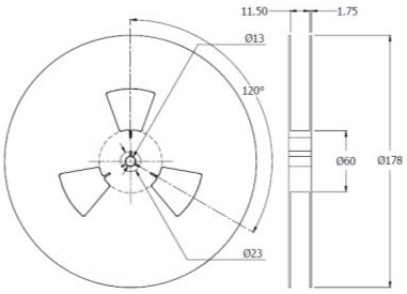
13M5537 = 13.553750 MHz 14M3181 = 14.318180 MHz 16M6666 = 16.666670 MHz 28M6363 = 28.636360 MHz

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.



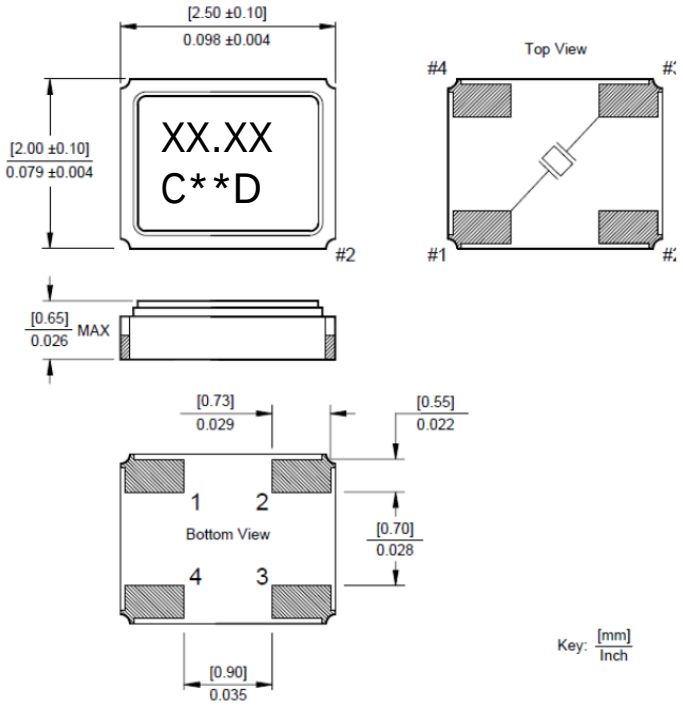


ELECTRICAL CHARACTERISTICS

	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

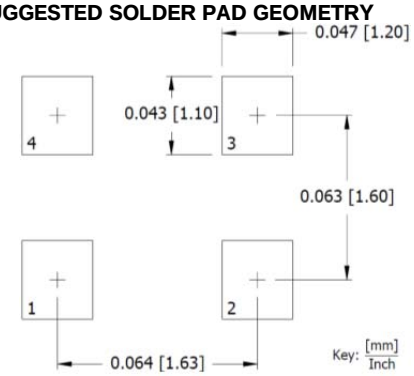


TABLE I – DATE CODE

YEAR \ MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2001 2005 2009 2013 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