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CTS Electronic Components
416F26022CKR

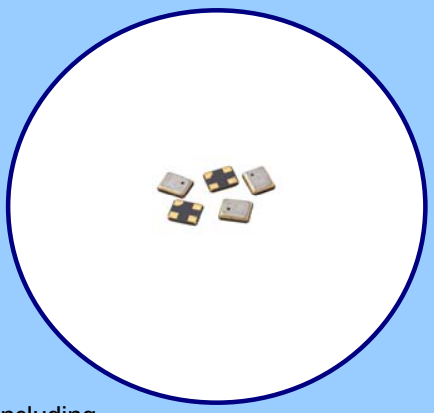
For any questions, you can email us directly:
sales@integrated-circuit.com

Model 416

Surface Mount Quartz Crystal

FEATURES

- **Standard 1.6mm x 1.2mm Seam Weld Package**
- **Fundamental Crystal Design**
- Frequency Range 24 – 80 MHz
- 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 416 is a low cost device used in a wide range of commercial applications including wearable and handheld electronics, notebooks, computer peripherals, Bluetooth and USB interfaces.

ORDERING INFORMATION

416 □□□□□□□□□

MODE OF OSCILLATION
F = Fundamental

FREQUENCY
Product Frequency Code [3 digits]
Refer to document 016-1454-0, Frequency Code Tables.

FREQUENCY TOLERANCE @ 25°C

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

STABILITY TOLERANCE
Over Operating Temperature Range (Referenced to 25°C Reading)

1 = ± 10 ppm [1]	Y = ± 25 ppm
X = ± 15 ppm	3 = ± 30 ppm
2 = ± 20 ppm	5 = ± 50 ppm

PACKAGING OPTIONS
T - 1k pcs./reel
R - 3k pcs./reel

LOAD CAPACITANCE

W = 5 pF	A = 10 pF
T = 6 pF	L = 12 pF
V = 7 pF	C = 16 pF
K = 8 pF	D = 18 pF
J = 9 pF	E = 20 pF
	S = Series

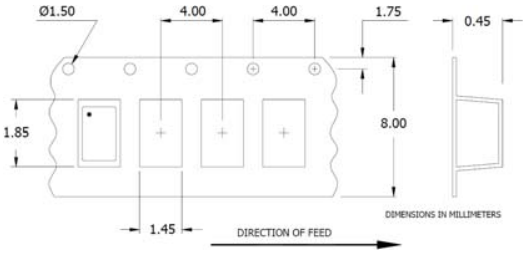
TEMPERATURE RANGE OPTIONS
A = -10°C to +60°C
C = -20°C to +70°C
I = -40°C to +85°C

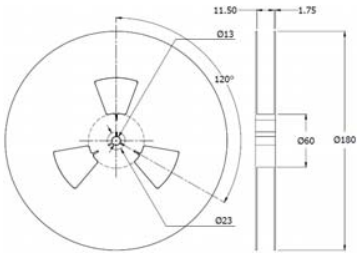
1] Check temperature range code availability with factory.

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 1k pieces minimum and 3k pieces maximum per 180mm reel.





CTS ELECTRONIC COMPONENTS

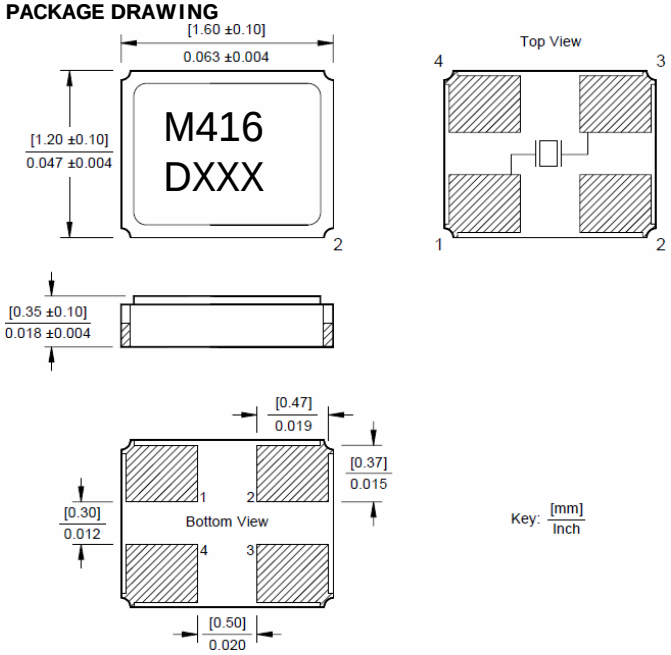
MODEL 416
QUARTZ CRYSTAL

ELECTRICAL CHARACTERISTICS

	PARAMETER	VALUE	
ELECTRICAL PARAMETERS	Frequency Range	24 MHz to 80 MHz	
	Operating Mode	Fundamental	
	Crystal Cut	AT-Cut	
	Frequency Tolerance @ +25°C	±20 ppm, Standard	
	Frequency Stability Tolerance [Operating Temperature Range, Referenced to 25°C Reading]	±20 ppm, Standard	
	Operating Temperature Ranges	-10°C to +60°C -20°C to +70°C	-40°C to +85°C
	Equivalent Series Resistance [Maximum]	24 MHz - < 40 MHz	200 Ohms
		40 MHz - 80 MHz	100 Ohms
	Load Capacitance	See Ordering Information	
	Shunt Capacitance (C_0)	3.0 pF Typical, 5.0 pF Maximum	
	Drive Level	10 µW Typ., 100 µW Max.	
	Aging @ +25°C	±3 ppm/yr Typical	
	Insulation Resistance	500M Ohms @ DC 100V	
	Storage Temperature Range	-40°C to +90°C	

MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



MARKING INFORMATION

1. M416 - CTS Model Series.
2. D – Date code. See Table I for codes.
3. XXX – Frequency code. Reference CTS document 016-1454-01.

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.
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

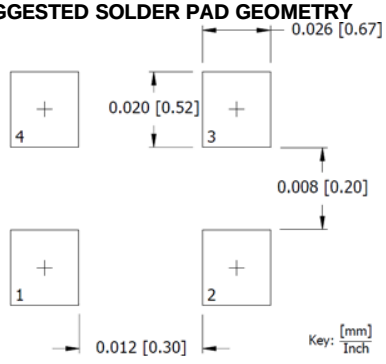


TABLE I – DATE CODE

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