

Model 403



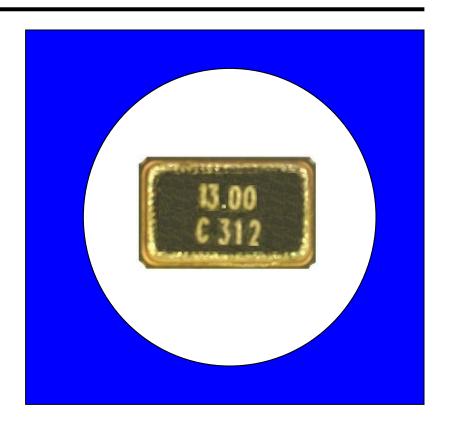
Surface Mount Quartz Crystal

FEATURES

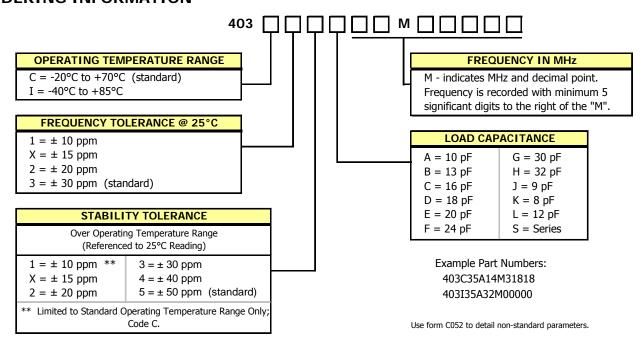
- Standard 3.2x2.5mm Surface Mount Footprint
- Stable Frequency Over Temperature and Drive Level
- Frequency Range 12 50 MHz
- Frequency Tolerance, ±30 ppm Standard (±10 ppm, ±15 ppm and ±20 ppm available)
- Frequency Stability, ±50 ppm Standard (±10,±15,±20,±30 and ±40 ppm available)
- Operating Temperature to -40°C to +85°C
- Tape & Reel Packaging, EIA-481-2 Compliant
- RoHS/Green Compliant (6/6)

DESCRIPTION

The Model 403 is a ceramic packaged Crystal offering reduced size, ideal for high-density circuit board applications. The Model 403 offers reliable precision and excellent shock performance in wireless telecommunication devices.



ORDERING INFORMATION



Not all performance combinations and frequencies may be available. Contact your local CTS Representative or CTS Customer Service for availability.



ELECTRICAL CHARACTERISTICS

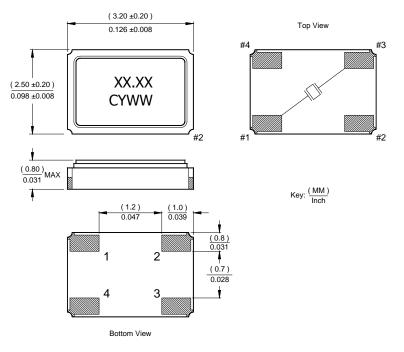
	PARAMETER	VALUE
Electrical Parameters	Operating Mode	Fundamental
	Crystal Cut	AT-Cut
	Frequency Range	12.0 MHz to 50.0 MHz
	Frequency Tolerance @ 25°C	± 30 ppm Standard
		(\pm 10 ppm, \pm 15 ppm and \pm 20 ppm Available)
	Frequency Stability Tolerance	± 50 ppm Standard
	(Operating Temperature Range, Referenced to 25°C Reading)	(\pm 10 ppm, \pm 15 ppm, \pm 20 ppm, \pm 30 ppm and \pm 40 ppm Available)
	Operating Temperature Range	-20°C to +70°C Standard
		(-40°C to +85°C Available)
	Aging	± 3 ppm/year Maximum
	Storage Temperature Range	-55°C to +125°C
	Equivalent Series Resistance	See ESR Table
	Load Capacitance or Resonance Mode	See Ordering Information
	Shunt Capacitance (C ₀)	5.0 pF Maximum
		(3.0 pF Typical)
	Drive Level	10 μW Typical, 100 μW Maximum
	Reflow Condition, per JEDEC J-STD-020	+255°C ± 5°C, 10 Seconds Maximum

EQUIVALENT SERIES RESISTANCE TABLE

FREQUENCY RANGE	MODE of OSCILLATION	ESR Maximum
12.00 MHz - 13.999 MHz	Fundamental	150 Ohms
14.00 MHz - 15.999 MHz	Fundamental	100 Ohms
16.00 MHz - 19.999 MHz	Fundamental	80 Ohms
20.00 MHz - 50.00 MHz	Fundamental	60 Ohms

MECHANICAL SPECIFICATIONS

PACKAGE DRAWING



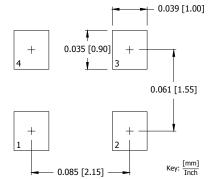
MARKING INFORMATION

- 1. XX.XX Frequency marked with 2 significant digits after the decimal.
- 2. C CTS and Pin 1 identifier.
- 3. YWW Date Code, Y Last Digit of Year, WW Week.
- 4. Complete CTS part number, frequency value and date code information must appear on reel and box labels.

NOTES

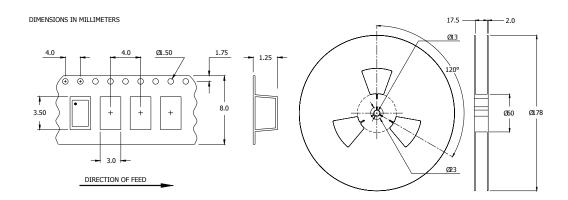
- 1. Termination pads (e4), barrier-plating is nickel (Ni) with gold (Au) flash plate.
- 2. Terminations #2, #4 and the metal lid are connected internally. End user may connect these pins to circuit ground.

SUGGESTED SOLDER PAD GEOMETRY





TAPE AND REEL INFORMATION



Device quantity is 3,000 pieces minimum per 178mm reel.

ENVIRONMENTAL SPECIFICATIONS

Temperature Cycle: 400 cycles from -55°C to +125°C, 10 minute dwell at each temperature, 1

minute transfer time between temperatures.

Mechanical Shock: 1,500g's, 0.5mS duration, ½ sinewave, 3 shocks each direction along 3

mutually perpendicular planes (18 total shocks).

Sinusoidal Vibration: 0.06 inches double amplitude, 10 to 55 Hz and 20q's, 55 to 2,000 Hz, 3 cycles

each in 3 mutually perpendicular planes (9 times total).

Gross Leak: No leak shall appear while immersed in an FC40 or equivalent liquid at

+125°C for 20 seconds.

Fine Leak: Mass spectrometer leak rates less than 2x10⁻⁸ ATM cc/sec air equivalent.

Resistance to Solder Heat: Product must survive 3 reflows of +260°C peak, 10 seconds maximum.

High Temperature Operating Bias: 2,000 hours at +125°C, disregarding frequency shift.

Frequency Aging: 1,000 hours at +85°C, maximum ±5 ppm shift.

Insulation Resistance: 500M Ohms @ $100V_{DC} \pm 15V_{DC}$.

Moisture Sensitivity Level: Level 1 per JEDEC J-STD-020.

QUALITY AND RELIABILITY

Quality systems meet or exceed the requirements of ISO 9000:2000 standards.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

CTS:

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403C11E16M00000 403C11E32M00000 403C35E13M00000 403C35E26M00000 403C35E27M00000
403C35D25M00000 403C35E13M56000 403C35A16M00000 403l35A13M55375 403l35E25M00000
403C35A25M00000 403l35A30M00000 403C35D16M00000 403C35E28M63636 403C35E16M00000
403C35E24M00000 403C35E25M00000 403C35E18M43200 403C35E20M00000 403C35E44M00000
403C35E24M57600 403C35E48M00000 403C35E30M00000
                                                 403C35E22M11840 403C11A12M00000
403C11A13M00000
                403C11A14M40000
                                403C11A14M74560
                                                 403C11A16M38400
                                                                 403C11A16M80000
403C11A19M20000 403C11A19M68000
                                403C11A24M55350
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