

FEATURES

- Miniature size: 7.0mm x 5mm x 1.2mm height
- Gold-plated ceramic base with metal seam-welded lid
- To minimize EMI the whole crystal may be grounded
- Tight tolerance of ± 10 pppm for telecommunications use
- High shock and vibration resistance
- Ideal for PDAs, GPS, PCMCIA and hand-held equipment

DESCRIPTION

Miniature surface-mount MQ crystals are produced using a ceramic substrate and fitted with a hermetically-sealed metal lid. The crystals are competitively priced, well-suited to mass-market electronic applications and may also be produced to close tolerances making this crystal a good choice for applications requiring low mass and tight tolerances. There are two package variants, 4 pad and two pad.

SPECIFICATION

Frequency Range

6.0MHz to 45.0MHz AT-Cut Fundamental: AT-Cut 3rd Overtone: 30.0MHz to 125.0MHz

Calibration Tolerance at 25°C*: from ±5ppm

 $(\pm 10, \pm 20 \text{ or } \pm 30 \text{ppm standard})$

Frequency stability -10° to +60°C -20 $^{\circ}$ to +70 $^{\circ}$ C -40° to +90°C

from ±5ppm from ±10ppm from ±15ppm -55 to +125°C from ±20ppm Storage Temperature: -55°~+105°C

Effective Series Resistance: See table 2pF to 4pF typical, 7pF maximum Shunt Capacitance (C0): Load Capacitance (CL): Series or from 10pF to 32pF

(Customer specified CL) <±3ppm per year at +25°C Ageing: Drive level: 100 μW maximum 10s maximum, 260°C twice Reflow Soldering:

or 180s at 230°C, once. Package: Ceramic base, metal lid, Hermetic seal

Packaging: 16mm EIA tape and reel 1000 pieces per reel

EFFECTIVE SERIES RESISTANCE

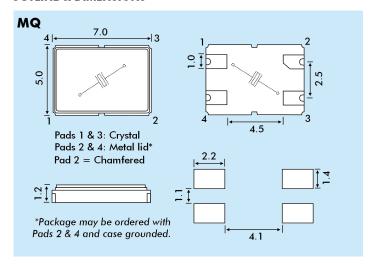
Frequency Range MHz	Crystal Cut/ Mode	ESR Ohms Max.
6.0 ~ 11.0	AT Fund.	60
11.1 ~ 14.0	AT Fund.	50
14.1 ~ 45.0	AT Fund.	40
30.0 ~ 40.0	AT 3rd OT	100
40.1 ~ 50.0	AT 3rd OT	80
50.1 ~ 125	AT 3rd OT	90

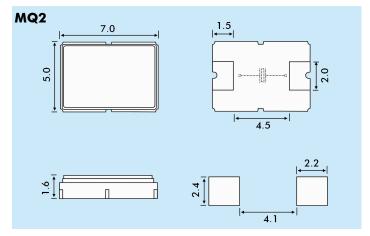
7 x 5mm SMD, 4 pad or 2 pad





OUTLINE & DIMENSIONS





PART NUMBER GENERATION

Example:	12.000MHz	MQ/2	0/30	0/-10-	⊦60/18	3pF/60	R
Nominal Freque	ncy						
Package (MQ = 4 pad, M	1Q2 = 2 pad						
Calibration toler at 25°C (±ppm)	ance						
Temperature Sto over temp. rang							
Operating Temp (Lower and uppe	• , , ,						
Load Capacitand (Either SR for ser							
Equivalent Serie (Optional - use v value is required	vhen special						