UM-1SMD and UM-5SMD CRYSTALS
Surface-mount UM-1 and UM-5

DESCRIPTION

UM1-SMD and UM-5SMD crystals are standard UM-1/UM-5 crystals but with formed leads and fitted with a clip to enable surface-mount PCB assembly. The crystal therefore offers the ease of surface-mount assembly with the technical benefits of close-tolerance crystal parameters achievable by the use of circular AT-Cut crystal blanks.

FEATURES

· **Surface mount version of UM-1/UM-5**
· **Available with close tolerances**
· **Fully customisable for application requirements**
· **Quick deliveries available**
· **Industry-standard package**
· **Low installed cost**

GENERAL SPECIFICATION

Frequency Range	
UM-1SMD:	1.0MHz to 200MHz
UM-5SMD:	10MHz to 200MHz
Oscillation Mode:	See table
Calibration Tolerance at 25°C	
SL-Cut (<1.3MHz):	from ±50ppm
AT-Cut (>1.3MHz):	from ±3ppm
Frequency stability over temp	
SL-Cut (<1.3MHz):	from ±100ppm -10° to +60°C
AT-Cut (>1.3MHz):	from ±3ppm 0° to +50°C
	See table for details
Shunt Capacitance (C0):	4pF typical, 7pF maximum
Load Capacitance (CL):	Series or from 8pF to 32pF
	(Customer to specify CL)
Ageing:	±2ppm max 1st year,
	±1ppm max per year after
Drive level:	100mW maximum
Holder:	Resistance-weld, hermetic seal
Holder Variants:	UM-1SMD or UM-5SMD
	(See outline drawing)
Supply format:	Bulk pack (standard)
	or tape and reel

OSCILLATION MODE & ESR

Frequency (MHz)	Crystal Cut Osc. Mode	ESR (max) (Ohms)
1.0 ~ 1.2	SL Fund.	5000
4.0~4.9	AT Fund.	150
5.0~5.9	AT Fund.	120
6.0~6.9	AT Fund.	100
7.0~7.9	AT Fund.	70
8.0~9.9	AT Fund.	80
10.0~10.99	AT Fund.	60
11.0~12.9	AT Fund.	40
13.0~45.0	AT Fund.	25
30.0~50.0	AT 3rd OT	40
50.1~100.0	AT 5th OT	50
80.0~200	AT 7th OT	70

OUTLINES AND DIMENSIONS

Part	dim.A	dim.B
UM-1SMD	8.2	12.5
UM-5SMD	6.2	10.5

Part	dim.L
UM-1SMD	8.4
UM-5SMD	6.4
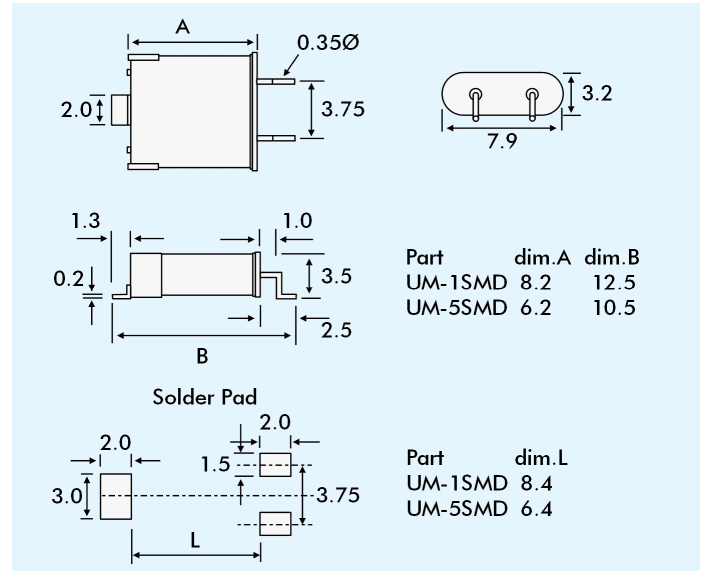
FREQUENCY STABILITY OVER TEMPERATURE

Operating Temp. °C	Temperature Stability (ppm)						
	±3	±5	±7.5	±10	±15	±20	±30
0° to +50°	ü	ü	ü	ü	ü	ü	ü
-10° to +60°	ü	ü	ü	ü	ü	ü	ü
-20° to +70°	X	ü	ü	ü	ü	ü	ü
-30° to +80°	X	X	X	ü	ü	ü	ü
-40° to +90°	X	X	X	X	ü	ü	ü
-55° to +105°	X	X	X	X	X	ü	ü

PART NUMBER GENERATION

UM-1SMD crystals part numbers are derived as follows:

Example: **16.000MHz UM-1SMD/10/20/10/30pF/ATF**

Frequency
Package - UM-1SMD
        - UM5-SMD
Calibration Tolerance at 25°C (in ±ppm)
Temperature Stability (in ±ppm)
Operating Temperature Range (lower figure of temperature range)
Circuit Condition (CL in pF or SERIES)
Mode - SLF (SL-Cut, fund.)
      - ATF (AT-Cut, fund.)
      - AT3 (AT-Cut, 3rd overtone)
      - AT5 (AT-Cut, 5th overtone)
      - AT7 (AT-Cut, 7th overtone)