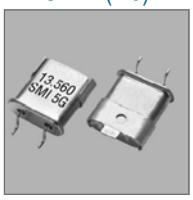
Quartz Crystal Units

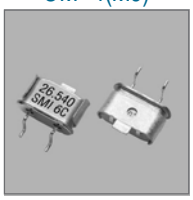
UM (MJ) FAMILY — STANDARD SMD CRYSTALS

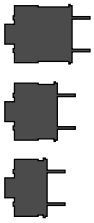
UM -1(MJ)



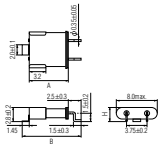
UM -5(MJ)

UM -4(MJ)



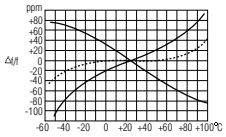


UM -1(MJ), UM -5(MJ) & UM -4(MJ)
UM -1S(MJ), UM -5S(MJ) & UM -4S(MJ)



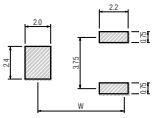
Holder	A	B	H
UM-1(MJ)	7.8±0.2mm	11.5±0.3mm	3.1±0.2mm
UM-5(MJ)	5.8±0.2mm	9.7±0.3mm	3.1±0.2mm
UM-4(MJ)	4.4±0.2mm	8.3±0.3mm	3.1±0.2mm
UM-1S(MJ)	7.8±0.2mm	11.5±0.3mm	2.8±0.2mm
UM-5S(MJ)	5.8±0.2mm	9.7±0.3mm	2.8±0.2mm
UM-4S(MJ)	4.4±0.2mm	8.3±0.3mm	2.8±0.2mm

AT-CUT



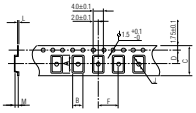
TYPICAL TEMPERATURE CHARACTERISTICS

SOLDERING PATTERN



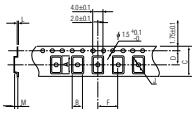
Holder	W
UM-1(MJ) & UM-1S(MJ)	10.0
UM-5(MJ) & UM-5S(MJ)	8.0
UM-4(MJ) & UM-4S(MJ)	6.6

TAPE SPECIFICATIONS
for UM-1(MJ) & UM-1S(MJ)



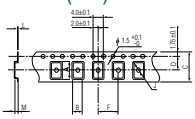
A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
12.4	8.2	24.0	11.5	12.0	1.5	0.4	3.3	330	1000pcs

TAPE SPECIFICATIONS
for UM-5(MJ) & UM-5S(MJ)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
10.6	8.2	24.0	11.5	12.0	1.5	0.4	3.3	330	1000pcs

TAPE SPECIFICATIONS
for UM-4(MJ) & UM-4S(MJ)



A	B	C	D	F	J	L	M	Reel Dia.	Qty/Reel
9.2	8.2	16.0	7.5	12.0	1.5	0.4	3.3	330	1000pcs

STANDARD SPECIFICATIONS

1. Holder type ..... UM-1(MJ), UM-5(MJ) & UM-4(MJ)
   UM-1S(MJ), UM-5S(MJ) & UM-4S(MJ)
2. Frequency range ..... 6.000 MHz to 200.000 MHz / UM-1(MJ) & UM-1S(MJ)
   10.000 MHz to 200.000 MHz / UM-5(MJ) & UM-5S(MJ)
   20.000 MHz to 200.000 MHz / UM-4(MJ) & UM-4S(MJ)
3. Frequency tolerance ..... J : ±5 ppm at +25˚C ±3˚C
   O : ±10 ppm at +25˚C ±3˚C
   Q : ±15 ppm at +25˚C ±3˚C
   R : ±20 ppm at +25˚C ±3˚C
4. Temperature stability (referred to +25˚C) ..... TTiii : ±30 ppm over −20˚C to +70˚C
   Note : Contact for other temperature stabilities and operating temperature ranges.
   RRiii : ±20 ppm over −20˚C to +70˚C
   QQiii : ±15 ppm over −20˚C to +70˚C
   OOiii : ±10 ppm over −20˚C to +70˚C
5. Load capacitance (CL) ..... 16 pF, Typical
6. Equivalent series resistance (ESR) ..... See table below

Holder : UM-1(MJ) & UM-1S(MJ)

6.0 to 10.0 MHz (fundamental)	10.0 to 60.0 MHz (fundamental)	24.0 to 60.0 MHz (3rd OT)	60.0 to 180.0 MHz (3rd OT)	80.0 to 120.0 MHz (5th OT)	120.0 to 200.0 MHz (5th OT)
40Ω max.	25Ω max.	60Ω max.	40Ω max.	80Ω max.	70Ω max.

Holder : UM-5(MJ) & UM-5S(MJ)

10 to 20 MHz (fundamental)	20 to 60 MHz (fundamental)	24 to 30 MHz (3rd OT)	30 to 60 MHz (3rd OT)	60 to 180 MHz (3rd OT)	80 to 120 MHz (5th OT)	120 to 200 MHz (5th OT)
30Ω max.	25Ω max.	80Ω max.	60Ω max.	40Ω max.	100Ω max.	80Ω max.

Holder : UM-4(MJ) & UM-4S(MJ)

20.0 to 60.0 MHz (fundamental)	60.0 to 90.0 MHz (3rd OT)	90.0 to 180.0 MHz (3rd OT)	100.0 to 200.0 MHz (5th OT)
30Ω max.	80Ω max.	60Ω max.	100Ω max.

7. Shunt capacitance (Co) ..... 7 pF max
8. Drive level (P) ..... 1 mW max. (10 μW for testing)
9. Aging ..... ±3 ppm max. at +25˚C ±3˚C per year
10. Cut ..... AT−Cut

PART NUMBERING GUIDE

UM1(MJ) 12.2880M − 16 / Q / TTiii

Holder type
Frequency
Temperature stability
Frequency tolerance
Load capacitance (CL)

EXAMPLE

SMI PART NO.	Holder	Frequency	Circuit Calibration Condition
UM1(MJ) 12.2880M-16/Q/TTiii	UM1(MJ) = UM−1(MJ)	12.2880 MHz	Parallel resonance CL = 16 pF
UM5S(MJ)10.0000M-12/R/OOiii	UM5S(MJ) = UM−5S(MJ)	10.0000 MHz	Parallel resonance CL = 12 pF
UM4(MJ) 22.57920M-S/J/QQiii	UM4(MJ) = UM−4(MJ)	22.57920 MHz	S = Series resonance

Calibration Tolerance	Temperature Stability
Q = ±15 ppm	TTiii = ±30 ppm
R = ±20 ppm	OOiii = ±10 ppm
J = ±5 ppm	QQiii = ±15 ppm

PACKAGE DATA

Item \ Package	UM-1(MJ) UM-1S(MJ)	UM-5(MJ) UM-5S(MJ)	UM-4(MJ) UM-4S(MJ)
Cover	Metal	Metal	Metal
Base	Metal	Metal	Metal
Sealing	Resistance	Resistance	Resistance
Metal clamp	C7521R-0	C7521R-0	C7521R-0
Metal clamp plating	Tin / Copper (surface) / (under)	Tin / Copper (surface) / (under)	Tin / Copper (surface) / (under)
Terminal lead	Alloy (FeNiCo)	Alloy (FeNiCo)	Alloy (FeNiCo)
Terminal lead plating	Gold	Gold	Gold
RoHS	Compliant (Pb-free)	Compliant (Pb-free)	Compliant (Pb-free)