

MQ

[7.0 * 5.0 * 1.3 mm]

Thru - Hole Crystals

Fund.

21.4 MHz

21.7 MHz

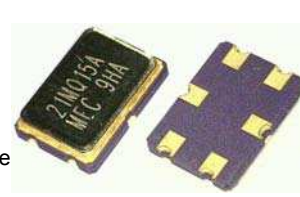
45.0 MHz

2 poles

4 poles

Features

- Thin and light weight; excellent shock and vibration resistance
- Suitable for automatic pick and place; Solder reflow capable
- Specifically designed for mobile, wireless communications, pagers, cellular and cordless phone



Surface Mount Type [Q series (21.400 , 21.700 , 45.000 MHz)]

Frequency (MHz)	Model	No. of poles	Pass Bandwidth		Stop Bandwidth		Ripple dB (max.)	Insertion Loss dB (max.)	Guaranteed Attenuation		Terminating Impedance		
			dB	kHz (min.)	dB	kHz (max.)			dB	kHz	ohms // pF	Cc (pF)	
21.400	21MQ7.5A	2	3	± 3.75	20	± 18	1.0	2.0	70	-910	850 // 6.0		
	21MQ15A	2	3	± 7.5	18	± 25	0.5	1.5	70	-910	1500 // 2.5		
	21MQ15B	4	3	± 7.5	40	± 25	1.0	3.0	70	-910	1800 // 0.35	5.0	
	21MQ30A	2	3	± 15	15	± 50	1.5	2.0	50	-910	2500 // 0		
21.700	21.7MQ15A	2	3	± 7.5	18	± 28	1.0	2.0	70	-910	1500 // 2.5		
	21.7MQ15B	4	3	± 7.5	40	± 25	1.0	3.0	70	-910	1750 // 0.35	5.0	
	21.7MQ30A	2	3	± 15	15	± 50	1.5	2.0	50	-910	2500 // 0		
45.000	45MQ15A	2	3	± 7.5	15	± 25	1.0	2.0	70	-910	560 // 6.0		
	45MQ15B	4	3	± 7.5	30	± 25	1.0	3.0	80	-910	600 // 2.3	7.5	
	45MQ30A	2	3	± 15	15	± 60	1.0	2.0	70	-910	1200 // 1.8		
	45MQ30B	4	3	± 15	30	± 40	1.0	3.0	70	-910	1200 // 1.0	2.5	

(Operating Temperature Range : -20°C to +70°C ; Storage Temperature Range : -40°C to +85°C)

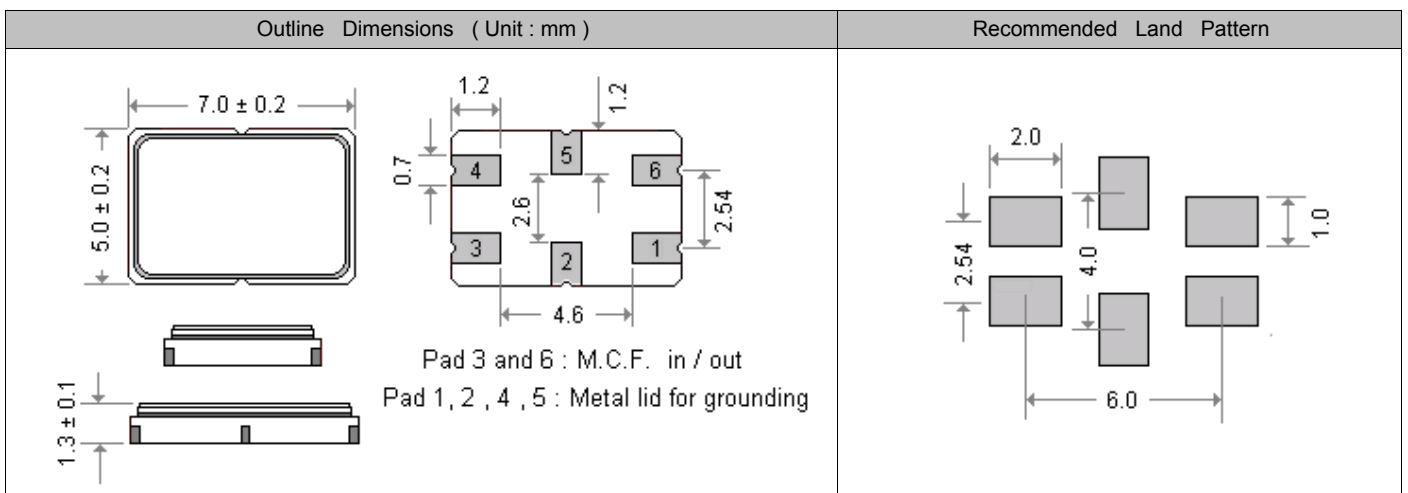
Environmental and Mechanical Specifications

Green Requirement	RoHS compliant and Pb (lead free)
Gross Leak	60 sec min at +125°C in D.I. water or fluorocarbon fluid
Shock	Half sine wave acceleration of 100G peak amplitude for 11 m. sec. duration, 3 cycles each plane.
Vibration	±5 ppm max. Frequency: 10 to 55 Hz, amplitude: 1.5 mm or 10 Gs rms. Duration : 6 hours.
Drop Test	Free drop onto hard wood board at 75 cm, 3 radon drops.
Humidity	After 48 hours at 85°C, 85% relative humidity non-condensing
Thermal Shock	Temperature cycling: Exposed at -40°C for 30 minutes then to +85°C for 30 minutes for duration of 5 days.
Drop Test	Free drop onto hard wood board at 75 cm, 3 radon drops.

Part Number Format and Example

[1] Center Freq. Code M	[2] Package Q	[3] Band width	[4] Poles code
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[1]	Freq. code : " 21 " for 21.400MHz , " 21.7 " for 21.700MHz , " 45 " for 45.000MHz ,
[2]	" Q " series for (7.0 * 5.0 * 1.3mm) package
[3]	Pass band width (3dB) (min.) * 2 [" 7.5 " for ± 3.75kHz , " 15 " for ± 7.5kHz , " 30 " for ± 15kHz]
[4]	No. of poles [" A " for 2 poles]

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Part Number Format and Example

SMD Type Part Number Format			
[1]	[2]	[3]	[4]
Frequency Code	MQ	Width Code	Poles Code

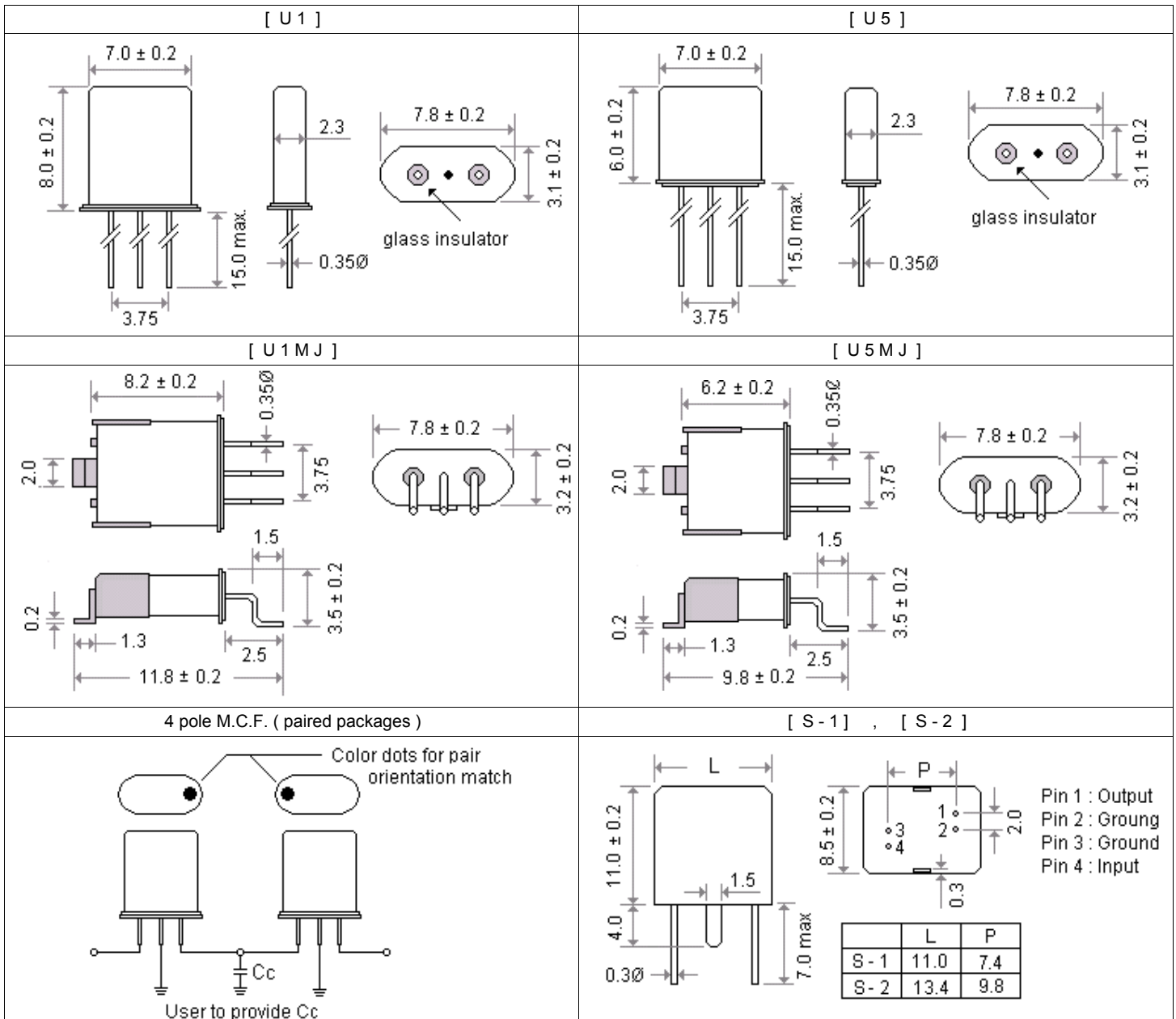
Examples	45	MQ	30	A
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Dip Type Part Number Format					
[1]	[2]	[3]	[4]	[5]	[6]
Frequency Code	M	Width Code	Poles Code	Holder Type	G

Examples	21.7	M	7.5	D	U5SM	G
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[1]	Freq. code : "10" for 10.700MHz , "21" for 21.400MHz , "21.7" for 21.700MHz , "45" for 45.000MHz , Freq. code : If none standard freq. please show frequency with one decimal point .
[2]	"M" Dip Type series , "MQ" SMD Type (7.0 * 5.0 * 1.3 mm)
[3]	Pass band width (3dB) (min.) "7.5" for $\pm 3.75\text{kHz}$, "15" for $\pm 7.5\text{kHz}$, "20" for $\pm 10\text{kHz}$, "30" for $\pm 15\text{kHz}$,
[4]	No. of poles "A" for 2 poles , "B" for 4 poles , "C" for 6 poles , "D" for 8 poles
[5]	Dip type holder type
[6]	Please add "G" after the "type code" for RoHS compliant (Does not apply to MQ series) .
[7]	Standard operating temperature range is -20°C to 70°C , If non-standard please enter the desired temp. range after "/" , for example "/-30+70" : -30°C to 70°C

Package Dimensions (unit : mm)



Mercury Green Program

Common points for all crystal products

Mercury Green Program

Mercury's Green Program is implemented in accordance with the European Union's directive on "Restriction of the use of certain Hazardous Substance(RoHS)". Mercury's Lead-Free and RoHS Compliant products follow the EU directive (2002/95/EC) and include test reports issued by SGS Group on hazardous substances levels for the six substances: lead(pb), cadmium(cd), mercury (Hg), hexavalent chromium(Cr+6), polybrominated biphenyl(PBB), and polybrominated diphenyl ether (PBDE).



**RoHS Compliant Product
by Mercury**

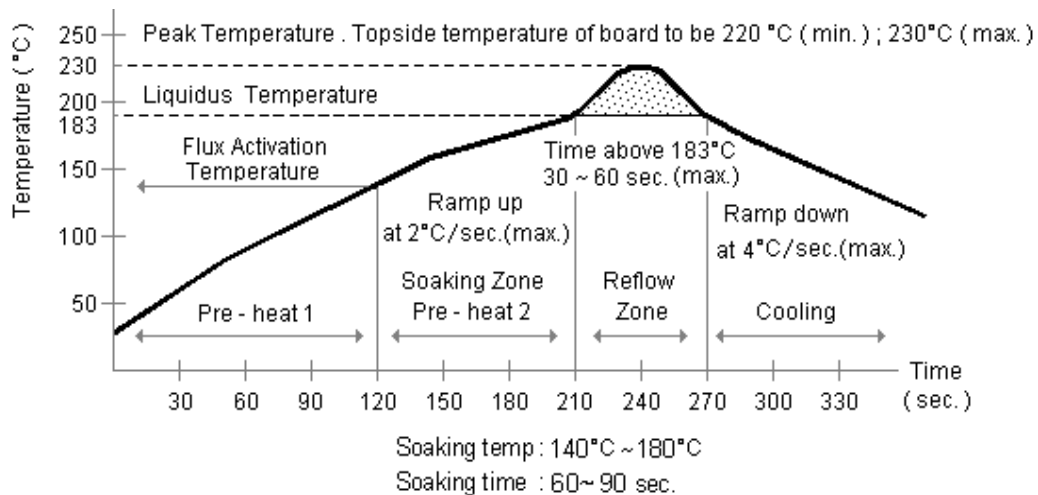
- Crystal Green Program-Crystals
- Crystal Oscillator Green Program-XO、VCXO、VCTCXO、TCXO、OCXO
- Crystal Filter Green Program-Filters

Soldering conditions

- (1) Lead wires should be soldered within 3 seconds with the iron heated to a temperature of 380°C (max.).
- (2) In solder-dip mounting , it should be within 10 seconds with a temperature of 260°C (max.).
Heating the whole crystal unit in the dip mounting process should be avoided .
Upright mounting is recommended (to prevent applying heat directly to the body of a crystal unit) .
- (3) Heating the whole body of the crystal unit , for example , in a reflow oven may affect the performance.
The holder is small and is sealed by solder material by press sealing , so that such a reflow process is not allowed to be applied .

Suggested Reflow Profile [SMD type products]

(1) Low temperature solder reflow : For Sn62 , Pb36 , Ag2 , Sn63 , Pb37 alloy .



(2) High temperature solder reflow : For Sn96.5% , Ag3.5% , Cu0.5% alloy .

