

**MQ**

7.0 \* 5.0 \* 1.3 mm

**Surface Mount**

**4 poles in one package**

**Fund.**

**21.4**  
MHz

**21.7**  
MHz

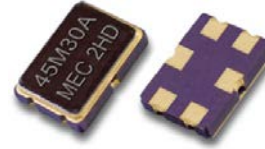
**45.0**  
MHz

**2 poles**

**4 poles**

**Features**

- Specifically designed for mobile, wireless communications pagers, cellular and cordless phones.



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

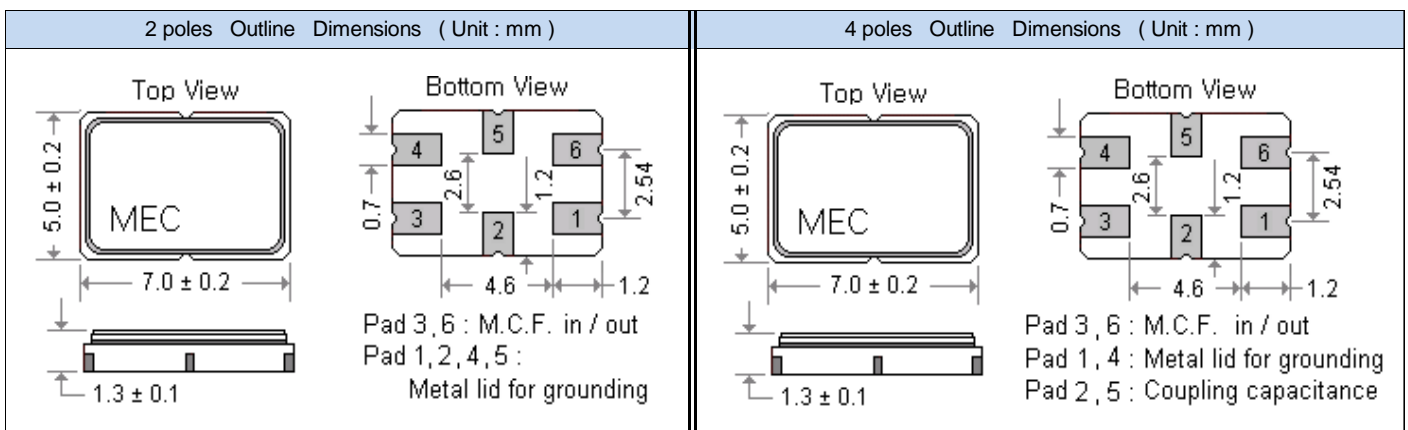
Frequency ( MHz )	Model	No. of poles	Pass Bandwidth		Stop Bandwidth		Ripple	Insertion Loss	Guaranteed Attenuation		Terminating Impedance	
			dB	KHz (min.)	dB	KHz (max.)	dB (max.)	dB (max.)	dB	KHz	ohms // pF	Cc (pF)
21.400	21MQ7.5A	2	3	± 3.75	20	± 18	1.0	2.0	70	-910	850 // 6.0	
	21MQ15A	2	3	± 7.5	18	± 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	60	-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	45MQ7.5A	2	3	± 3.75	15	± 18	1.0	2.0	70	-910	350 // 6.0	
	45MQ7.5B	4	3	± 3.75	40	± 15	1.0	2.0	80	-910	300 // 5.0	16.0
	45MQ15A	2	3	± 7.5	15	± 25	1.0	4.0	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 )

**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 ± 3.75 KHz , " 15 " for ± 7.5 KHz , " 30 " for ± 15 KHz ]		
[4]	No. of poles [ " A " for 2 poles ] [ " B " for 4 poles ]		



# M. C. F. [ Monolithic Crystal Filters ]

## Part Number Format and Example

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

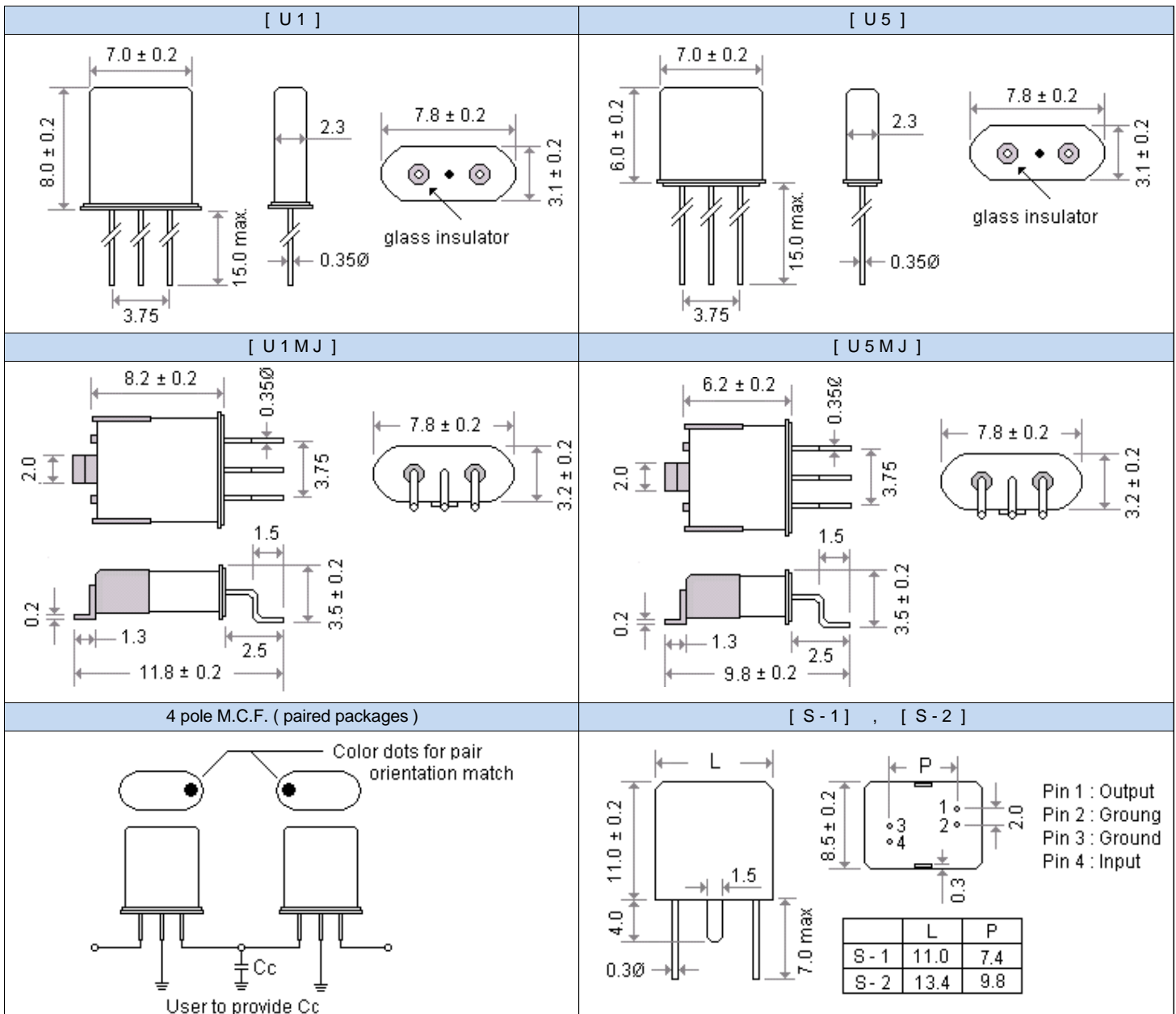
Examples	45	MQ	30	A
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Dip Type Part Number Format				
[ 1 ]	[ 2 ]	[ 3 ]	[ 4 ]	[ 5 ]
Frequency Code	M	Width Code	Poles Code	Holder Type

Examples	21.7	M	7.5	D	U5SM
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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 $\pm 3.75$ KHz , " 15 " for $\pm 7.5$ KHz , " 20 " for $\pm 10$ KHz , " 30 " for $\pm 15$ 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 ]	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 )



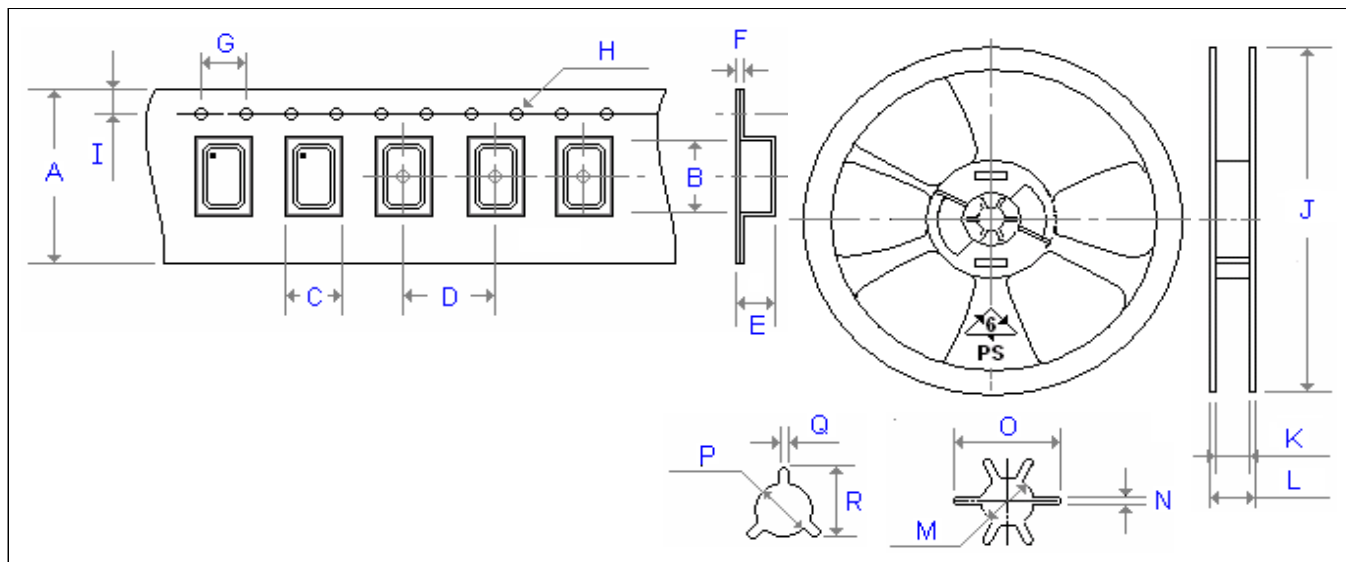
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## Emboss Taping and Reel Specifications

[ Crystal Units ]

[ M . C . F . Units ]



Carrier Type Dimensions ( unit : mm )

	A	B	C	D	E	F	G	H	I	pcs / reel
X11	8.0	1.8	1.4	4.0	0.5	0.3	4.0	Ø 1.55	1.75	3000
X21	8.0	2.3	1.9	4.0	0.6	0.2	4.0	Ø 1.50	1.75	3000
X22	8.0	2.7	2.3	4.0	1.2	0.3	4.0	Ø 1.50	1.75	3000
X32	8.0	3.4	2.7	4.0	1.4	0.3	4.0	Ø 1.50	1.75	3000
X42	12.0	4.3	2.8	8.0	1.0	0.3	4.0	Ø 1.55	1.75	1000
X2012	8.0	2.3	1.5	4.0	0.8	0.3	4.0	Ø 1.50	1.75	3000
X3215	12.0	3.4	1.7	4.0	1.0	0.3	4.0	Ø 1.50	1.75	3000
MJ	12.0	5.3	3.6	8.0	1.4	0.3	4.0	Ø 1.55	1.75	1000
MF	16.0	6.3	3.8	8.0	1.4	0.3	4.0	Ø 1.50	1.75	1000
MQ	16.0	7.2	5.4	8.0	1.8	0.3	4.0	Ø 1.55	1.75	1000
M49	24.0	15.0	5.0	12.0	4.3	0.4	4.0	Ø 1.55	1.75	1000
ML49	24.0	14.8	5.0	12.0	3.5	0.4	4.0	Ø 1.55	1.75	1000
MP4 ( 24 )	24.0	13.3	5.1	12.0	4.2	0.4	4.0	Ø 1.55	1.75	1000
MP5 ( 25 )	24.0	13.4	5.1	12.0	5.2	0.4	4.0	Ø 1.55	1.75	1000

Reel Dimensions ( unit : mm )

	J	K	L	M	N	O	P	Q	R	pcs / reel
X11	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
X21	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
X22	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
X32	180.0	9.0	12.0	-	-	-	13.2	2.1	-	3000
X42	180.0	13.0	16.0	-	-	-	13.2	2.5	-	1000
X2012	180.0	9.0	11.4	-	-	-	13.0	2.0	21.0	3000
X3215	180.0	13.0	15.4	-	-	-	13.0	-	-	3000
MJ	180.0	13.0	16.0	-	-	-	13.2	2.5	-	1000
MF	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
MQ	180.0	17.2	19.3	-	-	-	13.3	2.2	22.0	1000
M49	330.0	25.0	30.0	-	-	-	13.4	2.5	19.5	1000
ML49	330.0	25.0	30.0	-	-	-	13.4	2.5	19.5	1000
MP4 ( 24 )	330.0	25.0	30.0	-	-	-	13.4	2.5	19.5	1000
MP5 ( 25 )	330.0	25.0	30.0	-	-	-	13.4	2.5	19.5	1000