

Monolithic Crystal Filters (MCFs)

Monolithic Crystal Filters (MCFs) are small, lightweight and exhibit excellent group delay characteristics, by using low impedance fundamental frequencies.

MCF

10.7MHz Series

ELECTRICAL CHARACTERISTICS									
Model Number	Center Frequency (MHz)	Number of Poles	Pass Band KHz/dB	Attenuation KHz/dB	Pass Band Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Termination (k Ω //pF)	Package
10M7A	10.700	2	$\pm 3.75/3$	$\pm 18/20$	0.5	1.5	20	1.8//5	HC49U HC49T
10M8A	10.700	2	$\pm 4.0/3$	$\pm 30/30$	0.5	2.0	20	1.8//5	
10M10A	10.700	2	$\pm 5.0/3$	$\pm 22.5/18$	0.5	2.0	18	2.0	
10M15A	10.700	2	$\pm 7.5/3$	$\pm 25/15$	0.5	2.0	15	3.0/1	
10M20A	10.700	2	$\pm 10/3$	$\pm 35/18$	0.5	2.0	18	2.0 3.0	
10M30A	10.700	2	$\pm 15/3$	$\pm 50/15$	0.5	2.0	15	5.5//1	
10M7B	10.700	4	$\pm 3.75/3$	$\pm 14/40$	1.0	2.5	40	1.8//4	HC49Ux2 HC49Tx2 M-A
10M8B	10.700	4	$\pm 4.0/3$	$\pm 15/40$	1.0	2.5	40	1.8//4	
10M10B	10.700	4	$\pm 5.0/3$	$\pm 20/40$	1.0	2.0	40	2.0	
10M15B	10.700	4	$\pm 7.5/3$	$\pm 27/40$	1.0	2.5	40	3.0//1.5	
10M20B	10.700	4	$\pm 10/3$	$\pm 34/40$	1.0	2.5	40	2.0 3.0	
10M25B	10.700	4	$\pm 12.5/3$	$\pm 45/40$	2.0	3.0	40	2.0	
10M30B	10.700	4	$\pm 15/3$	$\pm 40/30$	1.0	2.5	30	5.5//1	M-3
10M7C	10.700	6	$\pm 3.75/3$	$\pm 12.5/65$	2.0	3.5	65	1.8//3.5	
10M15C	10.700	6	$\pm 7.5/3$	$\pm 25/60$	2.0	3.0	60	2.0	
10M15C1	10.700	6	$\pm 7.5/6$	$\pm 23/60$	2.0	3.0	60	3.0//1	
10M20C	10.700	6	$\pm 10/3$	$\pm 35/60$	2.0	3.0	65	3.0	
10M20C1	10.700	6	$\pm 10/6$	$\pm 34/65$	2.0	3.0	65	3.0	
10M25C	10.700	6	$\pm 12.5/3$	$\pm 45/60$	2.0	3.0	60	3.0	M-4
10M30C	10.700	6	$\pm 15/3$	$\pm 45/65$	2.0	3.0	65	5.5//1	
10M15D	10.700	8	$\pm 7.5/3$	$\pm 25/80$	2.0	4.0	80	2.0	
10M15D1	10.700	8	$\pm 7.5/6$	$\pm 20/80$	2.0	4.0	80	3.0//1	

21.4MHz Series

ELECTRICAL CHARACTERISTICS									
Model Number	Center Frequency (MHz)	Number of Poles	Pass Band KHz/dB	Attenuation KHz/dB	Pass Band Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Termination (k Ω //pF)	Package
21M7A	21.400	2	$\pm 3.75/3$	$\pm 14/18$	0.5	2.0	35	0.85//5	UM1 UM5
21M13A	21.400	2	$\pm 6.5/3$	$\pm 23/15$	0.5	2.0	35	1.2//3	
21M15A	21.400	2	$\pm 7.5/3$	$\pm 25/18$	0.5	2.0	35	1.5//3	
21M20A	21.400	2	$\pm 10/3$	$\pm 25/10$	1.0	2.0	35	1.8//1.5	
21M30A	21.400	2	$\pm 15/3$	$\pm 45/15$	2.0	2.0	35	1.8//1.5	
21M7B	21.400	4	$\pm 3.75/3$	$\pm 14/40$	1.0	2.5	50	0.85//5	UM1x2 UM5x2
21M13B	21.400	4	$\pm 6.5/3$	$\pm 25/40$	1.0	2.5	50	1.2//3	
21M15B	21.400	4	$\pm 7.5/3$	$\pm 30/40$	1.0	2.5	50	1.5//2	
21M20B	21.400	4	$\pm 10/3$	$\pm 34/40$	1.0	2.5	50	1.5	
21M30B	21.400	4	$\pm 15/3$	$\pm 50/40$	2.0	3.0	65	1.5	
21M15C	21.400	6	$\pm 7.5/3$	$\pm 25/60$	2.0	3.0	65	1.5	M-1
21M20C	21.400	6	$\pm 10/3$	$\pm 32.5/60$	2.0	3.0	65	1.5	
21M15D	21.400	8	$\pm 7.5/3$	$\pm 20/80$	2.0	3.0	80	1.5	M-2

45MHz Series

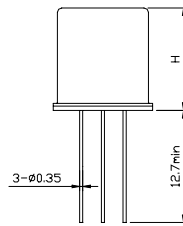
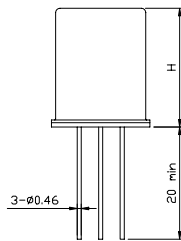
ELECTRICAL CHARACTERISTICS									
Model Number	Center Frequency (MHz)	Number of Poles	Pass Band KHz/dB	Attenuation KHz/dB	Pass Band Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Termination (k Ω //pF)	Package
45M15A	45.000	2	$\pm 7.5/3$	$\pm 25/15$	1.0	2.5	35	0.8//2	UM1 UM5
45M20A	45.000	2	$\pm 10/3$	$\pm 34/15$	1.0	2.5	35	0.65//1.5	
45M30A	45.000	2	$\pm 15/3$	$\pm 50/15$	1.0	2.5	35	2.0	
45M50A	45.000	2	$\pm 25/3$	$\pm 100/15$	1.0	2.5	35	2.0	
45M15B	45.000	4	$\pm 7.5/3$	$\pm 25/30$	1.0	3.0	70	0.8//2	UM1x2 UM5x2
45M20B	45.000	4	$\pm 10/3$	$\pm 34/30$	1.0	3.0	70	0.65//1.5	
45M30B	45.000	4	$\pm 15/3$	$\pm 50/30$	1.0	3.0	70	2.0	
45M50B	45.000	4	$\pm 25/3$	$\pm 100/30$	1.0	3.0	70	2.0	

Other Frequency Series

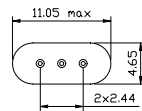
ELECTRICAL CHARACTERISTICS									
Model Number	Center Frequency (MHz)	Number of Poles	Pass Band KHz/dB	Attenuation KHz/dB	Pass Band Ripple (dB)	Insertion Loss(dB)	Guaranteed Attenuation (dB)	Termination (k Ω //pF)	Package
8M10A	8.192	2	$\pm 5/3$	$\pm 22/20$	0.5	1.5	20	2.0	HC49T
12M10A	12.800	2	$\pm 5/3$	$\pm 22/20$	0.5	1.5	15	1.2	
12M10B	12.800	4	$\pm 5/3$	$\pm 20/40$	1.0	2.0	35	1.2	HC49Tx2
14M20B	14.500	4	$\pm 10/3$	$\pm 35/40$	2.0	3.0	35	1.5	
16M20A	16.900	2	$\pm 10/3$	$\pm 35/18$	0.5	1.5	35	2.0	UM1 UM2
17M15A	17.900	2	$\pm 10/3$	$\pm 25/18$	0.5	1.5	35	2.0//2	
46M15A	46.300	2	$\pm 7.5/3$	$\pm 25/15$	1.0	2.5	35	0.47//5	UM-5x2
46M15B	46.300	4	$\pm 7.5/3$	$\pm 25/30$	1.0	3.0	65	0.47//5	
49M8A	49.875	2	$\pm 4/3$	$\pm 35/18$	1.5	2.0	35	0.5	HC49T
54M10A	54.900	2	$\pm 5/3$	$\pm 20/18$	1.5	2.0	35	1.0	UM1 UM5
64M10A	64.800	2	$\pm 5/3$	$\pm 20/18$	1.5	2.0	35	1.0	
69M7A	69.900	2	$\pm 3.75/3$	$\pm 16/18$	1.5	2.0	35	1.2	
70M15A	70.000	2	$\pm 7.5/3$	$\pm 30/15$	1.0	2.0	35	2.0	
70M20A	70.000	2	$\pm 10/3$	$\pm 40/15$	1.0	2.0	35	2.0	
70M30A	70.000	2	$\pm 15/3$	$\pm 50/15$	1.0	2.0	35	2.0	
70M15B	70.000	4	$\pm 7.5/3$	$\pm 30/25$	1.5	3.0	70	2.0	UM1x2 UM5x2
70M20B	70.000	4	$\pm 10/3$	$\pm 40/35$	1.5	3.0	70	2.0	
70M30B	70.000	4	$\pm 15/3$	$\pm 50/30$	1.5	3.0	70	2.0	
90M15A	90.000	2	$\pm 7.5/3$	$\pm 30/15$	1.0	2.0	35	1.2	UM1/UM5

- ◆ Operating temperature range of -20 to $+70^{\circ}\text{C}$
- ◆ Most UM1/5 modes also available in HC49U/T
- ◆ Formed leads and jacket SM option available for UM1 and UM5
- ◆ Please consult VTC support for the other specifications not listed above.

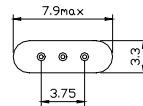
PACKAGE OUTLINE DIMENSIONS (UNIT: MM)



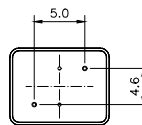
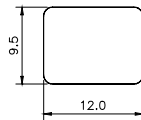
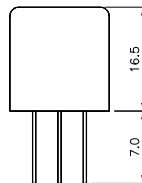
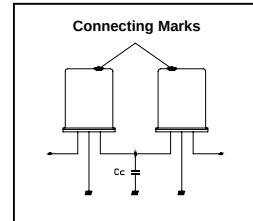
Package	Height
HC49U	13.5
HC49T	11.0
UM1	8.0
UM5	5.8



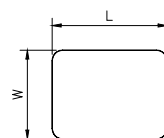
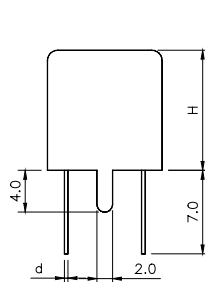
HC49U, HC49T



UM1, UM5



M-A



Tolerance:

L,W,H : ± 0.5

A,B : ± 0.25

d : ± 0.1

Type	L	W	H	A	B	d
M-1B	8.5	8.5	11.5	5.2	2.0	0.35
M-1	11.0	8.5	11.5	7.4	2.0	0.35
M-2	13.4	8.5	11.5	9.8	2.0	0.35
M-3	15.0	12.0	15.0	9.0	2.5	0.42
M-4	18.5	12	15	13.4	2.5	0.42
M-5	23	12	15	17.8	2.5	0.42
M-6	28	12	15	22.2	2.5	0.42

