

### FEATURES

- \* High stability for wide temperature ranges
- \* Sharp cut-off
- \* Low loss

Inscore's Monolithic Crystal Filters have very high Q's and excellent temperature and aging characteristics. These filters offer narrow and intermediate bandwidths. The monolithic crystal filter is smaller and more cost effective than a discrete crystal filter. With the addition of coupling capacitors between two-pole sections, they can be cascaded to produce four, six and eight (or more) pole filter responses.



### ELECTRICAL CHARACTERISTICS (10.7 and 21.4 MHz)

For 12.5 KHz Channel Spacing (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-10.7-7.5A	10.7	2	±3.75	0.5	1.5	20 ±18		35 +300~ +1000 50 -20~+1000	1800//5.0	HC-490/U
INS-10.7-7.5B	10.7	4	±3.75	1.0	2.5	40 ±4		65+300+1000 80-20-1000	1800//4.0	HC-49/Ux2
INS-21K7.5A	21.4	2	±3.75	0.5	2.0	18 ±12.5		75 -910	1500//6.0	UM-1
INS-21K7.5B	21.4	4	±3.75	1.0	2.5	35 ±12.5		90 ±910	850//5.0	UM-1x2

For 20 KHz Channel Spacing (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-10.7-12A	10.7	2	±6.0	0.5	2.0	18 ±23		35 +300~ +1000 40 -200~ +1000	2500//2.5	HC-490/U
INS-10.7-12B	10.7	4	±6.0	1.0	2.5	40 ±20		65 +300~ +1000 80 -200~1000	2500//1.5	HC-49/Ux2
INS-21K12A	21.4	2	±6.0	0.5	2.0	18 ±23		35 +350~ +1000 50 -200~ +1000	1200//3.0	UM-1
INS-21K12B	21.4	4	±6.0	1.0	2.5	40 ±20		65 +350~ +1000 70 -200~ +1000	1200//2.5	UM-1x2

### ELECTRICAL CHARACTERISTICS (10.7 and 21.4 MHz)

For 25 KHz Channel Spacing (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-10.7-15A	10.7	2	±7.5	0.5	2.0	18 ± 25		35 +300~ +1000 40 -200~ +1000	3000//2.0	HC-490/U
INS-10.7-15B	10.7	4	±7.5	1.0	2.5	40 ± 25		55 +300~ +1000 80 -200~ +1000	3000//2.0	HC-49/Ux2
INS-21K15A	21.4	2	±7.5	0.5	1.5	18 ± 25		35 +350~ +1000 50 -200~ +1000	1500//3.0	UM-1
INS-21K15B	21.4	4	±7.5	1.0	2.5	40 ± 25		65 +350~ +1000 80 -200~ +1000	1500//2.0	UM-1x2

For 50 KHz Channel Spacing (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-10.7-30A	10.7	2	±15	0.5	2.0	18 ± 23		35 +300~ +1000 40 -200~ +1000	2500//2.5	HC-490/U
INS-10.7-30B	10.7	4	±15	1.0	2.5	40 ± 20		65 +300~ +1000 80 -200~ +1000	2500//1.5	HC-49/Ux2
INS-21K30A	21.4	2	±15	0.5	2.0	18 ± 23		35 +350~ +1000 50 -200~ +1000	1200//3.0	UM-1
INS-21K30B	21.4	4	±15	1.0	2.5	40 ± 20		65 +350~ +1000 70 -200~ +1000	1200//2.5	UM-1x2

45 MHz Monolithic Crystal Filters (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-45K7.5A	45.0	2	±3.75	1.0	2.0	10 ± 12.5		65 -910	350//10.5	UM-1
INS-45K7.5B	45.0	4	±3.75	1.0	4.0	30 ± 12.5		90 ± 910	350//6.5	UM-1x2
INS-45K15A	45.0	2	±7.5	1.0	2.0	15 ± 25		75 -910	650//5.0	UM-1
INS-45K15B	45.0	4	±7.5	1.0	3.0	30 ± 25		90 ± 910	650//3.0	UM-1x2
INS-45K20A	45.0	2	±10	0.5	2.0	15 ± 30		65 -910	910//2.5	UM-1
INS-45K20B	45.0	4	+10	1.0	3.0	35 ± 40		90 ± 910	910//2.5	UM-1x2
INS-45K30A	45.0	2	±15	1.0	2.0	15 ± 50		70 -910	1200//1.5	UM-1
INS-45K30B	45.0	4	±15	1.0	3.0	30 ± 50		90 ± 910	1200//0.7	UM-1x2

### 55 MHz Monolithic Crystal Filters (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-55K15A	55.0	2	±7.5	1.0	2.0	15 ±25		70 -910	600//3.0	UM-1
INS-55K15B	55.0	4	±7.5	1.0	3.0	30 ±25		90 ±910	600//1.5	UM-1x2
INS-55K20A	55.0	2	±10	1.0	2.0	15 ±30		75 -910	910//2.0	UM-1
INS-55K20B	55.0	4	±10	1.0	3.0	25 ±25		90 ±910	910//1.0	UM-1x2
INS-55K30A	55.0	2	±15	1.0	2.0	15 ±50		70 -910	1200//1.5	UM-1
INS-55K30B	55.0	4	±15	1.0	3.0	30 ±50		90 ±910	1200//0.7	UM-1x2
INS-55K32A	55.0	2	±16	0.5	2.5	4 ±29.5		65 -910	1250//1.3	UM-1
INS-55K32B	55.0	4	±16	1.0	5.0	30 ±52		80 ±910	1250//0.5	UM-1x2

### 70 MHz Monolithic Crystal Filters (Operating Temperature -20 to +70°C)

MODEL	NOMINAL FREQ. (f <sub>0</sub> ) (MHz)	NUMBER OF POLES	PASSBAND 3dB MIN. (KHz)	RIPPLE MAX. (dB)	INSERTION LOSS MAX. (dB)	STOPBAND MAX. (dB) (KHz)	STOPBAND MAX. (dB) (KHz)	GUARANTEED ATTENUATION (dB) (f <sub>0</sub> ±Hz)	TERMINATING IMPEDANCE (Ohms/pF)	CASE
INS-70K15A	70.0	2	±7.5	1.0	2.5	15 ±25		35 -910	2000//1.0	UM-1
INS-70K15B	70.0	4	±7.5	1.0	4.0	40 ±35		70 ±910	2000//1.0	UM-1x2
INS-70K20A	70.0	2	±10	1.0	2.5	15 ±28		35 -910	2500//1.0	UM-1
INS-70K20B	70.0	4	±10	1.0	4.0	35 ±40		70 ±910	2500//1.0	UM-1x2
INS-90K20A	90.0	2	±10	1.0	2.5	15 ±30		35 -910	2500//1.0	UM-1
INS-90K20B	90.0	4	±10	1.0	4.0	30 ±30		70 ±910	2500//1.0	UM-1x2

## DIMENSIONS AND ELECTRICAL DIAGRAMS (mm)

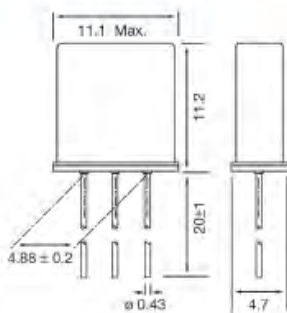


Figure 1) HC-49/U

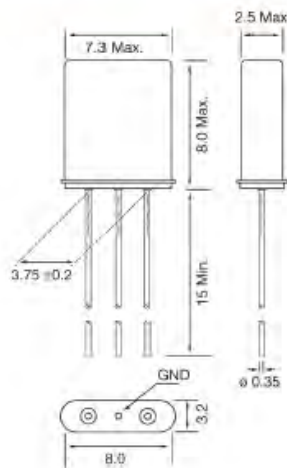


Figure 2) UM-1

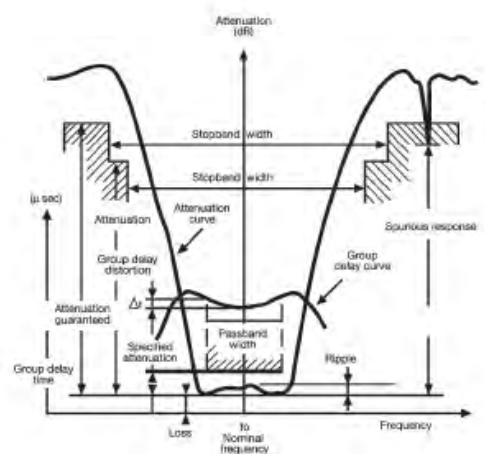


Figure 3) MCF Characteristics Curve

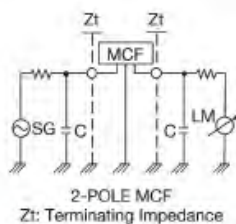


Figure 5) MCF Test Circuits