RC Series

TRADITIONAL Pb RoHS COMPLIANT

Chebyshev

Frequency Range from 1 kHz to 200 MHz

Application-Specific Designs

SERIES NUMBER	NUMBER OF POLE PAIRS (ELEMENTS)	INSERTION LOSS at 0.1 x f_n dB	BANDWIDTH SELECTION -3dBc % f_n	STOPBAND ATTENUATION dBc MINIMUM	STOPBAND FREQUENCY 1	STOPBAND FREQUENCY 2
NOTCH FREQUENCY – 1 kHz to 200 MHz – specify any f_n within that range						
RC3	3 (6)	≤ 1.0	20 to 30	-50	0.995 x f_n	1.005 x f_n
			> 30 to 40	-50	0.990 x f_n	1.010 x f_n
			> 40 to 50	-50	0.984 x f_n	1.016 x f_n
			> 50 to 60	-50	0.980 x f_n	1.020 x f_n
			> 60 to 70	-50	0.975 x f_n	1.025 x f_n
			> 70 to 80	-50	0.968 x f_n	1.032 x f_n
			> 80 to 90	-50	0.965 x f_n	1.035 x f_n
			> 90 to 100	-50	0.960 x f_n	1.040 x f_n
RC4	4 (8)	≤ 1.0	20 to 30	-50	0.985 x f_n	1.015 x f_n
			> 30 to 40	-50	0.976 x f_n	1.024 x f_n
			> 40 to 50	-50	0.968 x f_n	1.032 x f_n
			> 50 to 60	-50	0.955 x f_n	1.045 x f_n
			> 60 to 70	-50	0.950 x f_n	1.050 x f_n
			> 70 to 80	-50	0.940 x f_n	1.060 x f_n
			> 80 to 90	-50	0.930 x f_n	1.070 x f_n
			> 90 to 100	-50	0.920 x f_n	1.080 x f_n
RC5	5 (10)	≤ 1.0	20 to 30	-50	0.980 x f_n	1.020 x f_n
			> 30 to 40	-50	0.965 x f_n	1.035 x f_n
			> 40 to 50	-50	0.950 x f_n	1.050 x f_n
			> 50 to 60	-50	0.938 x f_n	1.062 x f_n
			> 60 to 70	-50	0.925 x f_n	1.075 x f_n
			> 70 to 80	-50	0.912 x f_n	1.088 x f_n
			> 80 to 90	-50	0.904 x f_n	1.096 x f_n
			> 90 to 100	-50	0.890 x f_n	1.110 x f_n
RC6	6 (12)	≤ 1.0	20 to 30	-60	0.982 x f_n	1.018 x f_n
			> 30 to 40	-60	0.970 x f_n	1.030 x f_n
			> 40 to 50	-60	0.955 x f_n	1.045 x f_n
			> 50 to 60	-60	0.942 x f_n	1.058 x f_n
			> 60 to 70	-60	0.930 x f_n	1.070 x f_n
			> 70 to 80	-60	0.916 x f_n	1.084 x f_n
			> 80 to 90	-60	0.905 x f_n	1.095 x f_n
			> 90 to 100	-60	0.890 x f_n	1.110 x f_n

Note: TTE's products are made in the USA. Application-specific designs are made to order. Typical delivery is 2 weeks. Expedited lead time of 3-5 days is available on many products.

For RoHS compliant, add "R" to part number. Example: RC6R-100M-22M-50-69A

TTE designates a component RoHS-compliant by adding "R" (RoHS) within the part number.

These RoHS components meet the ≤ 0.1% lead requirement and they are compatible with 260°C soldering processes.

NOTES:

- Operating Temperature Range: 0°C to +70°C
- Number of Pole Pairs (Elements): 3-6 (6-12)
- Passband VSWR: 1.5:1 Typical
- Input Power: 20 mW
- Case Type: Refer to **Case Selection Guide**
- Case Options: PCB, SMT, BNC or SMA
- Normalized Response: Refer to **Graphs**
- Product Info: Refer to **RC Series**

TERMINATIONS:

50 Ω	100 MHz - 200 MHz
50 Ω or 75 Ω	300 kHz - 100 MHz
1 kΩ - 50 Ω	10 kHz - 300 kHz
10 kΩ - 1 kΩ	1 kHz - 10 kHz

STOPBAND FREQUENCY CALCULATIONS:

Using part number RC6-100M-22M-50-69A, we know that the filter is a 6 pole Chebyshev band rejection filter. Scroll down to series number RC6. Moving to the right we select the 20-30% bandwidth range. Moving to the right again we find the stopband specification listed as -60dBc minimum at 0.982 x f_n and 1.018 x f_n. Thus, the -60dBc frequencies are at 98.2 MHz (0.982 x 100 MHz) and at 101.8 MHz (1.018 x 100 MHz), respectively.

PART NUMBER DERIVATION:

RC6	*(T)	**(R)	-100M	-22M	-50	-69A
1 2	3	4	5	6	7	8

1) Series, RC

2) Number of poles, 6

*3) The "T" option specifies a filter with low THD for ADC/DAC testing. When selected therein, THD is > -80dBc, -96dBc typical.

**4) "R" RoHS compliant. Allow for longer lead time.

5) The Notch Frequency, f_n

6) The -3dBc passband bandwidth. It may also be specified as a percentage of f_n. Thus, instead of 22 MHz, use 22P.

7) Terminations

8) Case selection from the case selection guide. "T" option cases are larger than standard.