KB Series

TRADITIONAL Pb **RoHS COMPLIANT**

Butterworth
Frequency Range from 500 Hz to 1 GHz
Application-Specific Designs

SERIES NUMBER	NUMBER OF POLE PAIRS (ELEMENTS)	INSERTION LOSS at f_O dB TYPICAL	BANDWIDTH SELECTION -3dBc % f_O	STOPBAND ATTENUATION dBc MINIMUM	FREQUENCY 1	FREQUENCY 2
		CENTER FREQUENCY – 500 Hz to 1 GHz – specify any f_O within that range				
KB3	3 (6)	6.9 - 4.3	3 to 5	-30	0.80 x f_O	1.18 x f_O
		4.3 - 2.3	> 5 to 10	-30	0.62 x f_O	1.30 x f_O
		2.3 - 1.5	> 10 to 15	-25	0.62 x f_O	1.32 x f_O
		1.5 - 1.2	> 15 to 20	-25	0.52 x f_O	1.38 x f_O
		1.2 - 1.0	> 20 to 25	-25	0.43 x f_O	1.45 x f_O
KB4	4 (8)	8.4 - 5.3	3 to 5	-40	0.82 x f_O	1.16 x f_O
		5.3 - 2.8	> 5 to 10	-40	0.65 x f_O	1.28 x f_O
		2.8 - 1.9	> 10 to 15	-30	0.65 x f_O	1.28 x f_O
		1.9 - 1.5	> 15 to 20	-30	0.50 x f_O	1.35 x f_O
		1.5 - 1.2	> 20 to 25	-30	0.45 x f_O	1.40 x f_O
KB5	5 (10)	9.8 - 6.3	3 to 5	-60	0.78 x f_O	1.18 x f_O
		6.3 - 3.5	> 5 to 10	-60	0.58 x f_O	1.30 x f_O
		3.5 - 2.5	> 10 to 15	-50	0.50 x f_O	1.35 x f_O
		2.5 - 1.8	> 15 to 20	-40	0.50 x f_O	1.35 x f_O
		1.8 - 1.5	> 20 to 25	-40	0.35 x f_O	1.45 x f_O
KB6	6 (12)	11.0 - 7.2	3 to 5	-60	0.83 x f_O	1.15 x f_O
		7.2 - 4.0	> 5 to 10	-60	0.70 x f_O	1.23 x f_O
		4.0 - 2.7	> 10 to 15	-60	0.62 x f_O	1.28 x f_O
		2.7 - 2.1	> 15 to 20	-50	0.48 x f_O	1.35 x f_O
		2.1 - 1.6	> 20 to 25	-50	0.25 x f_O	1.45 x f_O
KB7	7 (14)	8.0 - 4.5	5 to 10	-60	0.75 x f_O	1.20 x f_O
		4.5 - 3.1	> 10 to 15	-50	0.70 x f_O	1.24 x f_O
		3.1 - 2.4	> 15 to 20	-50	0.60 x f_O	1.30 x f_O
		2.4 - 1.9	> 20 to 25	-50	0.40 x f_O	1.38 x f_O
		CENTER FREQUENCY – 1 kHz to 1 GHz – specify any f_O within that range				
KB8	8 (16)	8.7 - 5.0	5 to 10	-60	0.79 x f_O	1.18 x f_O
		5.0 - 3.5	> 10 to 15	-60	0.68 x f_O	1.25 x f_O
		3.5 - 2.7	> 15 to 20	-60	0.55 x f_O	1.32 x f_O
		2.7 - 2.2	> 20 to 25	-60	0.37 x f_O	1.40 x f_O
KB9	9 (18)	9.5 - 5.5	5 to 10	-60	0.81 x f_O	1.16 x f_O
		5.5 - 3.9	> 10 to 15	-60	0.73 x f_O	1.22 x f_O
		3.9 - 3.0	> 15 to 20	-60	0.65 x f_O	1.28 x f_O
		3.0 - 2.5	> 20 to 25	-60	0.50 x f_O	1.35 x f_O

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: KB6R-10.7M-535K-50-720B
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): 3-9 (6-18)
- VSWR at f_O: 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 **KB Series**

TERMINATIONS:

50 Ω	100 MHz - 1 GHz
50 Ω or 75 Ω	300 kHz - 100 MHz
1 kΩ - 50 Ω	10 kHz - 300 kHz
10 kΩ - 1 kΩ	500 Hz - 10 kHz

STOPBAND FREQUENCY CALCULATIONS:
Using part number KB6-10.7M-535K-50-720B, we know that the filter is a 6 pole Butterworth bandpass filter. Scroll down to series number KB6. Moving to the right we select the 3% bandwidth range. Moving to the right again we find the stopband specification listed as -60dBc minimum at 0.83 x f_O and 1.15 x f_O. Thus, the -60dBc frequencies are at 8.88 MHz (0.83 x 10.7 MHz) and at 12.30 MHz (1.15 x 10.7 MHz), respectively.

PART NUMBER DERIVATION:

KB6	*(T)	**(R)	-10.7M	-535K	-50	-720B
1 2	3	4	5	6	7	8

1) Series, KB
2) Number of poles, 6
* 3) The "T" option specifies a filter with low THD for ADC/DAC testing. When selected the minimum THD is > -80dBc, -96dBc typical.
** 4) "R" RoHS compliant. Allow for longer lead time.
5) The Center Frequency, f_O
6) The -3dBc passband bandwidth. It may also be specified as a percentage of f_O. Thus, instead of 535 kHz, use 5P.
7) Terminations
8) Case selection from the case selection guide. "T" option cases are larger than standard.

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