

MULTILAYER CHIP BEADS EMI SUPPRESSORS

FEATURES

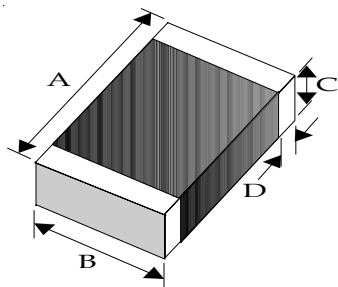
100% NO LEAD terminal component
 Multilayer technology, offering Monolithic structure, excellent for high reliability
 100% Magnetic shielding, absolutely ZERO CROSS TALK
 Excellent solderability and very high heat resistance
 Several different sizes from 0402 to 2220
 Wide impedance levels from 7 ohms to 2700 ohms
 Variety of noise suppression levels from Low speed signal to Ultra High Frequency at Gigahertz
 Very low price

ELECTRICAL CHARACTERISTICS

Impedance tolerance	±25%
Test frequency	Standard items @ 100 MHz Special items @ either 30 MHz or 50 MHz
Test equipment	for Z HP-4291A with test fixture HP-16192A for DCR Digital Milliohm Meter for current HP-6632DC Power Supply connected to HP-16200A and HP-4291A
Rated current	Obtained when component exhibits temperature rise of 28°C max.

PHYSICAL CHARACTERISTICS

Operating temperature	-55°C to +125°C																											
Soldering heat resistance	300°C for 5 seconds																											
Terminal construction	Electro-plating with 3 layers : Silver, Nickel, Tin																											
Solderability	Recommendation : Preheat @ 150°C for 60 seconds Immerse chip into 235°C solder bath for 5 seconds																											
Tape and reel specifications	8 mm or 12 mm embossed carrier tape with 178 mm reel for standard packaging, and with 330 mm reel for 10,000 pieces packaging																											
Quantity per reel	<table border="0"> <tr> <td>Standard</td> <td>0402 size</td> <td>10,000</td> </tr> <tr> <td></td> <td>0603 size</td> <td>4,000</td> </tr> <tr> <td></td> <td>0805 size</td> <td>4,000</td> </tr> <tr> <td></td> <td>1206 size</td> <td>3,000</td> </tr> <tr> <td></td> <td>1210 size</td> <td>2,500</td> </tr> <tr> <td></td> <td>1806 size</td> <td>2,000</td> </tr> <tr> <td></td> <td>1812 size</td> <td>1,000</td> </tr> <tr> <td></td> <td>2220 size</td> <td>1,000</td> </tr> <tr> <td>Special reel size</td> <td>330 mm</td> <td>10,000 Only available with sizes 0603 to 1210 size</td> </tr> </table>	Standard	0402 size	10,000		0603 size	4,000		0805 size	4,000		1206 size	3,000		1210 size	2,500		1806 size	2,000		1812 size	1,000		2220 size	1,000	Special reel size	330 mm	10,000 Only available with sizes 0603 to 1210 size
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DIMENSIONS IN MILLIMETERS

SIZES	A	B	C	D
0402	1.0 ± 0.1	0.5 ± 0.1	0.5 ± 0.1	0.25 ± 0.1
0603	1.6 ± 0.15	0.8 ± 0.15	0.8 ± 0.15	0.30 ± 0.2
0805	2.0 ± 0.2	1.25 ± 0.2	0.85 ± 0.2	0.50 ± 0.3
1206	3.2 ± 0.2	1.6 ± 0.2	1.1 ± 0.2	0.50 ± 0.3
1210	3.2 ± 0.2	2.5 ± 0.2	1.3 ± 0.2	0.50 ± 0.3
1806	4.5 ± 0.2	1.6 ± 0.2	1.6 ± 0.2	0.50 ± 0.3
1812	4.5 ± 0.2	3.2 ± 0.2	1.5 ± 0.2	0.50 ± 0.3
2220	5.7 ± 0.2	5.0 ± 0.3	1.8 ± 0.2	0.50 ± 0.3

CB G 0402- 470- 15
 (1) (2) (3) (4) (5)

(1) Indicates Chip Bead
 (2) Application levels

G for General Level
 L for Low speed signal
 H for High speed signal
 C for High current
 Z for High Impedance
 P for Power supply line
 U for Ultra High frequency at GHz
 from 0402 to 2220

(3) Sizes

(4) Impedance value examples

07 = 7 ohms
 70 = 70 ohms
 700 = 700 ohms
 702 = 7000 ohms

(5) Rated current examples

05 = 50 mA
 50 = 500 mA
 502 = 5000 mA

DETAILS OF EACH APPLICATION LEVELS

1. The General Application Level G type Chip bead generates impedance from relatively low frequencies. It is effective in noise suppression for a wide frequency range from 30 MHz to several hundred MHz.

2. The Low speed signal L type Chip bead can be used in Digital interface. Its resistance increases in the lower frequency range and has little effect on digital signal waveforms, therefore, it can be used to suppress ringing.

3. The High speed signal H type Chip bead can minimize attenuation of the signal waveform due to its sharp impedance characteristic. Various impedance values are available to match a signal frequency.

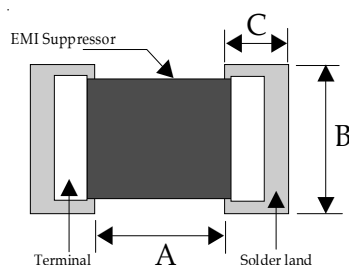
4. The High current C type Chip Bead is very good for use in high current circuits up to 6000 milliamps DC due to its very low DC resistance.

5. The High Impedance value Z type Chip bead is identical to the General type with its high impedance values up to 2700 ohms.

6. The Power Supply Line P type Chip bead was developed for noise suppression in DC power lines for USB interface circuitry, and hard disk drives. It has low DC resistance with the same capacity of high current handling as the high current type.

7. The Ultra High Frequency U type Chip Bead is similar to the General type at frequencies below 100 MHz, however at 1 GHz, its impedance is 3 times larger, therefore, this type of chip bead offers a very broad frequency range, good for high speed CPU, High speed bus, and other digital equipments.

LAND PATTERN RECOMMENDED



Size	A (mm)	B (mm)	C (mm)
0402	0.50	0.65	0.25
0603	0.80	1.00	0.30
0805	1.00	1.50	0.50
1206	2.20	1.80	0.50
1210	2.20	2.60	0.50
1806	3.50	1.80	0.50
1812	3.50	3.40	0.50
2220	4.70	5.20	0.50

ELECTRICAL SPECIFICATIONS

Application Type	Part Number	Prior Part Number	Z (W) @ 100 MHz ± 25%	DCR Max (W)	Rated Current Max (mA)	Remarks
GENERAL	CBG0402-30-30		30	0.20	300	
	CBG0402-60-30		60	0.25	300	
	CBG0402-120-10		120	0.30	100	
	CBG0402-150-10		150	0.30	100	
	CBG0402-220-10		220	0.40	100	
	CBG0402-300-10		300	0.50	100	
	CBG0402-470-10		470	0.65	100	
	CBG0402-600-08		600	0.80	80	
	CBG0603-30-70	ACB-0603	30	0.20	700	
	CBG0603-60-70		60	0.20	700	
	CBG0603-68-20	BCB-0603	68	0.20	200	
	CBG0603-80-20	DCB-0603	80	0.30	200	
	CBG0603-120-60	ICB-0603 & 0603A	120	0.25	600	
	CBG0603-150-60		150	0.25	600	
	CBG0603-220-55	KCB-0603 & 0603A	220	0.30	550	
	CBG0603-300-50	JCB-0603	300	0.35	500	
	CBG0603-400-20	HCB-0603	400	1.00	200	
	CBG0603-470-35		470	0.45	350	
	CBG0603-600-35	LCB-0603 & 0603A	600	0.50	350	
	CBG0805-07-60	ACB-0805A	7	0.10	600	
	CBG0805-09-60	ACB-0805	9	0.10	600	
	CBG0805-11-90		11	0.10	900	
	CBG0805-12-60	BCB-0805	12	0.10	600	
	CBG0805-17-60		17	0.10	600	
	CBG0805-26-60		26	0.10	600	
	CBG0805-30-60		30	0.10	600	
	CBG0805-40-60	DCB-0805	40	0.10	600	
	CBG0805-60-90	ICB-0805	60	0.10	900	
	CBG0805-90-20	ECB-0805	90	0.50	200	
	CBG0805-120-80	KCB-0805	120	0.20	800	
	CBG0805-150-80		150	0.20	800	
	CBG0805-180-30	NCB-0805	180	0.50	300	
	CBG0805-220-75		220	0.30	750	
	CBG0805-300-70	JCB-0805	300	0.30	700	
	CBG0805-400-20	MCB-0805	400	0.65	200	
	CBG0805-470-70		470	0.35	700	
	CBG0805-600-50	LCB-0805-S & 0805-03	600	0.40	500	
	CBG1206-26-50	ACB-1206	26	0.20	500	
	CBG1206-31-50	BCB-1206 & 1206-S	31	0.20	500	
	CBG1206-42-50		42	0.20	500	
	CBG1206-50-50	ECB-1206	50	0.20	500	
	CBG1206-70-50	DCB-1206	70	0.20	500	
	CBG1206-90-50	ICB-1206	90	0.20	500	
	CBG1206-120-90		120	0.15	900	
	CBG1206-150-90	JCB-1206	150	0.15	900	
	CBG1206-220-70		220	0.35	700	
	CBG1206-300-70	HCB-1206	300	0.35	700	
	CBG1206-470-40		470	0.35	400	
	CBG1206-600-40	KCB-1206	600	0.40	400	
	CBG1210-50-40	ACB-1210	50	0.20	400	
	CBG1210-60-40		60	0.30	400	

Application Type	Part Number	Prior Part Number	Z (W) @ 100 MHz ± 25%	DCR Max (W)	Rated Current Max (mA)	Remarks
GENERAL	CBG1210-65-40 CBG1210-90-40	BCB-1210 DCB-1210	65 90	0.20 0.30	400 400	
	CBG1806-68-30 CBG1806-100-50 CBG1806-150-20 CBG1806-170-20	BCB-1806 DCB-1806 KCB-1806	68 100 150 170	0.20 0.10 0.50 0.30	300 500 200 200	
	CBG1812-70-40 CBG1812-130-30 CBG1812-150-30	ACB-1812 BCB-1812 KCB-1812	70 130 150	0.40 0.40 0.30	400 300 300	
LOWSPEED	CBL0603-120-30 CBL0603-150-25 CBL0603-220-20 CBL0603-300-25 CBL0603-470-20 CBL0603-600-20 CBL0603-800-10 CBL0603-102-10		120 150 220 300 470 600 800 1000	0.25 0.30 0.35 0.45 0.55 0.70 0.80 0.90	300 250 200 250 200 200 100 100	
	CBL0805-120-30 CBL0805-150-30 CBL0805-220-25 CBL0805-300-20 CBL0805-470-20 CBL0805-600-20 CBL0805-800-15 CBL0805-102-10		120 150 220 300 470 600 800 1000	0.15 0.20 0.30 0.35 0.40 0.45 0.55 0.65	300 300 250 200 200 200 150 100	
	CBL1206-120-30 CBL1206-150-30 CBL1206-220-25 CBL1206-300-20 CBL1206-470-20 CBL1206-600-20		120 150 220 300 470 600	0.15 0.20 0.30 0.35 0.40 0.45	300 300 250 200 200 200	
HIGH SPEED	CBH0402-60-10 CBH0402-120-08 CBH0402-220-05 CBH0402-300-05		60 120 220 300	0.30 0.45 0.60 0.75	100 80 50 50	
	CBH0603-10-70 CBH0603-30-60 CBH0603-60-60 CBH0603-120-30 CBH0603-150-30 CBH0603-220-25 CBH0603-300-20 CBH0603-470-20 CBH0603-600-15 CBH0603-102-08		10 30 60 120 150 220 300 470 600 1000	0.20 0.25 0.30 0.40 0.40 0.60 0.80 0.85 1.20 1.50	700 600 600 300 300 250 200 200 150 80	
	CBH0805-30-70 CBH0805-60-70 CBH0805-120-60 CBH0805-150-60		30 60 120 150	0.20 0.20 0.25 0.25	700 700 600 600	

Application Type	Part Number	Prior Part Number	Z (W) @ 100 MHz ± 25%	DCR Max (W)	Rated Current Max (mA)	Remarks
HIGH SPEED	CBH0805-220-40		220	0.30	400	
	CBH0805-300-40		300	0.35	400	
	CBH0805-470-40		470	0.40	400	
	CBH0805-600-30		600	0.45	300	
	CBH0805-102-20		1000	0.50	200	
	CBH1206-19-50		19	0.20	500	
	CBH1206-120-70		120	0.25	700	
	CBH1206-150-70		150	0.25	700	
	CBH1206-220-60		220	0.30	600	
	CBH1206-300-60		300	0.35	600	
HIGH SPEED	CBH1206-470-55		470	0.40	550	
	CBH1206-600-50		600	0.50	500	
	CBH1206-800-40		800	0.50	400	
	CBH1206-102-30		1000	0.55	300	
	CBH1210-31-40		31	0.30	400	
	CBH1812-25-30	ACB-1812-25	25	0.40	300	
	CBH1812-70-30		70	0.40	300	
HIGH CURRENT	CBC0603-30-302		30	0.04	3000	
	CBC0603-80-302		80	0.04	3000	
	CBC0603-120-202		120	0.10	2000	
	CBC0603-150-202		150	0.10	2000	
	CBC0603-220-202		220	0.10	2000	
	CBC0603-300-102		300	0.20	1000	
	CBC0603-470-102		470	0.20	1000	
	CBC0603-600-102	LCB-0603-1.0A	600	0.20	1000	
	CBC0805-12-152	BCB-0805-1.5A	12	0.05	1500	
	CBC0805-30-302	ICB-0805-3.0A	30	0.04	3000	
	CBC0805-60-302	DCB-0805-3.0A	60	0.04	3000	
	CBC0805-80-302		80	0.04	3000	
	CBC0805-120-202		120	0.10	2000	
	CBC0805-150-202		150	0.10	2000	
	CBC0805-220-202	JCB-0805-2.0A	220	0.10	2000	
	CBC0805-300-102		300	0.20	1000	
	CBC0805-470-102		470	0.20	1000	
	CBC0805-600-202	LCB-0805-2.0A	600	0.10	2000	
	CBC1206-30-302		30	0.04	3000	
	CBC1206-32-152	BCB-1206-1.5A	32	0.10	1500	
	CBC1206-50-302	ECB-1206-3.0A	50	0.04	3000	
	CBC1206-80-302	DCB-1206-3.0A	80	0.04	3000	
	CBC1206-100-302	ICB-1206-3.0A	100	0.03	3000	
	CBC1206-120-202		120	0.10	2000	
	CBC1206-150-202		150	0.10	2000	
	CBC1206-300-102		300	0.20	1000	
	CBC1206-470-102		470	0.20	1000	
	CBC1206-500-302		500	0.04	3000	
	CBC1206-600-102	KCB-1206-1.0A	600	0.20	1000	
	CBC1206-600-202		600	0.10	2000	
	CBC1210-60-402		60	0.03	4000	
	CBC1210-65-302	BCB-1210-3.0A	65	0.03	3000	
	CBC1210-90-202		90	0.10	2000	

Application Type	Part Number	Prior Part Number	Z (Ω) @ 100 MHz $\pm 25\%$	DCR Max (Ω)	Rated Current Max (mA)	Remarks
HIGH CURRENT	CBC1210-150-502 CBC1210-200-402		150 200	0.02 0.03	5000 4000	
	CBC1806-60-602 CBC1806-80-352 CBC1806-102-152	BCB-1806-5.0A DCB-1806-3.5A	60 80 1000	0.01 0.04 0.15	6000 3500 1500	
	CBC1812-80-602 CBC1812-130-152 CBC1812-130-352 CBC1812-150-502 CBC1812-680-402 CBC1812-132-302	ACB-1812-5.0A BCB-1812-1.5A BCB-1812-3.5A	80 130 130 150 680 1300	0.01 0.10 0.04 0.02 0.03 0.06	6000 1500 3500 5000 4000 3000	
	CBC2220-100-602 CBC2220-150-302 CBC2220-180-302 CBC2220-600-302		100 150 180 600	0.01 0.04 0.04 0.04	6000 3000 3000 3000	
HIGH IMPEDANCE	CBZ0603-800-25 CBZ0603-102-20 CBZ0603-152-20 CBZ0603-202-15 CBZ0603-222-10	MCB-0603 NCB-0603 PCB-0603 YCB-0603 ZCB-0603	800 1000 1500 2000 2200	0.80 0.70 1.00 1.20 1.50	250 200 200 150 100	NOTE *Test frequency for CBZ1206-122-20 CBZ1206-152-30 CBZ1206-222-20 is 50 MHz **Test frequency for CBZ1206-202-30 CBZ1206-252-20 CBZ1210-202-20 is 30 MHz
	CBZ0805-800-45 CBZ0805-102-40 CBZ0805-152-35 CBZ0805-202-25 CBZ0805-232-20 CBZ0805-252-20 CBZ0805-272-15	HCB-0805 PCB-0805 YCB-0805 ZCB-0805	800 1000 1500 2000 2300 2500 2700	0.40 0.45 0.50 0.60 0.80 1.00 1.10	450 400 350 250 200 200 150	
	CBZ1206-800-30 CBZ1206-102-30 CBZ1206-122-20* CBZ1206-152-30* CBZ1206-202-30** CBZ1206-222-20* CBZ1206-252-20**	LCB-1206 NCB-1206 MCB-1206 YCB-1206 ZCB-1206 XCB-1206	800 1000 1200 1500 2000 2200 2500	0.60 0.60 0.70 0.70 0.70 1.50 1.50	300 300 200 300 300 200 200	
	CBZ1210-202-20**	HCB-1210	2000	1.50	200	
POWER LINE	CBP0805-30-502 CBP0805-100-402 CBP0805-220-302 CBP0805-330-252 CBP0805-470-202 CBP0805-600-152		30 100 220 330 470 600	0.01 0.02 0.04 0.05 0.08 0.10	5000 4000 3000 2500 2000 1500	
ULTRA HIGH FREQUENCY	CBU0603-470-20 CBU0603-600-20 CBU0603-102-10 CBU0603-470-10 CBU0603-600-10 CBU0603-102-05		470 600 1000 470 600 1000	0.65 0.85 1.20 1.00 1.20 1.50	200 200 100 100 100 50	