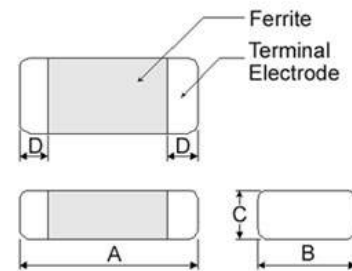




FEATURES

- Internal silver printed layers and magnetic shielded structures to minimize crosstalk
- Monolithic structure for excellent reliability
- Smaller DC resistance and larger allowable current than CVB series
- Can be used in a wide range of frequency to suppress EMI



Shape and Dimensions

Unit: mm [inch]

Type	A	B	C	D
1005 [0402]	1.0±0.15 [.039±.006]	0.5±0.15 [.020±.006]	0.5±0.15 [.020±.006]	0.25±0.1 [.010±.004]
1608 [0603]	1.65±0.15 [.065±.006]	0.8±0.15 [.031±.006]	0.8±0.15 [.031±.006]	0.3±0.2 [.012±.008]

PRODUCT IDENTIFICATION

CVB 1608 C 221 T

① ② ③ ④ ⑤

①

EMI BEADS	
CVB	Chip Ferrite Bead For

②

External Dimensions (L×W) (mm)	
1005 [0402]	1.0×0.5
1608 [0603]	1.65×0.8
2012 [0805]	2.0×1.25

③

Type	
V, C	Signal dedicated

④

Nominal Impedance	
Example	Nominal Value
300	30Ω
221	220Ω
102	1000Ω

⑤

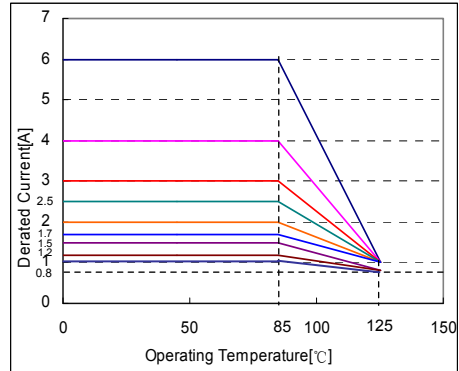
Packing	
T	Tape & Reel



DETAIL ELECTRICAL CHARACTERISTICS

Rated Current

When operating temperatures exceed +85°C, derating of current is necessary for chip ferrite beads for which rated current is 1000mA and over. Please apply the derating curve shown in chart according to the operating temperature.



CVB1005 TYPE

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current	Thickness
Units	Ω	MHz	Ω	mA	mm [inch]
Symbol	Z	Freq.	DCR	I _r	T
CVB1005V050T	0~15	100	0.15	600	0.5±0.15 [.020±.006]
CVB1005V300T	30±25%	100	0.15	600	
CVB1005V750T	75±25%	100	0.30	600	
CVB1005V121T	120±25%	100	0.40	400	
CVB1005V221T	220±25%	100	0.70	200	
CVB1005C121T	120±25%	100	0.40	400	
CVB1005C221T	220±25%	100	0.70	200	
CVB1005C301T	300±25%	100	0.80	200	
CVB1005C421T	420±25%	100	1.00	150	
CVB1005C601T	600±25%	100	1.10	100	
CVB1005C102T	1000±25%	100	1.20	100	
CVB1005C152T	1500±25%	100	1.40	100	
CVB1005C182T	1800±25%	100	1.80	100	



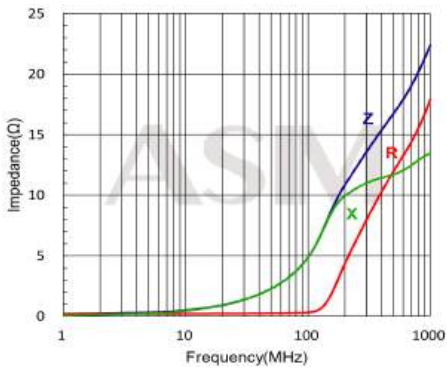
CVB1608 TYPE

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current	Thickness
Units	Ω	MHz	Ω	mA	mm [inch]
Symbol	Z	Freq.	DCR	I _r	T
CVB1608V220T	22±25%	100	0.20	800	0.8±0.15 [.031±.006]
CVB1608V600T	60±25%	100	0.30	600	
CVB1608V121T	120±25%	100	0.45	600	
CVB1608V221T	220±25%	100	0.55	500	
CVB1608V331T	330±25%	100	0.70	500	
CVB1608V471T	470±25%	100	0.80	400	
CVB1608V601T	600±25%	100	1.10	200	
CVB1608V102T	1000±25%	100	1.20	150	
CVB1608C121T	120±25%	100	0.40	600	
CVB1608C221T	220±25%	100	0.45	500	
CVB1608C331T	330±25%	100	0.50	500	
CVB1608C421T	420±25%	100	0.55	400	
CVB1608C471T	470±25%	100	0.55	400	
CVB1608C601T	600±25%	100	0.60	200	
CVB1608C102T	1000±25%	100	0.80	200	
CVB1608C152T	1500±25%	100	0.80	200	
CVB1608C202T	2000±25%	100	1.00	200	
CVB1608C222T	2200±25%	100	1.00	200	
CVB1608C252T	2500±25%	100	1.20	200	
CVB1608C272T	2700±25%	100	1.40	200	

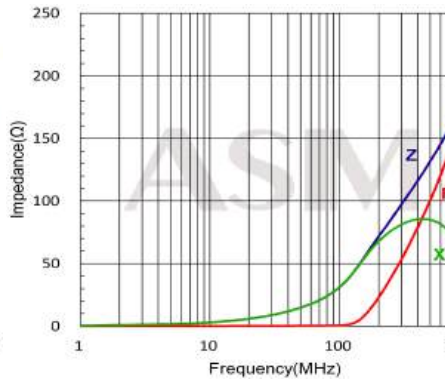


CVB1005 V TYPE

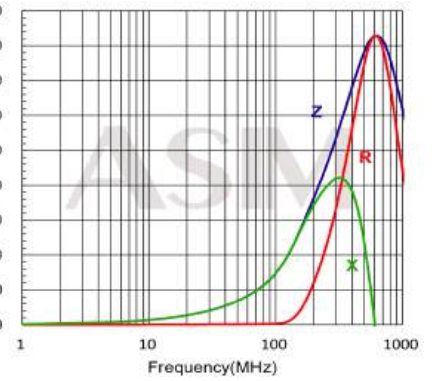
CVB1005V050T



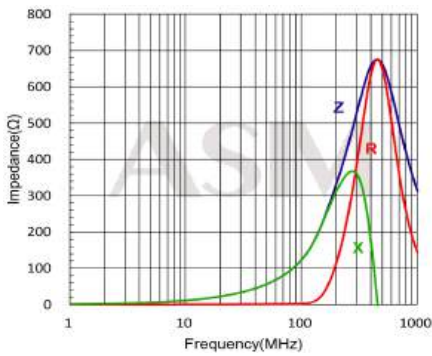
CVB1005V300T



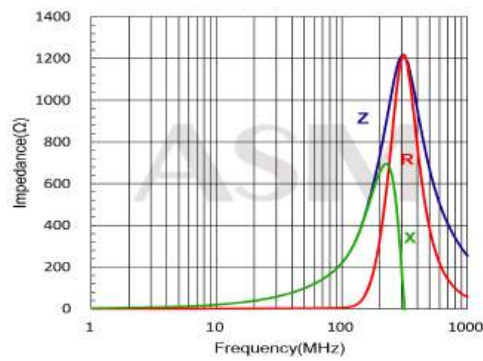
CVB1005V750T



CVB1005V121T

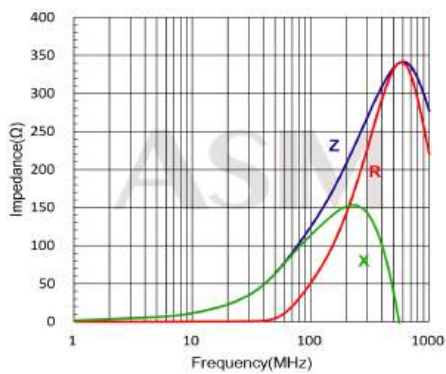


CVB1005V221T



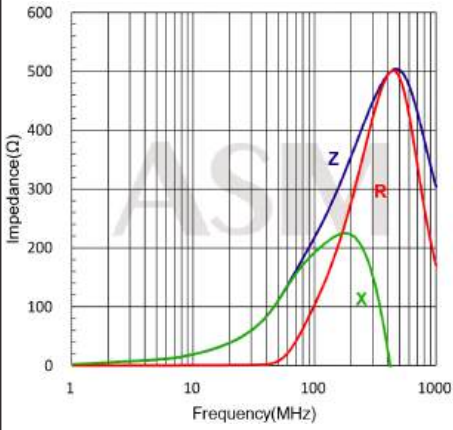
CVB1005 C TYPE

CVB1005C121T

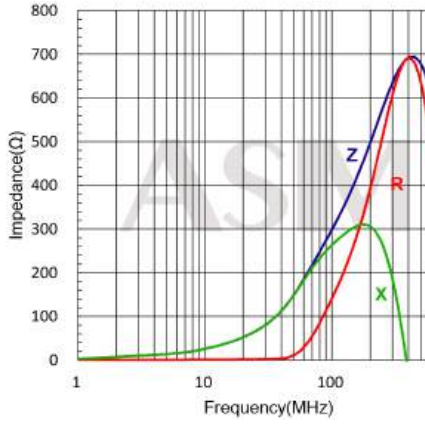




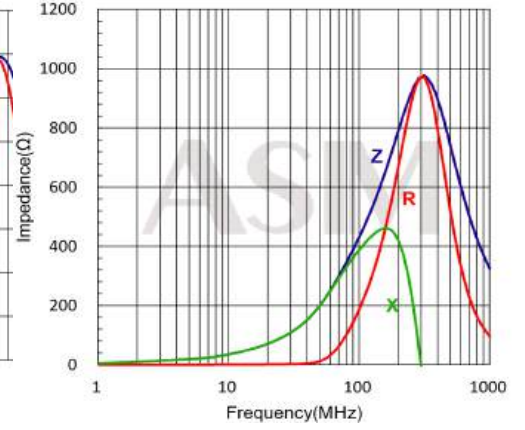
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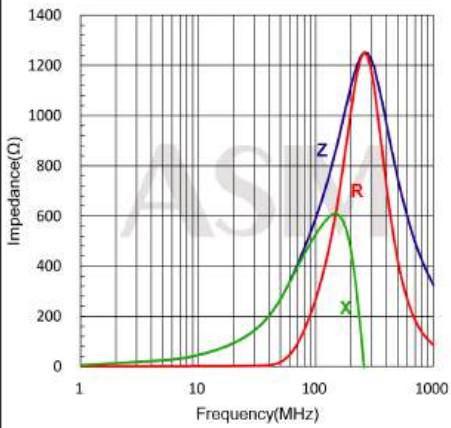
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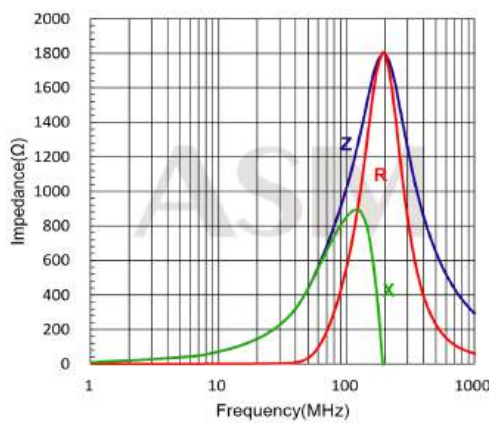
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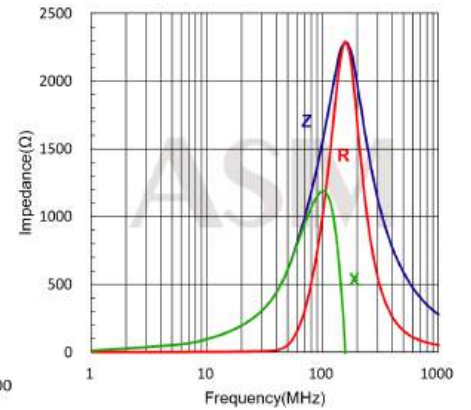
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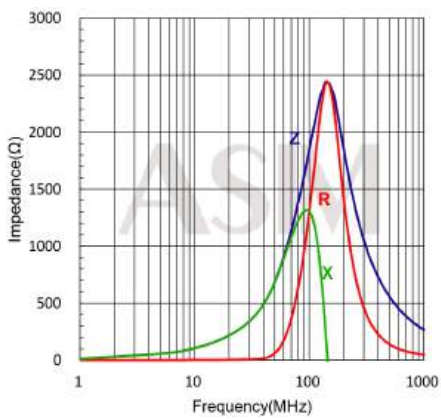
CVB1005C102T



CVB1005C152T



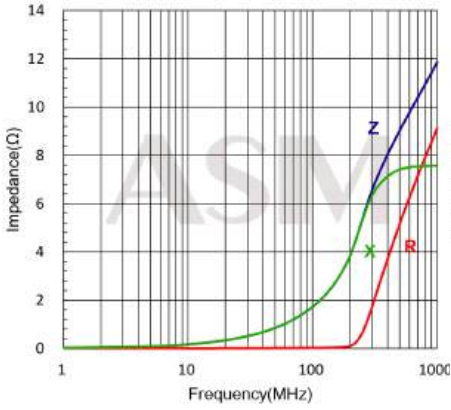
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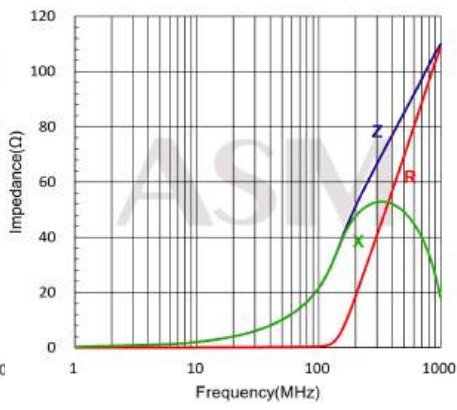


CVB1608 V TYPE

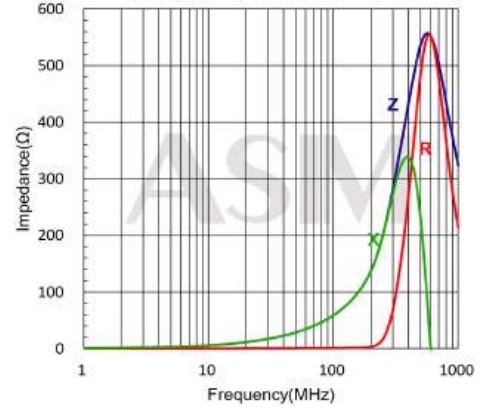
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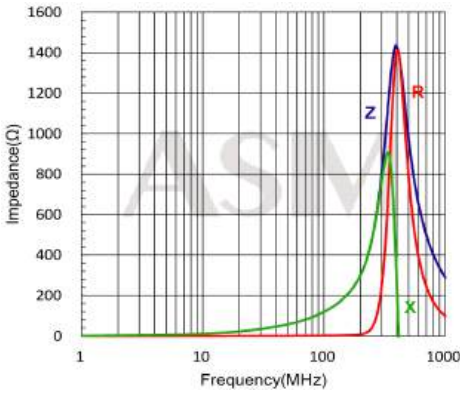
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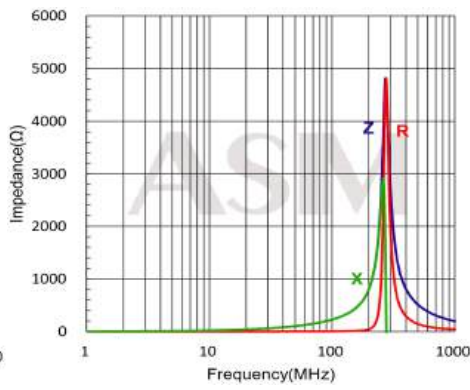
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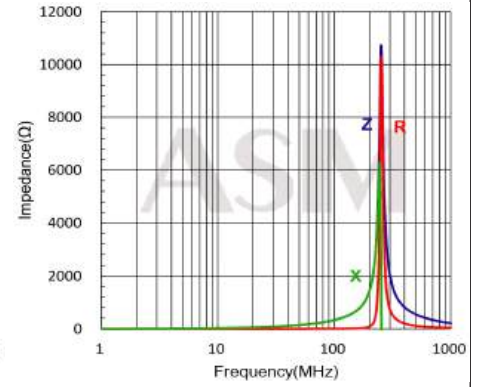
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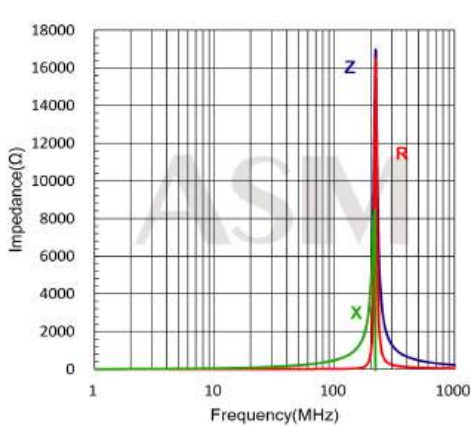
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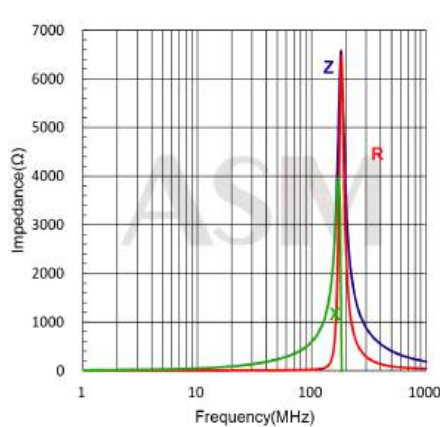
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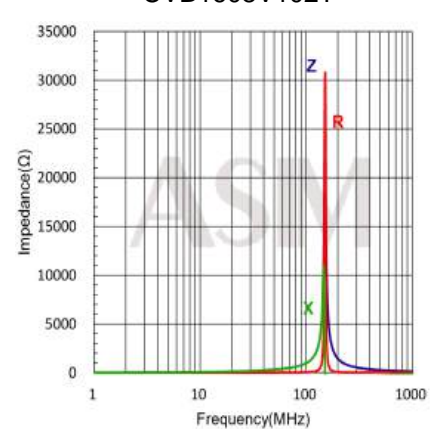
CVB1608V471T



CVB1608V601T



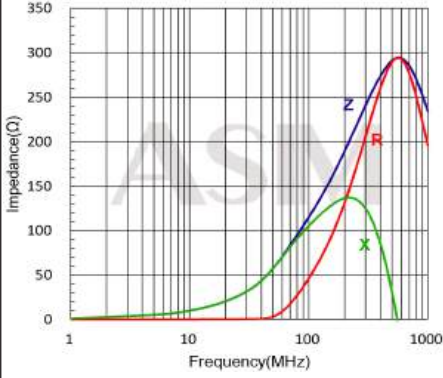
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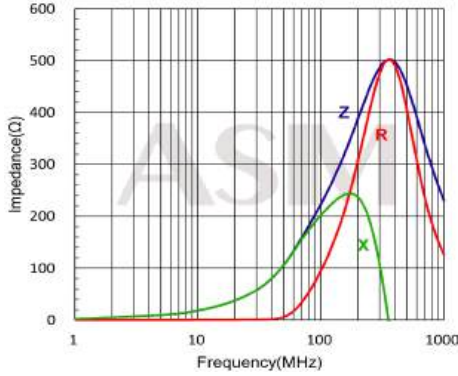


CVB1608 C TYPE

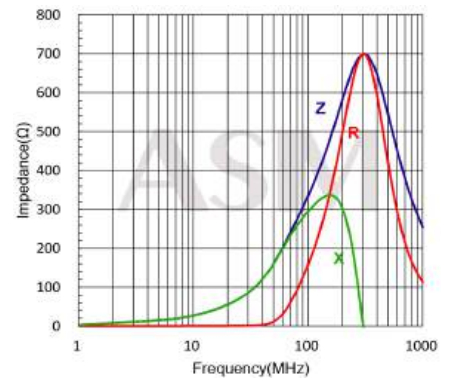
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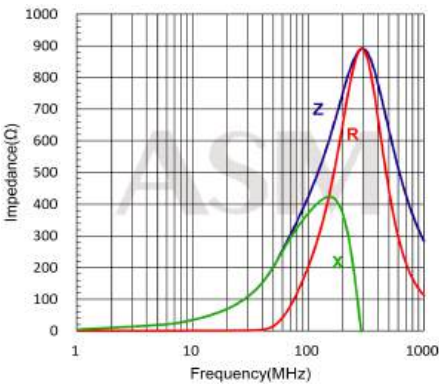
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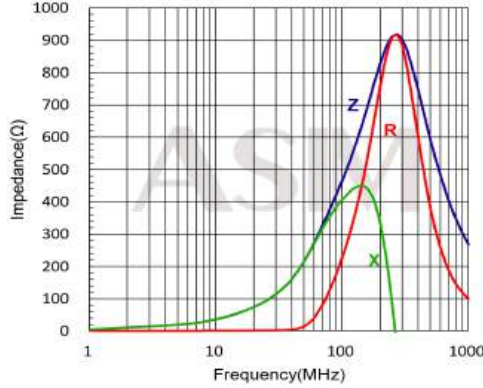
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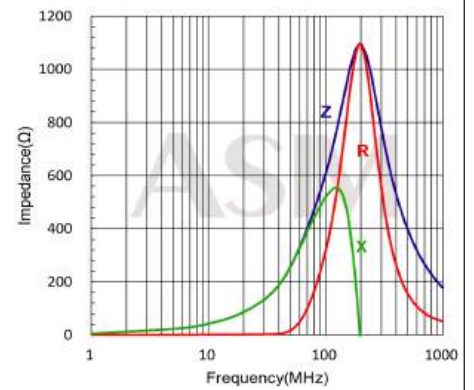
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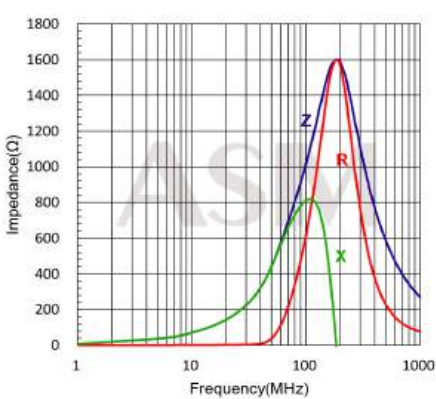
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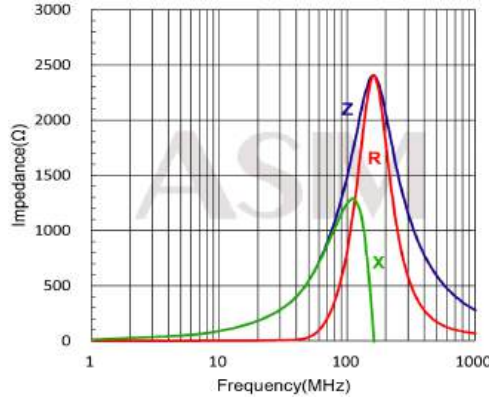
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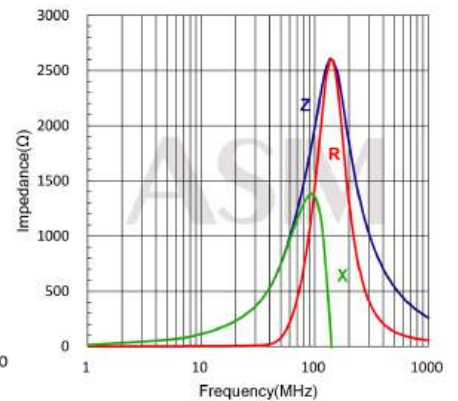
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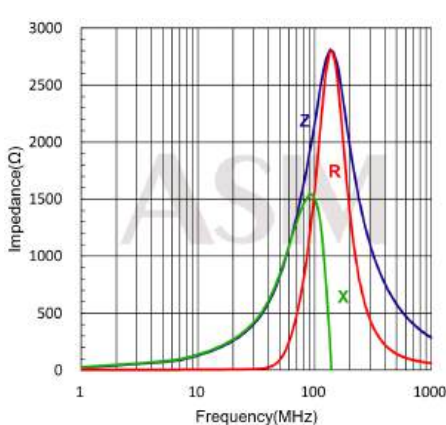
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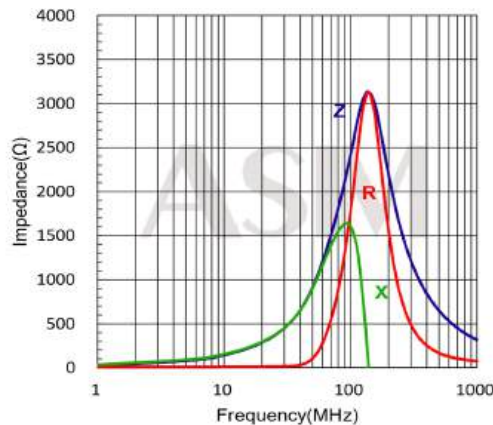
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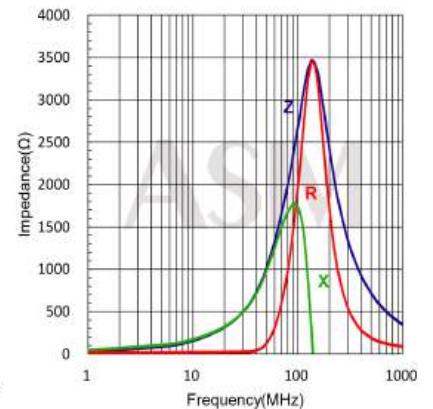
CVB1608C222T



CVB1608C252T



CVB1608C272T





RELIABILITY AND TEST CONDITIONS

Items	Requirements	Test Methods and Remarks																																
1. Operating Temperature Range		-55°C to +125°C																																
2. Storage Temperature Range		-55°C to +125°C																																
3. Terminal Strength	No removal or split of the termination or other defects shall occur.	<p>① Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder. Then apply a force in the direction of the arrow.</p> <p>② 2N force for 0603 series.</p> <p>③ 5N force for 1005 and 1608 series.</p> <p>④ 10N force for 2010, 2012, 3216, 4516 and 4030 series.</p> <p>⑤ Keep time: 10±1s</p>																																
4. Resistance to Flexure	No visible mechanical damage.	<p>① Solder the chip to the test jig (glass epoxy board) using a eutectic solder. Then apply a force in the direction shown as the following figure.</p> <p>② Flexure: 2mm</p> <p>③ Pressurizing Speed: 0.5mm/sec</p> <p>④ Keep time: ≥30 sec</p> <table border="1"> <thead> <tr> <th>Type</th> <th>a</th> <th>b</th> <th>c</th> </tr> </thead> <tbody> <tr> <td>0603[0201]</td> <td>0.25</td> <td>0.8</td> <td>0.3</td> </tr> <tr> <td>1005[0402]</td> <td>0.4</td> <td>1.5</td> <td>0.5</td> </tr> <tr> <td>1608[0603]</td> <td>1.0</td> <td>3.0</td> <td>1.2</td> </tr> <tr> <td>2012[0805]</td> <td>1.2</td> <td>4.0</td> <td>1.65</td> </tr> <tr> <td>3216[1206]</td> <td>2.2</td> <td>5.0</td> <td>2.0</td> </tr> <tr> <td>4030[1612]</td> <td>1.9</td> <td>6.1</td> <td>3.2</td> </tr> <tr> <td>4516[1806]</td> <td>2.8</td> <td>8.5</td> <td>2.0</td> </tr> </tbody> </table>	Type	a	b	c	0603[0201]	0.25	0.8	0.3	1005[0402]	0.4	1.5	0.5	1608[0603]	1.0	3.0	1.2	2012[0805]	1.2	4.0	1.65	3216[1206]	2.2	5.0	2.0	4030[1612]	1.9	6.1	3.2	4516[1806]	2.8	8.5	2.0
Type	a	b	c																															
0603[0201]	0.25	0.8	0.3																															
1005[0402]	0.4	1.5	0.5																															
1608[0603]	1.0	3.0	1.2																															
2012[0805]	1.2	4.0	1.65																															
3216[1206]	2.2	5.0	2.0																															
4030[1612]	1.9	6.1	3.2																															
4516[1806]	2.8	8.5	2.0																															
5. Vibration	<p>① No visible mechanical damage.</p> <p>② Impedance change: Within ±20%.</p>	<p>① Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder.</p> <p>② The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5 mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.</p> <p>③ The frequency range from 10 to 55 Hz and return to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).</p>																																

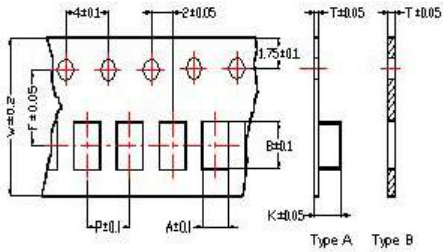


Items	Requirements	Test Methods and Remarks
6. Dropping	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Drop chip bead 10 times on a concrete floor from a height of 100 cm.
7. Temperature	<ul style="list-style-type: none"> ① Impedance change should be within $\pm 20\%$ of initial value measuring at 20°C. 	<ul style="list-style-type: none"> ① Temperature range: -55°C to $+125^{\circ}\text{C}$ Reference temperature: $+20^{\circ}\text{C}$
8. Solderability	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Wetting shall be exceeded 75% coverage for 0603 series, and 95% coverage for the other. 	<ul style="list-style-type: none"> ① Solder temperature: $240 \pm 2^{\circ}\text{C}$ ② Duration: 3 sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight
9. Resistance to Soldering Heat	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Wetting shall be exceeded 75% coverage for 0603 series, and 95% coverage for the other ③ Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Solder temperature: $260 \pm 3^{\circ}\text{C}$ ② Duration: 5 sec ③ Solder: Sn/3.0Ag/0.5Cu ④ Flux: 25% Resin and 75% ethanol in weight ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
10. Thermal Shock	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Temperature and time: -55°C for 30 ± 3 min \rightarrow 125°C for 30 ± 3 min ② Transforming interval: Max. 20 sec ③ Tested cycle: 100 cycles ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring. <p style="text-align: center;"> 125°C Ambient Temperature -55°C 30 min. 30 min. 20sec. (max.) </p>
11. Resistance to Low Temperature	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Temperature: $-55 \pm 2^{\circ}\text{C}$ ② Duration: 1000^{+24} hours ③ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
12. Damp Heat (Steady States)	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Temperature: $60 \pm 2^{\circ}\text{C}$ ② Humidity: 90% to 95% RH ③ Duration: 1000^{+24} hours ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
13. Loading Under Damp Heat	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Temperature: $60 \pm 2^{\circ}\text{C}$ ② Humidity: 90% to 95% RH ③ Duration: 1000^{+24} hours ④ Applied current: Rated current ⑤ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
14. Loading at High Temperature (Life Test)	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Temperature: $125 \pm 2^{\circ}\text{C}$ ② Duration: 1000^{+24} hours ③ Applied current: Rated current. ④ The chip shall be stabilized at normal condition for 1~2 hours before measuring.



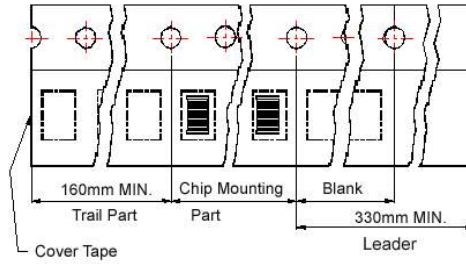
Packaging Specifications

Tape Dimensions

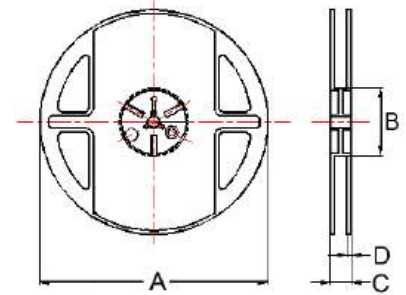


Tape Material

Carrier Tape: Polycarbonate (Tape A)
 Carrier Tape: Paper (Tape B)
 Cover Tape: Polystyrene



Reel Dimensions



Dimensions in mm

TYPE	Tape Dimensions								Reel Dimensions				Quantity PCS / REEL
	A	B	T	W	P	F	K	Tape	A	B	C	D	
1005	0.65	1.15	0.60	8.0	2.0	3.5	-	B	178	60	12	2	10000
1608	1.05	1.85	0.95	8.0	4.0	3.5	-	B	178	60	12	2	4000
2012	1.50	2.30	0.97	8.0	4.0	3.5	-	B	178	60	12	2	4000