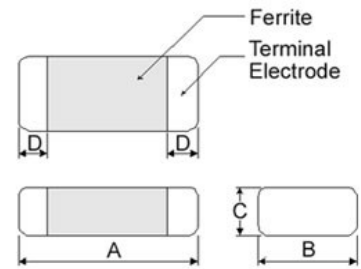




FEATURES

- 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]	0.5±0.15 [.021±.006]	0.3±0.2 [.012±.008]
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]
2012 [0805]	2.0 ±0.15 [.079 ±0.05]	1.2±0.2 [.049±.008]	0.9±0.2 [.033±.008]	0.5±0.3 [.020±.012]
3216 [1206]	3.2±0.15 [0.13 ±0.05]	1.6±0.2 [.062±.008]	1.1±0.2 [.043±.008]	0.5±0.3 [.020±.012]

PRODUCT IDENTIFICATION

CVB 1608 E 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
3216 [1206]	3.2×1.65

③

Type	
E	Large Current

④

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

⑤

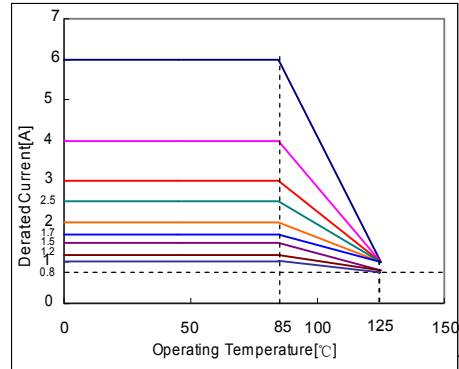
Packing	
T	Tape & Reel



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 E TYPE

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current
Units	Ω	MHz	Ω	mA
Symbol	Z	Freq.	DCR	I _r
CVB1005E100T	10±25%	100	0.03	2000
CVB1005E300T	30±25%	100	0.05	1700
CVB1005E600T	60±25%	100	0.07	1500
CVB1005E800T	80±25%	100	0.09	1200
CVB1005E121T	120±25%	100	0.09	1400
CVB1005E151T	150±25%	100	0.14	1400
CVB1005E221T	220±25%	100	0.18	1100
CVB1005E601T	600±25%	100	0.34	700
CVB1005E102T	1000±25%	100	0.49	500

CVB1608 E TYPE

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current
Units	Ω	MHz	Ω	mA
Symbol	Z	Freq.	DCR	I _r
CVB1608E100T	10±25%	100	0.02	4000
CVB1608E300T	30±25%	100	0.03	3000
CVB1608E400T	40±25%	100	0.03	3000
CVB1608E600T	60±25%	100	0.04	3000
CVB1608E101T	100±25%	100	0.07	2700
CVB1608E121T	120±25%	100	0.08	2500
CVB1608E151T	150±25%	100	0.08	2000
CVB1608E181T	180±25%	100	0.09	2000
CVB1608E221T	220±25%	100	0.10	2000
CVB1608E301T	300±25%	100	0.12	1500
CVB1608E471T	470±25%	100	0.15	1200
CVB1608E601T	600±25%	100	0.20	1000
CVB1608E102T	1000±25%	100	0.25	800
CVB1608E152T	1500±25%	100	0.40	500



CVB2012 E TYPE

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current
Units	Ω	MHz	Ω	mA
Symbol	Z	Freq.	DCR	I _r
CVB2012E100T	10±25%	100	0.01	6000
CVB2012E600T	60±25%	100	0.03	3000
CVB2012E121T	120±25%	100	0.04	3000
CVB2012E221T	220±25%	100	0.08	2000
CVB2012E301T	300±25%	100	0.08	2000
CVB2012E471T	470±25%	100	0.10	2000
CVB2012E601T	600±25%	100	0.10	2000
CVB2012E102T	1000±25%	100	0.12	1500
CVB2012E222T	2200±25%	100	0.60	200

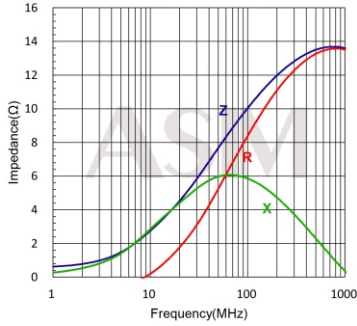
CVB3216 E TYPE

Part Number	Impedance	Z Test Frequency	Max. DC	Max. Rated Current
Units	Ω	MHz	Ω	mA
Symbol	Z	Freq.	DCR	I _r
CVB3216E190T	19±25%	100	0.01	5000
CVB3216E300T	30±25%	100	0.01	4000
CVB3216E600T	60±25%	100	0.02	4000
CVB3216E101T	100±25%	100	0.03	3000
CVB3216E121T	120±25%	100	0.03	3000
CVB3216E221T	220±25%	100	0.05	2000
CVB3216E301T	300±25%	100	0.06	2000
CVB3216E501T	500±25%	100	0.10	2000
CVB3216E601T	600±25%	100	0.10	2000
CVB3216E102T	1000±25%	100	0.15	1200

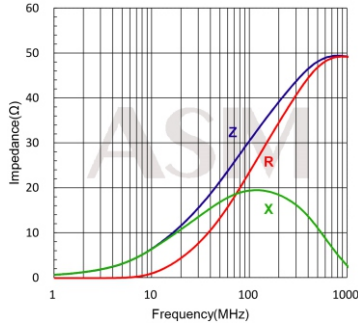


CVB1005 E TYPE

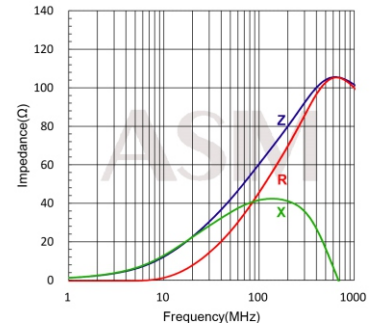
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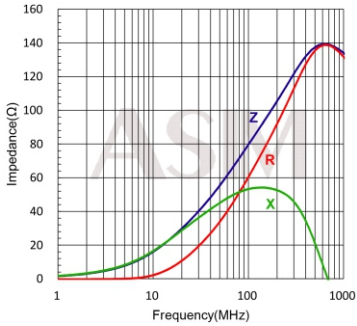
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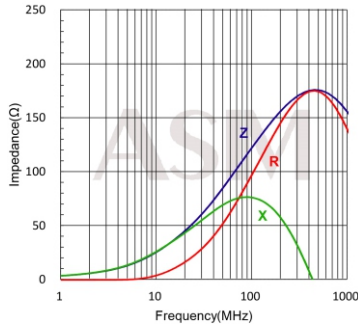
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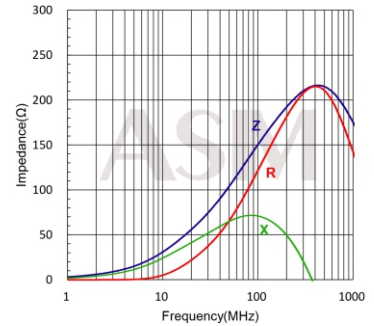
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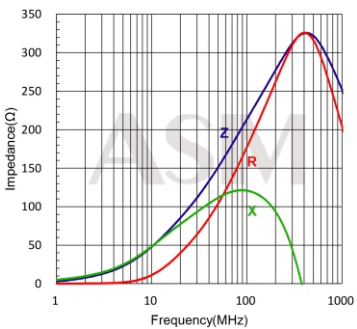
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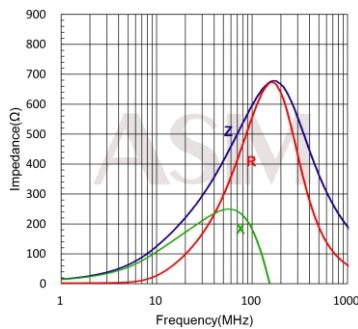
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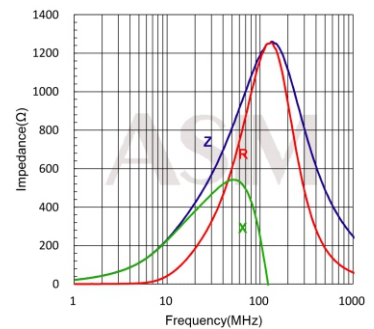
CVB1005E221T



CVB1005E601T

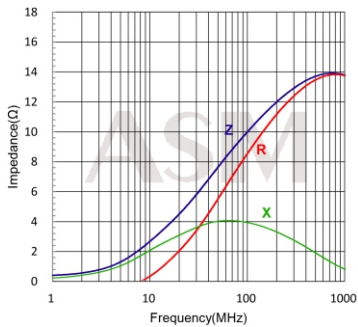


CVB1005E102T

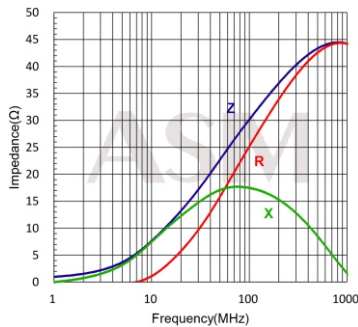


CVB1608 E TYPE

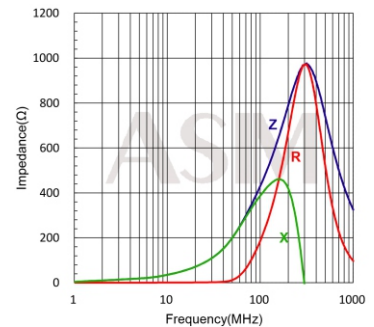
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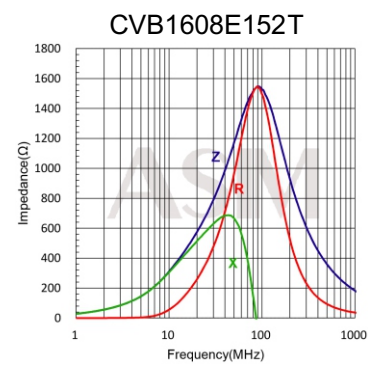
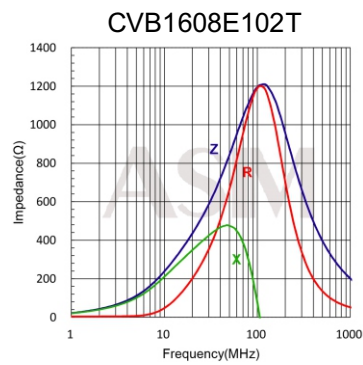
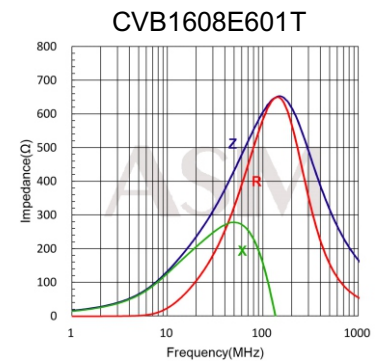
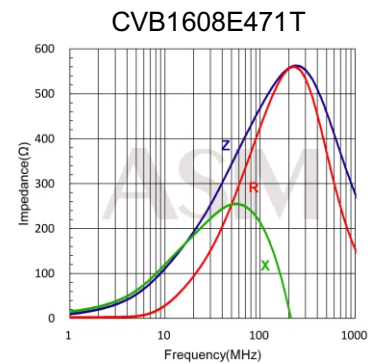
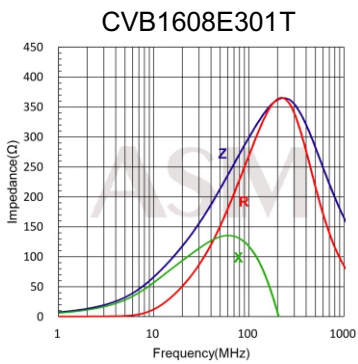
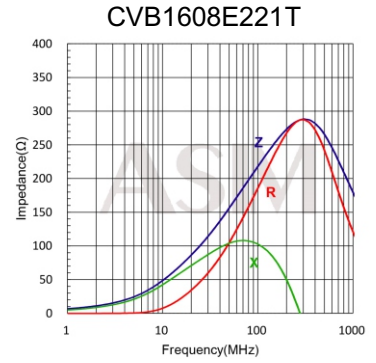
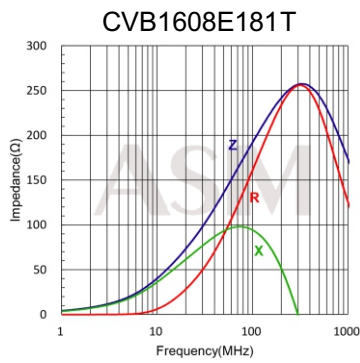
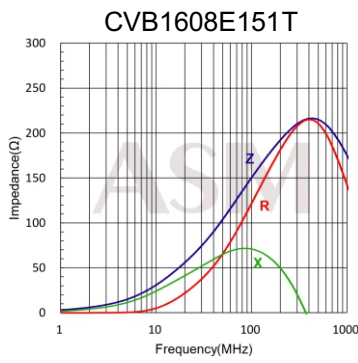
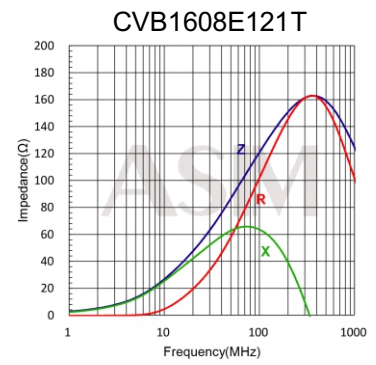
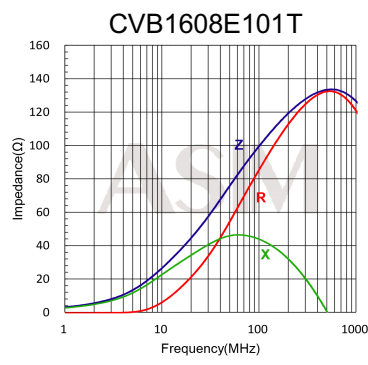
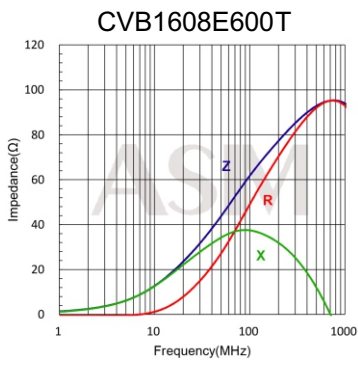


CVB1608E300T



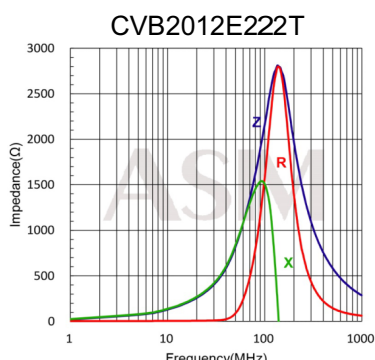
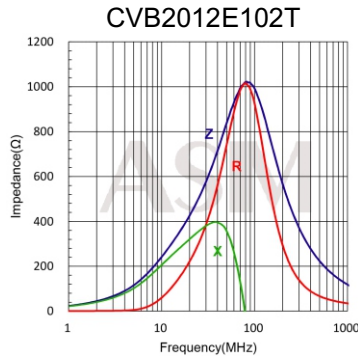
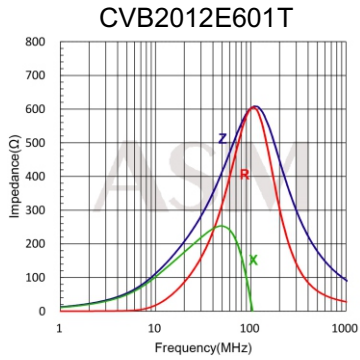
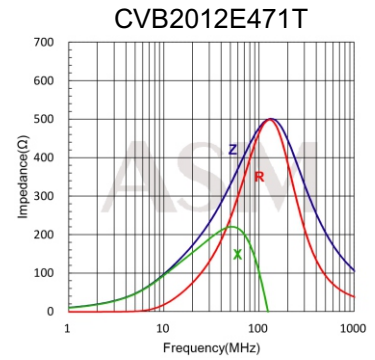
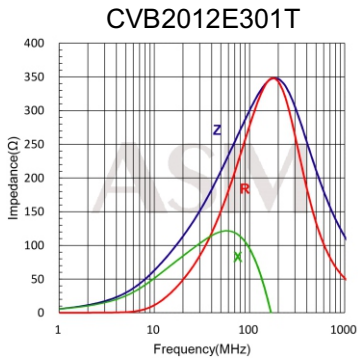
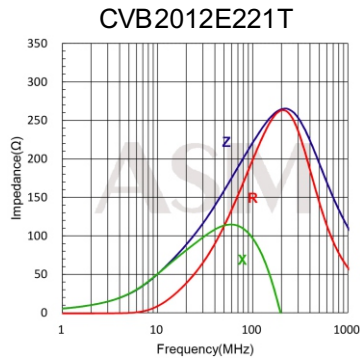
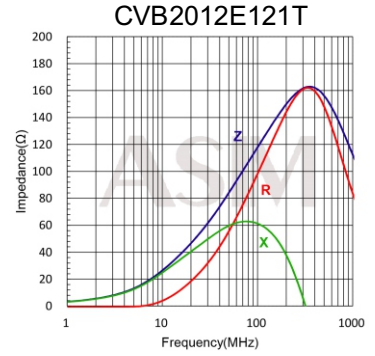
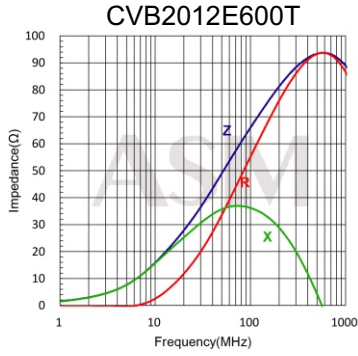
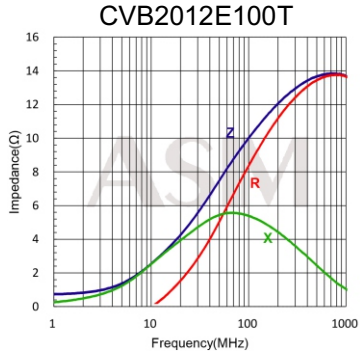
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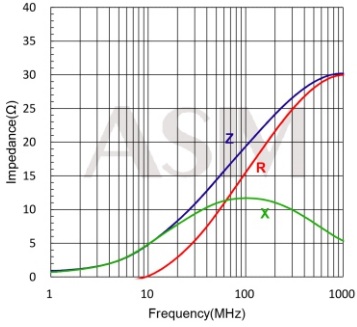
CVB2012 E TYPE



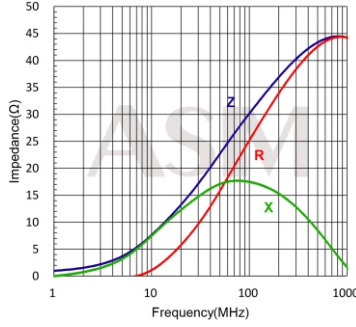


CVB3216 E TYPE

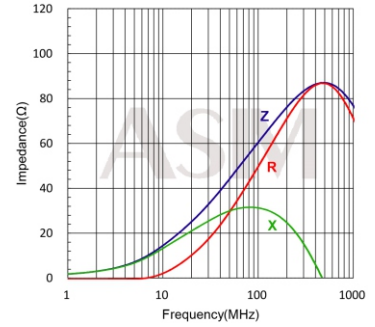
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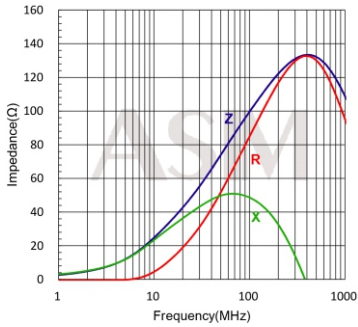
CVB3216E300T



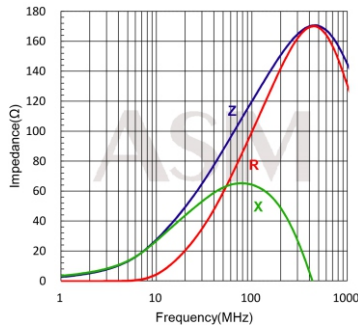
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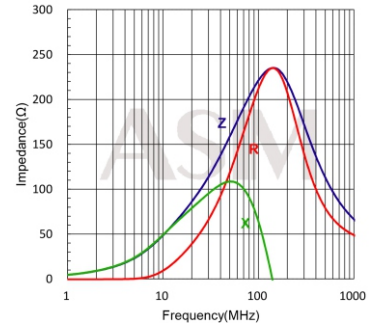
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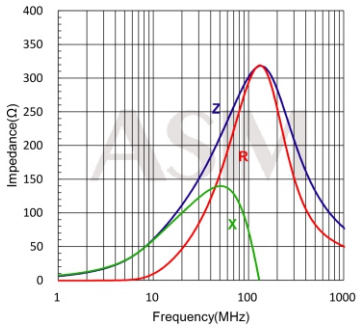
CVB3216E121T



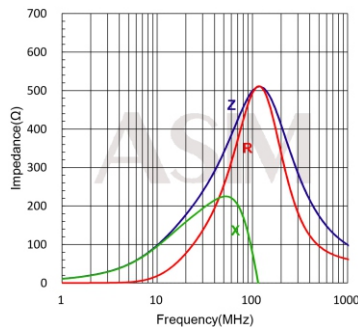
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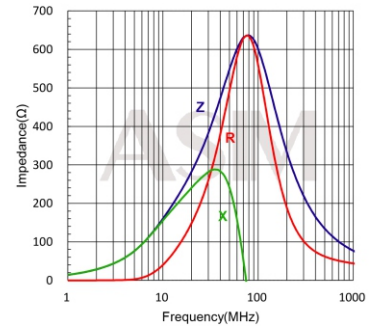
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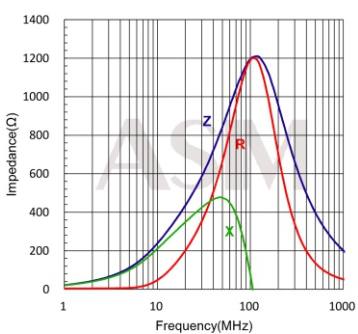
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CVB3216E601T

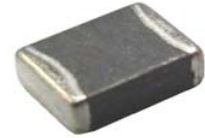


CVB3216E102T



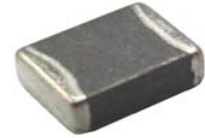
Measuring Equipment

Test Items	Device Model	Manufacturers
Impedance	4991A	Keysight Technologies
DC Resistance	4338A	Keysight Technologies



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.	<ol style="list-style-type: none"> 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. 2N force for 0603 series. 5N force for 1005 and 1608 series. 10N force for 2010, 2012, 3216, 4516 and 4030 series. Keep time: 10±1s 																																
4. Resistance to Flexure	No visible mechanical damage.	<ol style="list-style-type: none"> 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. Flexure: 2mm Pressurizing Speed: 0.5mm/sec Keep time: ≥30 sec <table border="1" style="margin-left: auto; margin-right: auto;"> <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																															
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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	<ol style="list-style-type: none"> No visible mechanical damage. Impedance change: Within ±20%. 	<ol style="list-style-type: none"> Solder the chip to the testing jig (glass epoxy board shown as the following figure) using eutectic solder. 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. 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). 																																

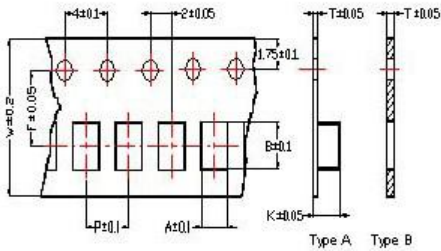


Items	Requirements	Test Methods and Remarks
6. Dropping	<ul style="list-style-type: none"> ① No visible mechanical damage. ② Impedance change: Within $\pm 20\%$. 	<ul style="list-style-type: none"> ① Drop chip bead 10 times on a concrete floor from a height of 100 cm.
7. Temperature	<ul style="list-style-type: 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.



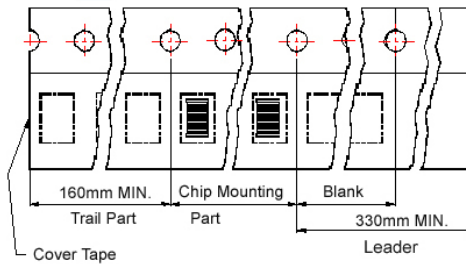
Packaging Specifications

Tape Dimensions

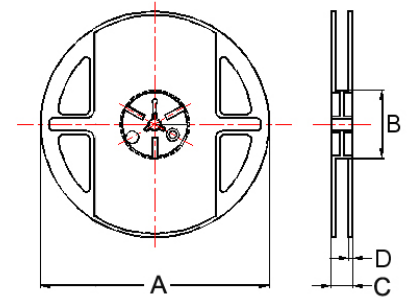


Tape Material

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



Reel Dimensions



Dimensions in mm

TYPE	Tape Dimensions								Reel Dimensions				Quantity
	A	B	T	W	P	F	K	Tape	A	B	C	D	PCS / REEL
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
3216	1.88	3.50	0.22	8.0	4.0	3.5	1.27	A	178	60	12	2	3000