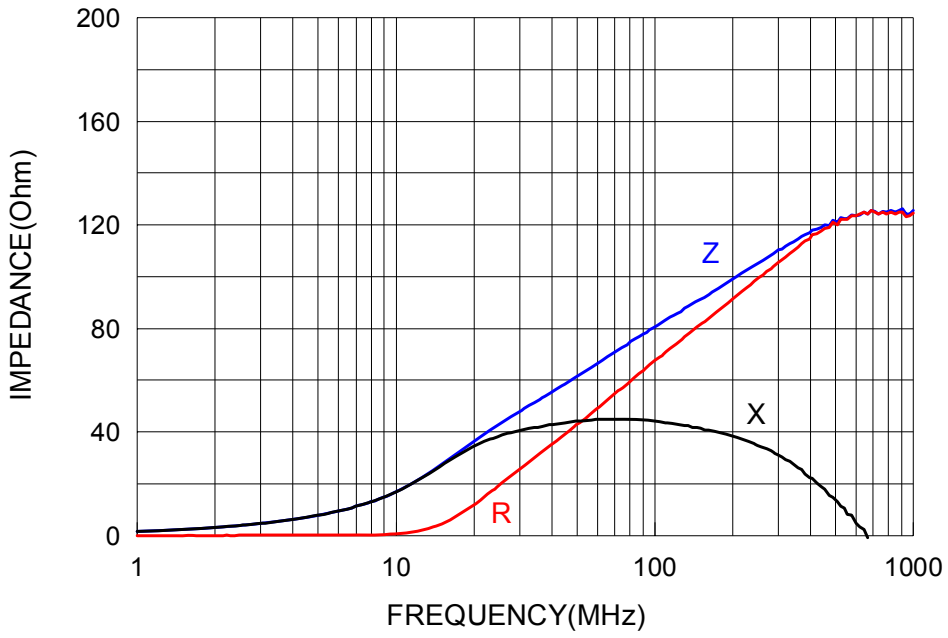
FEATURES

- 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

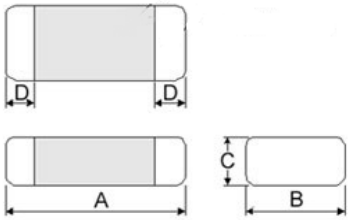
APPLICATIONS

- Noise suppression for power line or large current signal of electric equipments such as computers and peripheral devices,
- DVD cameras,
- LCD TVs, communication equipments, OA equipments, etc.
- Communication equipments,
- OA equipments, etc.

Part Number	Impedance	Z Test Frequency	Max. DC Resistance	Max. Rated Current
Units	Ω	MHz	Ω	mA
Symbol	Z	Freq.	DCR	Ir
CVB4532P800T	80±25%	60mV/100M	0.01	9000



Shape and Dimensions

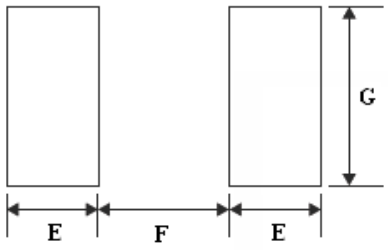


Shape and Dimensions

Unit: mm

Type	A	B	C	D
4532	4.5±0.2	3.2±0.2	1.5±0.2	0.5±0.3

Recommened Mounting Pad Layout Unit:mm



Unit: mm typ

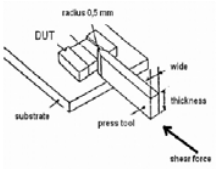
Type	E	F	G
4532	1.05	3.3	3.4

RELIABILITY AND TEST CONDITIONS

<table>
<tr><th>Item</th><th colspan="5">Performance</th><th>Test Condition</th></tr>
<tr><td>Series No.</td><td>FCB</td><td>FCM</td><td>HCB</td><td>GHB</td><td>FCA</td><td>--</td></tr>
<tr><td>Operating Temperature</td><td colspan="5">-55~+125℃
(Including self-temperature rise)</td><td>--</td></tr>
<tr><td>Transportation
Storage Temperature</td><td colspan="5">-55~+125℃
(on board)</td><td>For long storage conditions, please see the Application Notice</td></tr>
<tr><td>Impedance (Z)</td><td colspan="5" rowspan="3">Refer to standard electrical characteristics list</td><td>Agilent4291
Agilent E4991
Agilent4287
Agilent16192</td></tr>
<tr><td>DC Resistance</td><td>Agilent 4338</td></tr>
<tr><td>Rated Current</td><td>DC Power Supply
Over Rated Current requirements, there will be some risk</td></tr>
<tr><td>Temperature Rise Test</td><td colspan="5">Rated Current < 1A ΔT 20℃Max
Rated Current ≧ 1A ΔT 40℃Max</td><td>1. Applied the allowed DC current.
2. Temperature measured by digital surface thermometer.</td></tr>
<tr><td>Life test</td><td colspan="5" rowspan="2">Appearance: no damage.

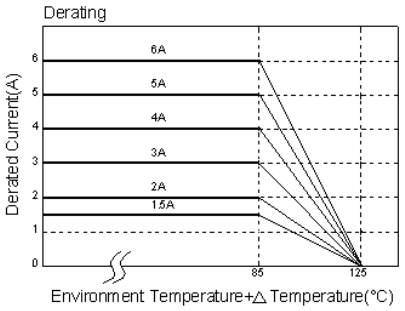
Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles)
Temperature: 125±2℃
Applied current: rated current.
Duration: 1000±12hrs.
Measured at room temperature after placing for 24±2 hrs.</td></tr>
<tr><td>Load Humidity</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles)
Humidity: 85±2%R.H.
Temperature: 85±2℃.
Duration: 1000hrs Min. with 100% rated current.
Measured at room temperature after placing for 24±2 hrs.</td></tr>
<tr><td>Thermal shock</td><td colspan="5">Appearance: no damage.

Impedance: within±15%of initial value.
Inductance: within±10%of initial value.
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles)
Condition for 1 cycle
Step1: -55±2℃ 30±5 min.
Step2: 25±2℃ ≦0.5min
Step3: +125±2℃ 30±5min.
Number of cycles: 500
Measured at room temperature after placing for 24±2 hrs.</td></tr>
<tr><td>Vibration</td><td colspan="5">Appearance：No damage.
Impedance：within±15% of initial value
Inductance：within±10% of initial value
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles)
Oscillation Frequency: 10Hz～2KHz～10Hz for 20 minutes
Equipment： Vibration checker
Total Amplitude:10g
Testing Time：12 hours(20 minutes, 12 cycles each of 3 orientations)。</td></tr>
<tr><td>Bending</td><td colspan="5">Appearance：No damage.
Impedance：within±10% of initial value
Inductance：within±10% of initial value
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Shall be mounted on a FR4 substrate of the following dimensions:
>=0805inch(2012mm):40x100x1.2mm
<0805inch(2012mm):40x100x0.8mm
Bending depth:
>=0805inch(2012mm):1.2mm
<0805inch(2012mm):0.8mm
Duration of 10 sec for a min.</td></tr>
<tr><td>Shock</td><td colspan="5">Appearance：No damage.
Impedance：within±10% of initial value
Inductance：within±10% of initial value
Q：Shall not exceed the specification value.
RDC：within ±15% of initial value and shall not exceed the specification value</td><td>Test condition:
<table><tr><th>Type</th><th>Peak Value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></table></td></tr>
<tr><td>Solderability</td><td colspan="5">More than 95% of the terminal electrode should be covered with solder.</td><td>Preheat: 150℃,60sec.
Solder: Sn96.5%-Ag3%-Cu0.5%
Solder temperature: 245±5℃
Flux for lead free: Rosin. 9.5%
Depth: completely cover the termination.
Dip time: 4±1sec.</td></tr>
</table>

Item	Performance	Test Condition
Resistance to Soldering Heat	Appearance：No damage. Impedance：within±15% of initial value Inductance：within±10% of initial value Q：Shall not exceed the specification value. RDC：within ±15% of initial value and shall not exceed the specification value	Number of heat cycles: 1 Temperature (°C) | Time (s) | Temperature ramp/immersion and emersion rate 260 ±5 (solder temp) | 10 ±1 | 25mm/s ±6 mm/s Depth: completely cover the termination
Terminal strength	Appearance：No damage. Impedance：within±15% of initial value Inductance：within±10% of initial value Q：Shall not exceed the specification value. RDC：within ±15% of initial value and shall not exceed the specification value 	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Component mounted on a PCB apply a force >0805inch(2012mm):1kg <=0805inch(2012mm):0.5kg to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to shock the component being tested.

****Derating Curve**

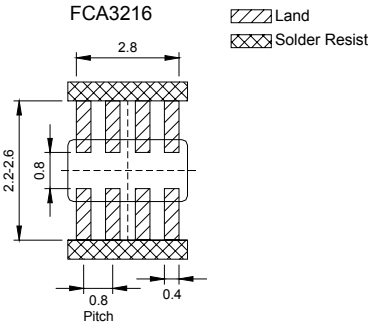
For the ferrite chip bead which withstanding current over 1.5A, as the operating temperature over 85℃, the derating current information is necessary to consider with. For the detail derating of current, please refer to the Derated Current vs. Operating Temperature curve.

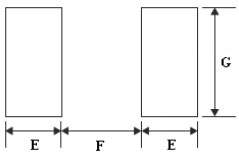


6.Soldering and Mounting

6-1. Recommended PC Board Pattern

Chip Size						Land Patterns For Reflow Soldering		
Series	Type	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)
FCB FCM HCB GHB FCI FHI FCH HCI	0603	0.6±0.03	0.30±0.03	0.30±0.03	0.15±0.05	0.35	0.30	0.40
	1005	1.0±0.10	0.50±0.10	0.50±0.10	0.25±0.10	0.50	0.40	0.60
	1608	1.6±0.15	0.80±0.15	0.80±0.15	0.30±0.20	0.80	0.85	0.95
	2012	2.0±0.20	1.25±0.20	0.85±0.20	0.50±0.30	1.05	1.00	1.45
		2.0±0.20	1.25±0.20	1.25±0.20	0.50±0.30			
	3216	3.2±0.20	1.60±0.20	1.10±0.20	0.50±0.30	1.05	2.20	1.80
	3225	3.2±0.20	2.50±0.20	1.30±0.20	0.50±0.30	1.05	2.20	2.70
	4516	4.5±0.20	1.60±0.20	1.60±0.20	0.50±0.30	1.05	3.30	1.80
	4532	4.5±0.20	3.20±0.20	1.50±0.20	0.50±0.30	1.05	3.30	3.40





PC board should be designed so that products can prevent damage from mechanical stress when warping the board.

6-2. Soldering

Mildly activated rosin fluxes are preferred. The terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

Note.

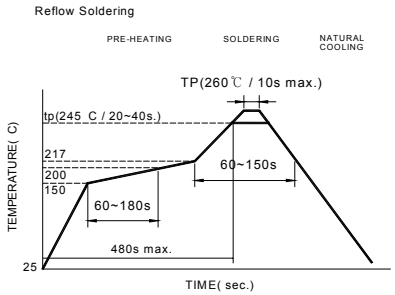
If wave soldering is used ,there will be some risk.

Re-flow soldering temperatures below 240 degrees, there will be non-wetting risk

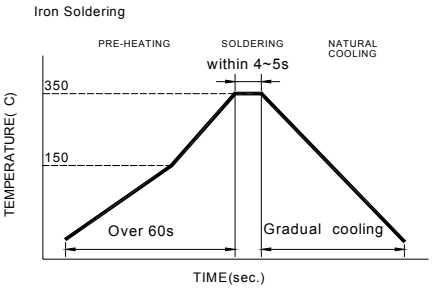
Soldering Iron:

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. If a soldering iron must be employed the following precautions are recommended. for Iron Soldering in Figure 2.

- Preheat circuit and products to 150℃
- Never contact the ceramic with the iron tip
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- 350℃ tip temperature (max)
- 1.0mm tip diameter (max)
- Limit soldering time to 4~5sec.



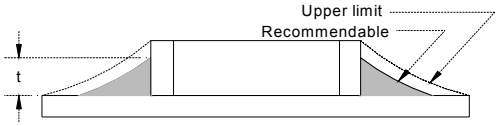
Reflow times: 3 times max
Fig.1



Iron Soldering times：1 times max
Fig.2

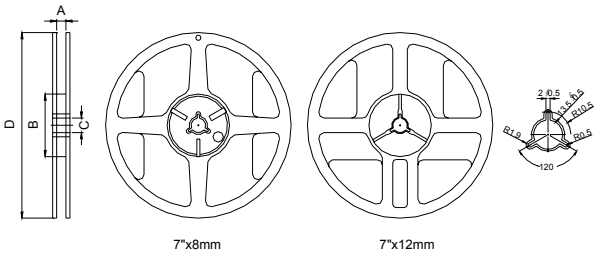
Solder Volume:

Accordingly increasing the solder volume, the mechanical stress to product is also increased. Exceeding solder volume may cause the failure of mechanical or electrical performance. Solder shall be used not to be exceed as shown in right side:
Minimum fillet height = soldering thickness + 25% product height



Packaging Information

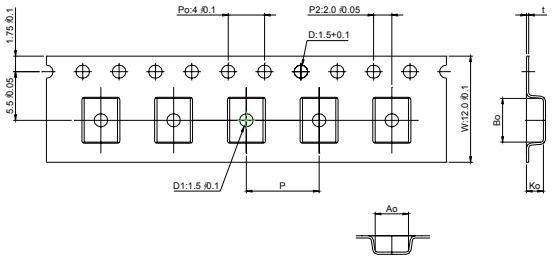
Reel Dimension



Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x12mm	13.5±0.5	60±2	13.5±0.5	178±2

Tape Dimension / 8mm

■Material of taping is paper



Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)	D1(mm)
453215	4.70±0.10	3.45±0.10	1.60±0.10	8.0±0.10	0.24±0.05	1.5±0.10