

Multi Layer Ferrite Power Beads

Type CZP

ISO 9001:2008
CERTIFIED
TS-16949
CERTIFIED



1. General

- Designed to reduce noise at high frequencies
- Standard EIA Packages: 1J, 2A, 2B
- Nickel barrier with solder overcoat for excellent solderability
- Magnetically shielded

2. Dimensions

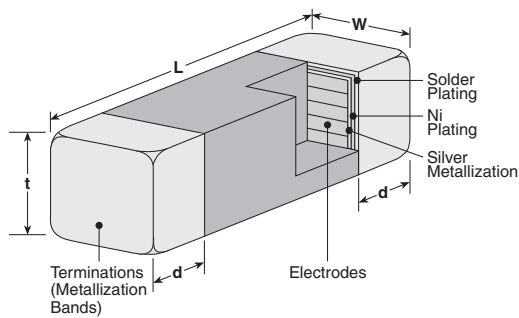


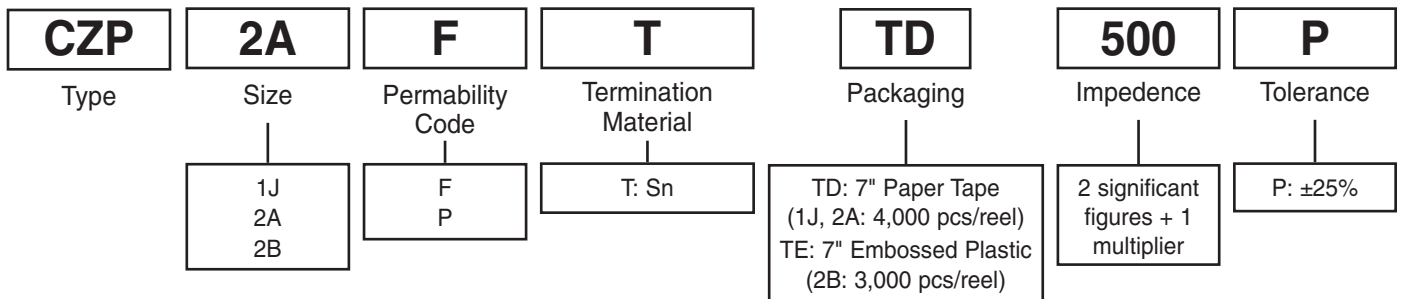
Table 1

Dimensions - inches (mm)				
Part	L	W	t	d
1J (0603)	0.063±0.006 (1.60±0.15)	0.031±0.006 (0.80±0.15)	0.031±0.006 (0.80±0.15)	0.014±0.006 (0.36±0.15)
2A (0805)	0.079±0.008 (2.00±0.20)	0.049±0.008 (1.25±0.20)	0.035±0.008 (0.90±0.20)	0.020±0.010 (0.51±0.25)
2B (1206)	0.126±0.008 (3.20±0.20)	0.063±0.008 (1.60±0.20)	0.043±0.008 (1.10±0.20)	0.020±0.010 (0.51±0.25)

3. Type Designation

The type designation shall be in the following form:

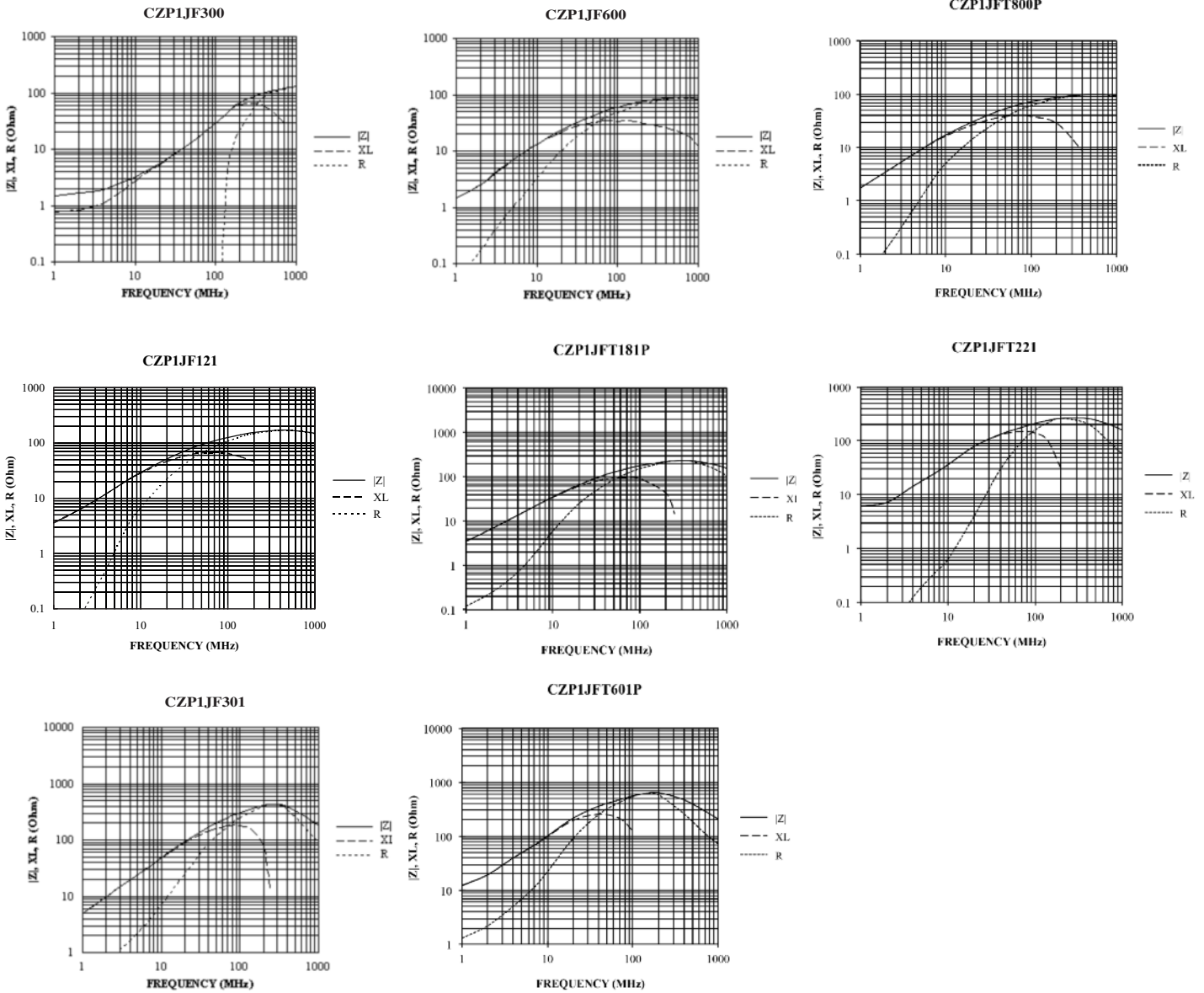
New Type



4. Standard Applications

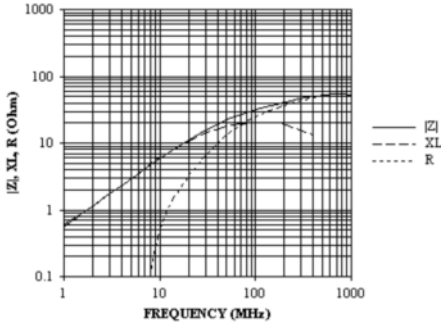
Part Designation	Impedance @ 100MHz (Ω)	DC Resistance Maximum (Ω)	Allowable DC Current Maximum (mA)	Operating Temperature Range	
CZP1JFTTD300P	30	0.03	3000	-55°C to +125°C	
CZP1JFTTD600P	60	0.04			
CZP1JFTTD800P	80		0.10		
CZP1JFTTD121P	120				
CZP1JFTTD181P	180				
CZP1JFTTD221P	220				
CZP1JFTTD301P	300				
CZP1JFTTD601P	600	0.20			1000
CZP2AFTTD300P	30	0.015	4000		-55°C to +125°C
CZP2AFTTD500P	50	0.04	3000		
CZP2AFTTD600P	60				
CZP2AFTTD800P	80				
CZP2AFTTD121P	120				
CZP2AFTTD151P	150	0.05	2000		
CZP2AFTTD221P	220				
CZP2AFTTD301P	300	0.15	1000		
CZP2AFTTD601P	600	0.20			
CZP2AFTTD102P	1000				
CZP2BFTTE190P	19	0.02	4000	-55°C to +125°C	
CZP2BFTTE300P	30	0.025	3000		
CZP2BFTTE500P	50				
CZP2BFTTE800P	80				
CZP2BFTTE101P	100	0.08	2500		
CZP2BFTTE121P	120				
CZP2BFTTE221P	220	0.10	2000		
CZP2BFTTE301P	300	0.15			
CZP2BFTTE601P	600	0.20			1000
CZP2BFTTE102P	1000				
CZP2BPTTE300P	30	0.015	6000		
CZP2BPTTE600P	60	0.02	3000		
CZP2BPTTE101P	100	0.03			
CZP2BPTTE121P	120	0.04			
CZP2BPTTE601P	600	0.10			

5. 0603 (1J) Graphs

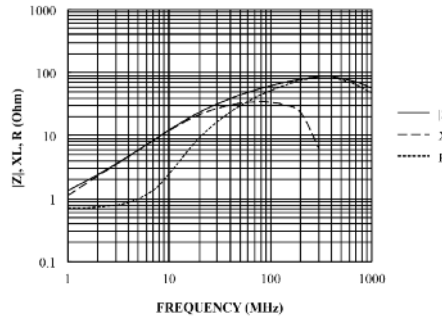


5. 0805 (2A) Graphs

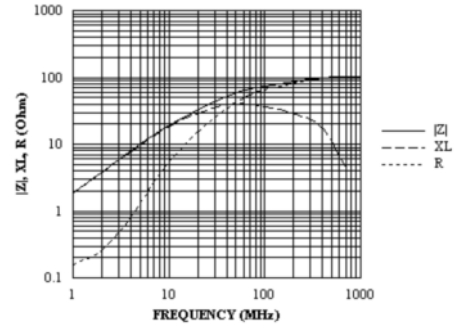
CZP2AF300



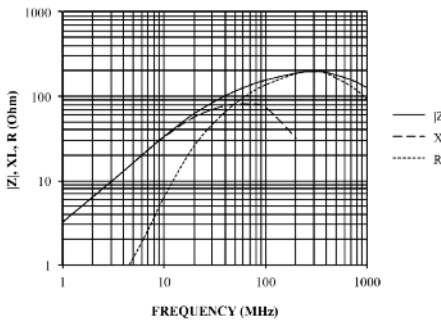
CZP2AFT600P



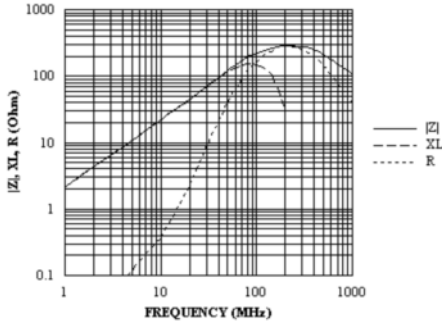
CZP2AF800



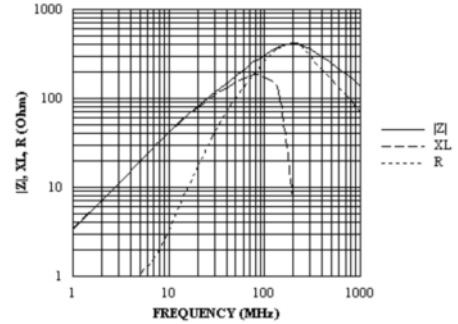
CZP2AFT151P



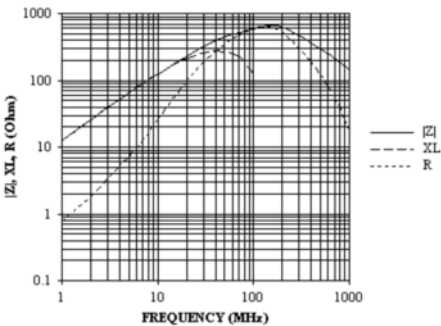
CZP2AF221



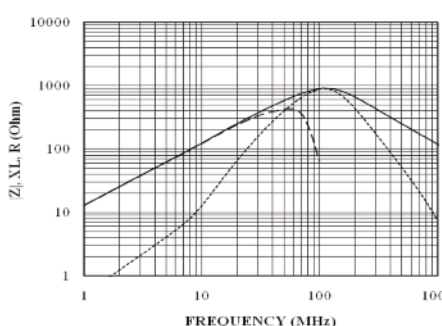
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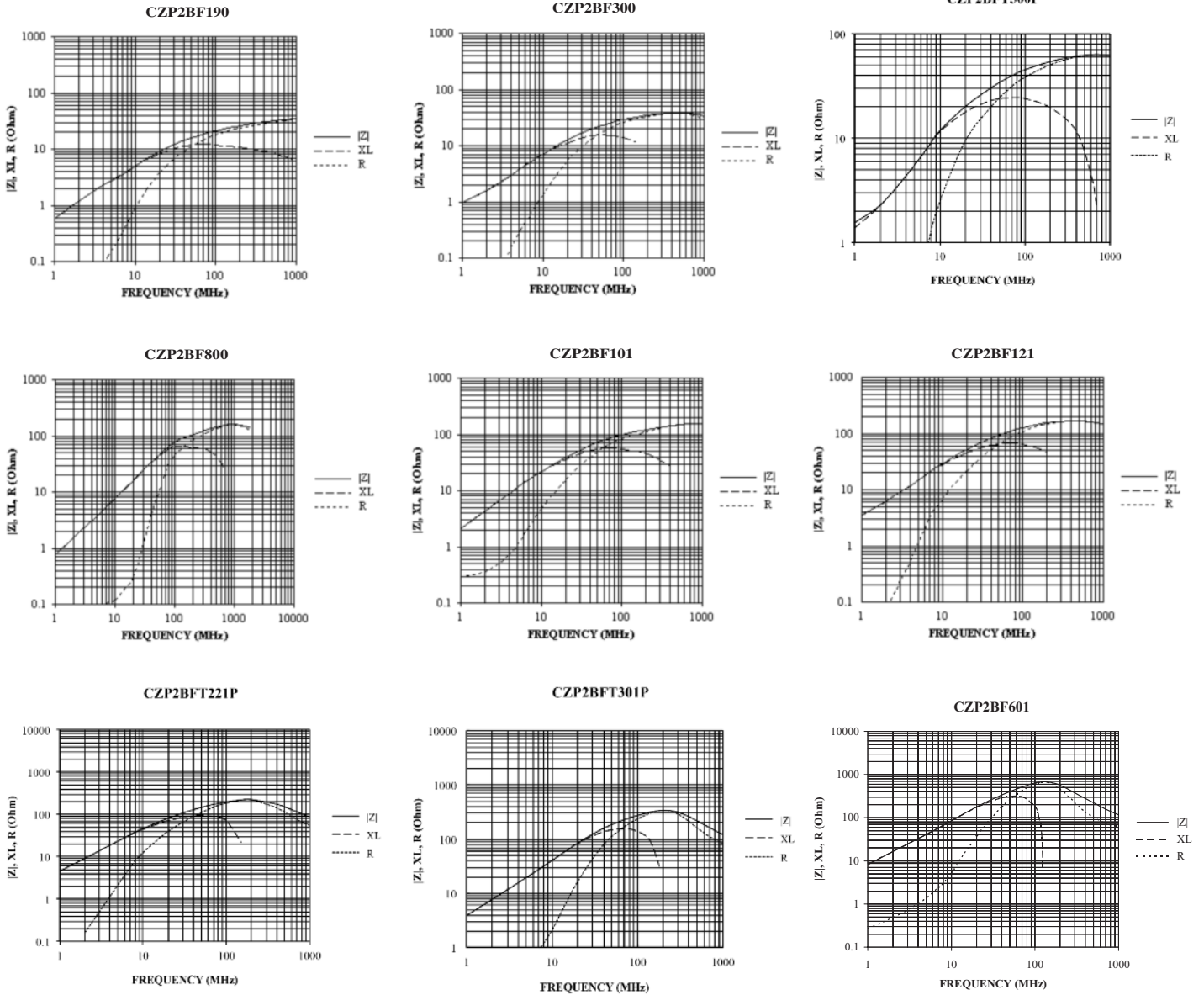
CZP2AF601



CZP2AFTTD102P

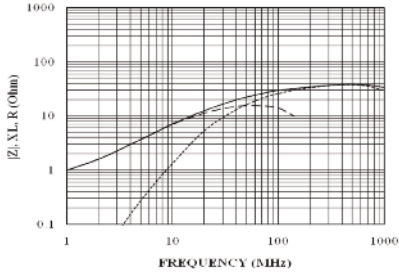


5. 1206 (2B) Graphs

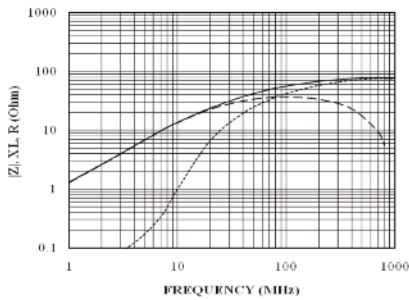


5. 1206 (2B) Graphs (continued)

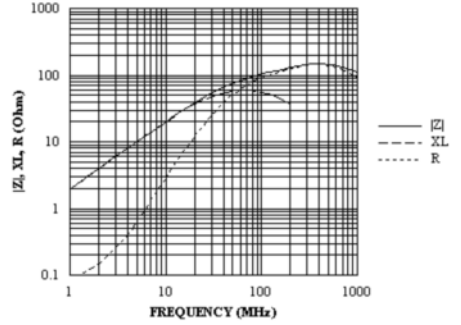
CZP2BPTTD300P



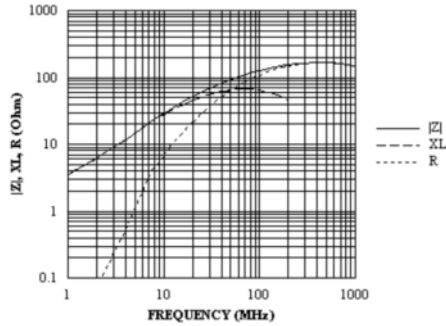
CZP2BPTTD600P



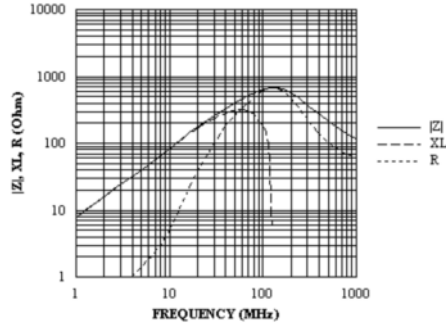
CZP2BP101



CZP2BP121



CZP2BP601



5. Characteristics

Item	Requirement	Conditions												
Operating Temperature	-55°C ~ +125°C													
Storage Temperature	40°C @ 70% Humidity	Sealed plastic bags with desiccant shall be used to reduce the potential of oxidation on the terminations during storage.												
Resistance to Solder Heat	Change in Impedance: Relative to value before test $\pm 20\%$. Appearance: There shall be no cracking Solder Coverage: More than 75% of the terminal electrode shall be covered with solder.	Flux: 5-10 sec dip After Flux: Air dry for 15 sec Preheat: 150°C $\pm 10^\circ\text{C}$ Preheat Time: 60 sec Solder Temp: 260°C $\pm 5^\circ\text{C}$ Dip Time: 10 ± 1 sec												
Solderability	Solder Coverage: More than 95% of the termination shall be covered with solder.	Flux: 5-10 sec dip After Flux: Air dry for 15 sec Solder Temp: 245°C $\pm 5^\circ\text{C}$ Dip Time: 5 ± 0.5 sec												
Leach Resistance	Appearance: There shall be no visible signs of physical or mechanical damage (i.e. no cracks). Terminations: Termination must not be leached away for more than 5%.	The bead shall be subjected to the following 5 steps for the period of time shown below. The 5 steps constitute one (1) rotation. 4 rotations shall be carried out. 1) Flux: 5-10 sec 2) After Flux: Air dry for 15 sec 3) Solder Temp: 230°C $\pm 5^\circ\text{C}$ 4) Dip Time: 5 ± 0.5 sec 5) Cool: Air cool for 60 seconds												
Insulation Resistance	Insulation Resistance: Min 1G ohms													
Solvent Resistance	Change in Impedance: Relative to value before test $\pm 10\%$.	Cleaning by: Washer: Ultrasonic washer (100W) Solvent: Isopropyl alcohol Time: 3 minutes												
Terminal Strength (hanging test)	Appearance: The terminal electrode shall not break off, nor shall there be damage to the body.	<table border="1"> <thead> <tr> <th>Type</th> <th>W(kgf)</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1J</td> <td>0.5</td> <td>30 sec ± 2 sec</td> </tr> <tr> <td>2A</td> <td>1.0</td> <td>30 sec ± 2 sec</td> </tr> <tr> <td>2B</td> <td>1.5</td> <td>30 sec ± 2 sec</td> </tr> </tbody> </table>	Type	W(kgf)	Time	1J	0.5	30 sec ± 2 sec	2A	1.0	30 sec ± 2 sec	2B	1.5	30 sec ± 2 sec
Type	W(kgf)	Time												
1J	0.5	30 sec ± 2 sec												
2A	1.0	30 sec ± 2 sec												
2B	1.5	30 sec ± 2 sec												
Terminal Strength (push test)	Appearance: There shall be no evidence of mechanical degradations to terminals or body.	<table border="1"> <thead> <tr> <th>Type</th> <th>W(kgf)</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1J</td> <td>1.4</td> <td>60 sec</td> </tr> <tr> <td>2A</td> <td>1.8</td> <td>60 sec</td> </tr> <tr> <td>2B</td> <td>2.3</td> <td>60 sec</td> </tr> </tbody> </table>	Type	W(kgf)	Time	1J	1.4	60 sec	2A	1.8	60 sec	2B	2.3	60 sec
Type	W(kgf)	Time												
1J	1.4	60 sec												
2A	1.8	60 sec												
2B	2.3	60 sec												
Bending Strength	Appearance: There shall be no physical or mechanical damage. Impedance: Relative to initial value before test $\pm 10\%$.	Board: 90x40x1.6mm Bend: 1mm Time: 5 sec												

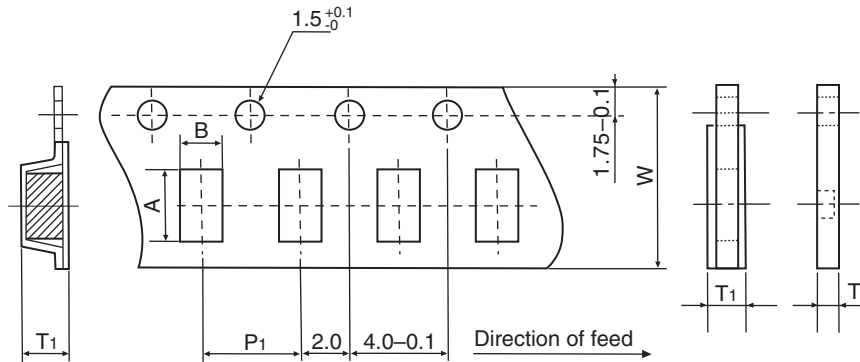
5. Characteristics (continued)

Item	Requirement	Conditions																		
Mechanical Shock	<p>Appearance: There shall be no physical or mechanical damage.</p> <p>Impedance: Relative to initial value before test $\pm 10\%$.</p>	<p>Force: 50G</p> <p>Time: 11 msec</p> <p>There shall be 3 shocks in each of 6 directions (18 shocks total).</p>																		
Vibration	<p>Impedance: Relative to initial value $\pm 10\%$.</p>	<p>Only endurance conditioning by sweeping shall be made. The entire frequency range from 10-2,000Hz and return to 10Hz in 20 minutes (this shall constitute one cycle).</p> <p>Amplitude: 1.5mm</p> <p>The test shall have a 15G peak and shall be applied for a period of 4 hours (12 cycles) in each of 3 mutually perpendicular directions (a total of 36 cycles within a total of 12 hours).</p>																		
Thermal Shock	<p>Appearance: There shall be no physical or mechanical damage.</p> <p>Impedance: Relative to initial value $\pm 20\%$.</p> <p>DCR: The DCR shall not exceed initial specified value.</p> <p>Testing of the parts will be made at 0 hours, 250 hours and 500 hours. Before testing, the parts shall be allowed to cool to room temperature for 24 hours.</p>	<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1-start</td> <td>-40°C $\pm 2^\circ\text{C}$</td> <td>_____</td> </tr> <tr> <td>2-hold</td> <td>-40°C $\pm 2^\circ\text{C}$</td> <td>30 min ± 5 min</td> </tr> <tr> <td>3-transfer</td> <td>_____</td> <td>0.5 min max.</td> </tr> <tr> <td>4-hold</td> <td>+105°C $\pm 2^\circ\text{C}$</td> <td>30 min ± 5 min</td> </tr> <tr> <td>5-transfer</td> <td>_____</td> <td>0.5 min max.</td> </tr> </tbody> </table> <p>Steps 1 thru 5 constitute one complete cycle and the test shall consist of a total of 500 cycles.</p>	Step	Temperature	Time	1-start	-40°C $\pm 2^\circ\text{C}$	_____	2-hold	-40°C $\pm 2^\circ\text{C}$	30 min ± 5 min	3-transfer	_____	0.5 min max.	4-hold	+105°C $\pm 2^\circ\text{C}$	30 min ± 5 min	5-transfer	_____	0.5 min max.
Step	Temperature	Time																		
1-start	-40°C $\pm 2^\circ\text{C}$	_____																		
2-hold	-40°C $\pm 2^\circ\text{C}$	30 min ± 5 min																		
3-transfer	_____	0.5 min max.																		
4-hold	+105°C $\pm 2^\circ\text{C}$	30 min ± 5 min																		
5-transfer	_____	0.5 min max.																		
Load Humidity	<p>Appearance: There shall be no physical or mechanical damage.</p> <p>Impedance: Relative to initial value $\pm 15\%$.</p> <p>Measurements shall be taken at 0 hours, 250 hours, 500 hours and 1,000 hours and shall meet the conditions stated above.</p>	<p>Temperature: 85°C $\pm 2^\circ\text{C}$</p> <p>Relative Humidity: 85%</p> <p>Time: 1,000 hours total</p> <p>Apply: 100% rated current</p>																		
Life Test	<p>Appearance: There shall be no physical or mechanical damage</p> <p>Impedance: Relative to initial value $\pm 15\%$</p> <p>Measurements shall be taken at 0 hours, 250 hours, 500 hours and 1,000 hours and shall meet the conditions stated above.</p>	<p>Temperature: 85°C $\pm 2^\circ\text{C}$</p> <p>Time: 1,000 hours total</p> <p>Apply: 100% rated current</p>																		

6. Packaging Specifications

KOA's multilayer components are provided on tape-and-reel for use in pick-and-place machines. The reel size is 7 inch.

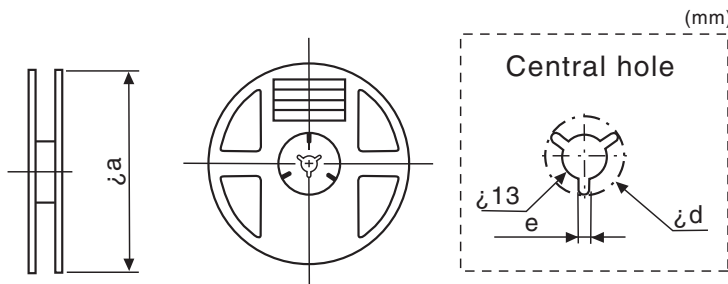
7. Dimensions - inches (mm)



Dimensions - inches (mm)

Tape	A	B	W	P ₁	T ₁
1J 0603	0.075±0.002 (1.9±0.1)	0.043±0.002 (1.1±0.1)	0.318±0.002 (8.1±0.1)	0.157±0.004 (4.0±0.1)	0.043±0.002 (1.1±0.1)
2A 0805	0.093±0.002 (2.4±0.1)	0.063±0.002 (1.6±0.1)	0.318±0.002 (8.1±0.1)	0.157±0.004 (4.0±0.1)	0.046±0.002 (1.2±0.1)
2B 1206	0.138±0.002 (3.5±0.1)	0.071±0.002 (1.8±0.1)	0.318±0.002 (8.1±0.1)	0.157±0.004 (4.0±0.1)	0.071±0.002 (1.8±0.1)

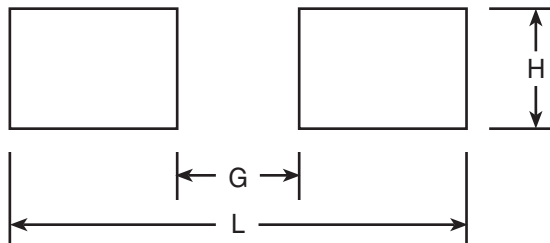
Dimensions - inches (mm)



Tape	øa	ød	e
1J 0603			
2A 0805	7 (178)	0.827 (21)	0.079 (2.0)
2B 1206			

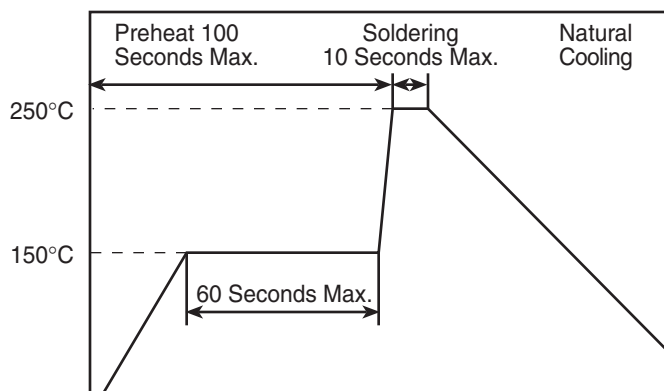
9. Recommended PC Board Land Patterns - mm (inches)

Chip Size	L	G	H
1J (0603)	2.6 (0.102)	0.6 (0.023)	0.8 (0.031)
2A (0805)	3.0 (0.118)	1.0 (0.039)	1.0 (0.039)
2B (1206)	4.4 (0.173)	2.2 (0.087)	1.4 (0.055)



10. Recommended Temperature Profiles for Soldering

Recommended Temperature Profile for Wave Soldering



Recommended Temperature Profile for Reflow Soldering

