KOA SPEER ELECTRONICS, INC.

RoHS COMPLIANT

spec sheet

SS-220 R12
AHA 12/07/06

ISO 9001:2000 CERTIFIED
TS-16949 CERTIFIED

Multi Layer Ferrite Power Beads

Type CZP

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

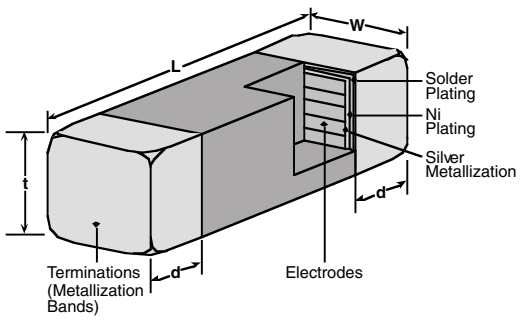

Table 1

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

CZP	2A	F	T	TD	500	P
Type	Size	Permability Code	Termination Material	Packaging	Impedence	Tolerance
	1J 2A 2B	F P	T: Sn (Other termination styles available, contact factory for options)	TD: 7" Paper Tape (1J, 2A: 4,000 pcs/reel) TE: 7" Embossed Plastic (2B: 3,000 pcs/reel)	2 significant figures + 1 multiplier	P: ±25%

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4. Standard Applications

Part Designation	Impedance @ 100MHz ( )	DC Resistance Maximum ( )	Allowable DC Current Maximum (mA)	Operating Temperature Range
CZP1JFTTD300P	30	0.03	3000	-55°C to +125°C
CZP1JFTTD600P	60	0.04		
CZP1JFTTD121P	120	0.10	2000	
CZP1JFTTD301P	300	0.10	2000	
CZP2AFTTD300P	30	0.015	3000	-55°C to +125°C
CZP2AFTTD400P	40	0.03	2000	
CZP2AFTTD450P	45			
CZP2AFTTD600P	60	0.025	3000	
CZP2AFTTD800P	80	0.04	2000	
CZP2AFTTD221P	220	0.05		
CZP2AFTTD301P	300	0.15	1000	
CZP2AFTTD601P	600	0.20		
CZP2AFTTD102P	1000			
CZP2BFTTE190P	19	0.02	3000	-55°C to +125°C
CZP2BFTTE260P	26			
CZP2BFTTE300P	30			
CZP2BFTTE310P	31			
CZP2BFTTE500P	50	0.025		
CZP2BFTTE650P	65	0.03	2000	
CZP2BFTTE700P	70			
CZP2BFTTE800P	80			
CZP2BFTTE900P	90	0.10	1000	
CZP2BFTTE101P	100			
CZP2BFTTE121P	120			
CZP2BPTTE700P	70	0.20	3000	
CZP2BFTTE601P	600		1000	
CZP2BPTTE101P	100	0.03	3000	
CZP2BPTTE121P	120	0.04		
CZP2BPTTE601P	600	0.10	1500	

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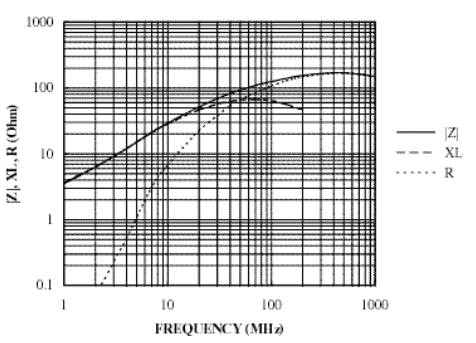
5. 0603 (1J) Graphs

CZP1JF121



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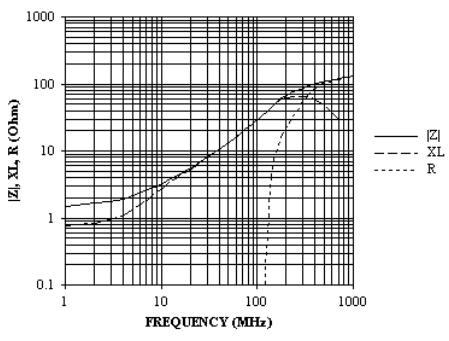

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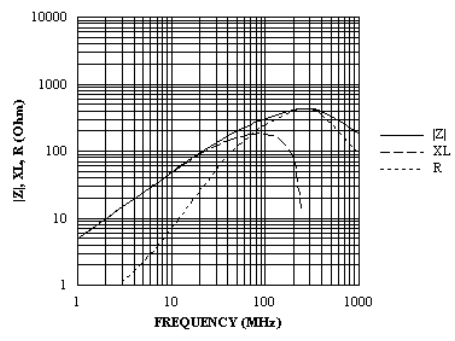

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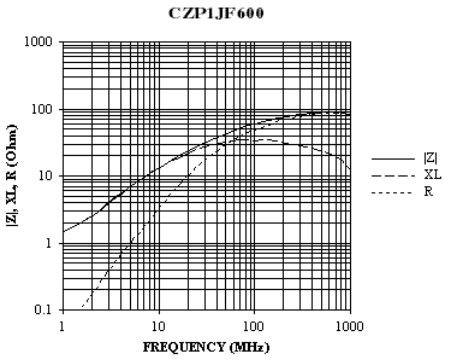

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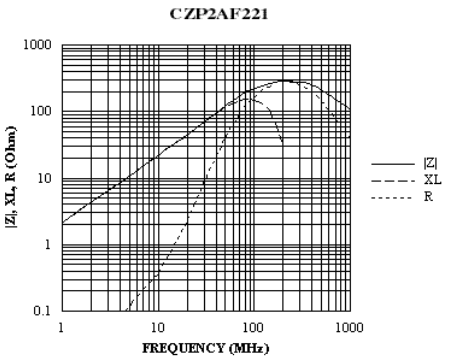
5. 0805 (2A) Graphs

CZP2AF221



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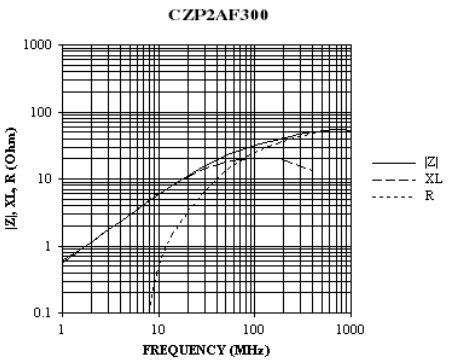

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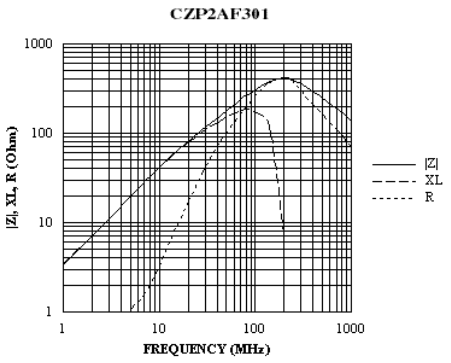

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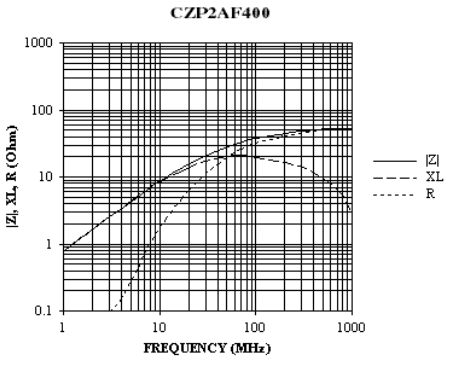

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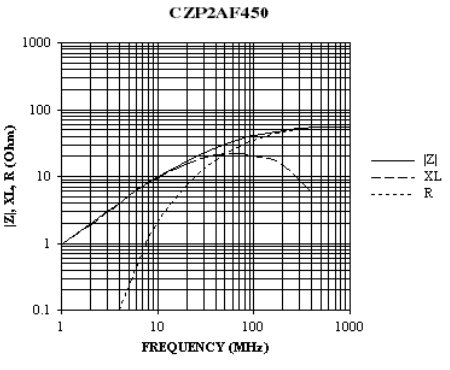

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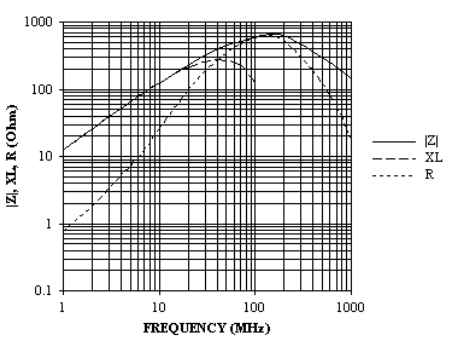

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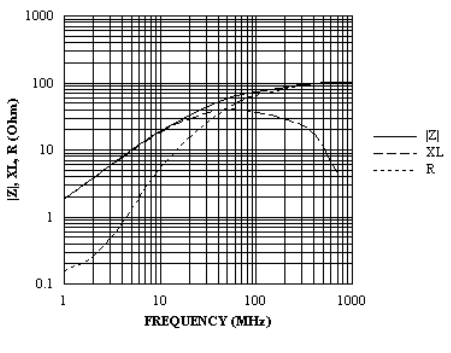

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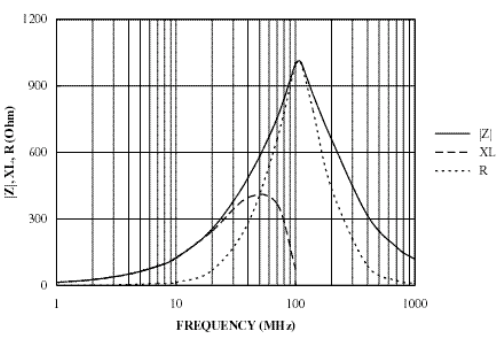

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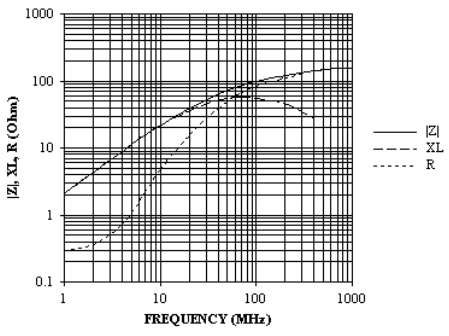
5. 1206 (2B) Graphs

CZP2BF101



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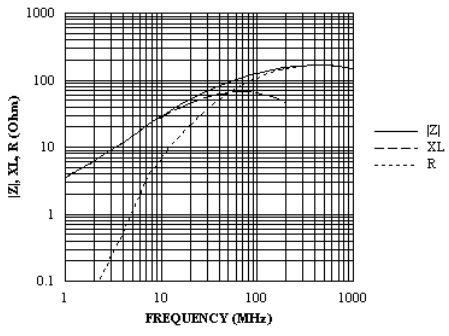

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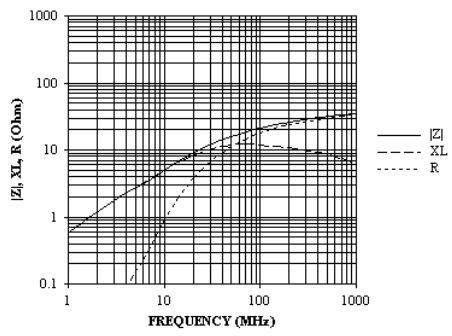

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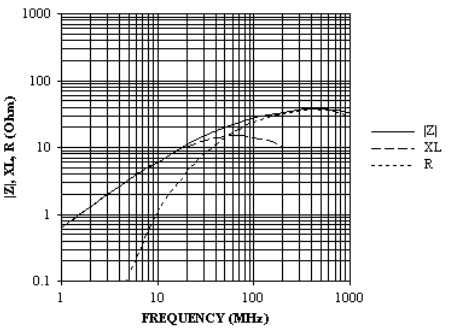

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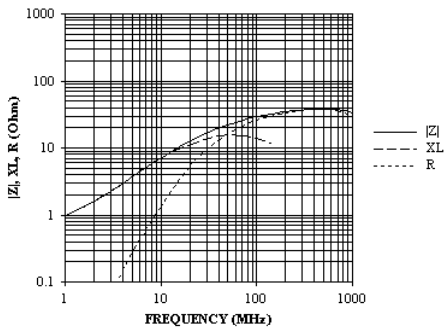

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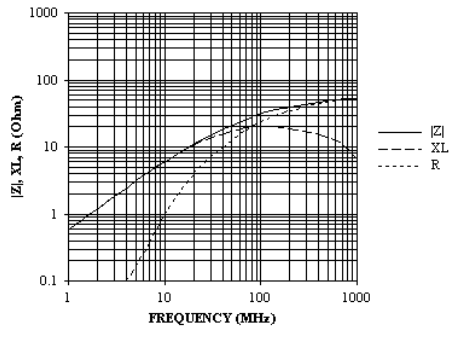

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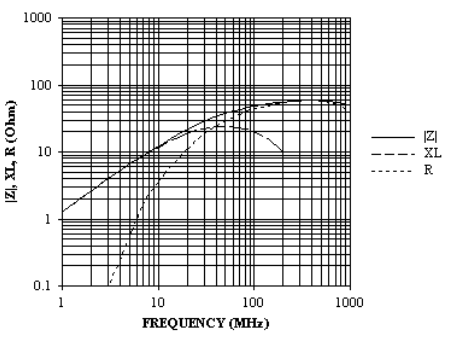

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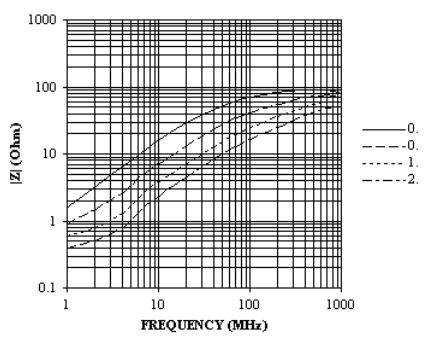

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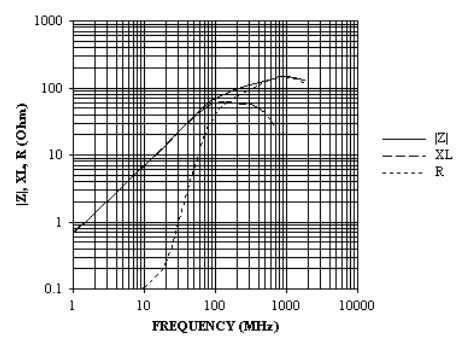

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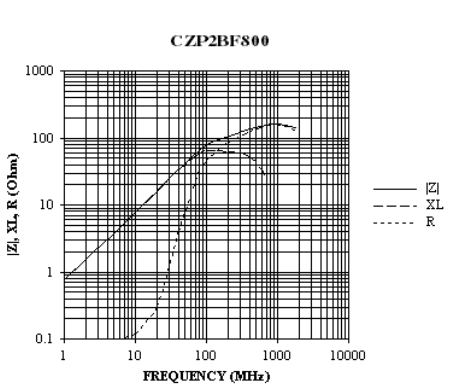

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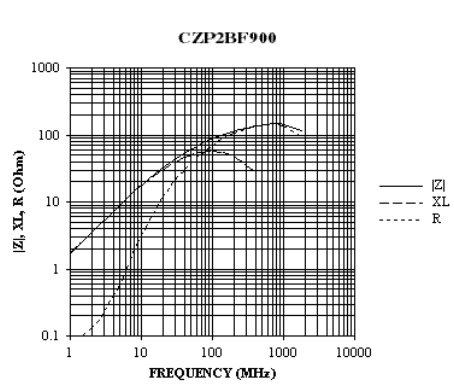

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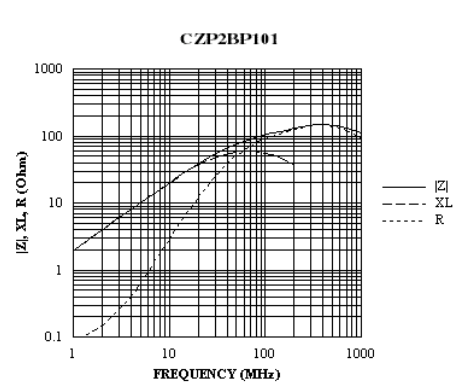

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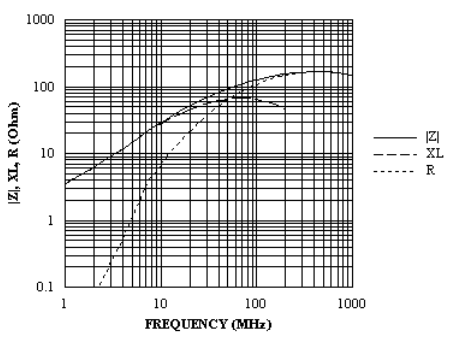
5. 1206 (2B)Graphs (continued)

CZP2BP121



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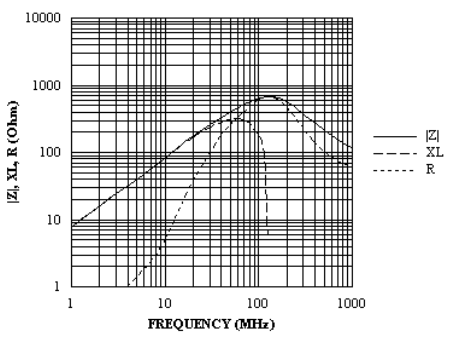

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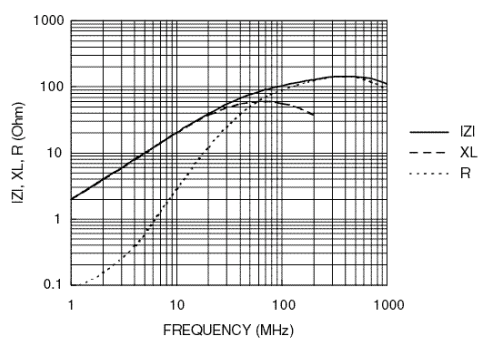

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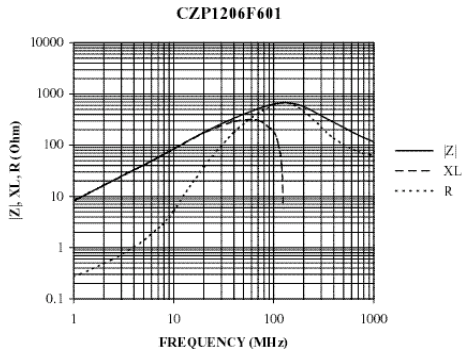

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5. Characteristics

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 ±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 ±10°C **Preheat Time:** 60 sec **Solder Temp:** 260°C ±5°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 ±5°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 ±5°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 ±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.	**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.	**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 ±10%.	**Board:** 90x40x1.6mm **Bend:** 1mm **Time:** 5 sec

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5. Characteristics (continued)

Item	Requirement	Conditions
Mechanical Shock	**Appearance:** There shall be no physical or mechanical damage. **Impedance:** Relative to initial value before test ±10%.	**Force:** 50G **Time:** 11 msec There shall be 3 shocks in each of 6 directions (18 shocks total).
Vibration	**Impedance:** Relative to initial value ±10%.	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). Amplitude: 1.5mm 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).
Thermal Shock	**Appearance:** There shall be no physical or mechanical damage. **Impedance:** Relative to initial value ±20%. **DCR:** The DCR shall not exceed initial specified value. 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.	**Step / Temperature / Time** 1-start / -40°C ±2°C / ——— 2-hold / -40°C ±2°C / 30 min ±5 min 3-transfer / ——— / 0.5 min max. 4-hold / +105°C ±2°C / 30 min ±5 min 5-transfer / ——— / 0.5 min max. Steps 1 thru 5 constitute one complete cycle and the test shall consist of a total of 500 cycles.
Load Humidity	**Appearance:** There shall be no physical or mechanical damage. **Impedance:** Relative to initial value ±15%. Measurements shall be taken at 0 hours, 250 hours, 500 hours and 1,000 hours and shall meet the conditions stated above.	**Temperature:** 85°C ±2°C **Relative Humidity:** 85% **Time:** 1,000 hours total **Apply:** 100% rated current
Life Test	**Appearance:** There shall be no physical or mechanical damage **Impedance:** Relative to initial value ±15% Measurements shall be taken at 0 hours, 250 hours, 500 hours and 1,000 hours and shall meet the conditions stated above.	**Temperature:** 85°C ±2°C **Time:** 1,000 hours total **Apply:** 100% rated current

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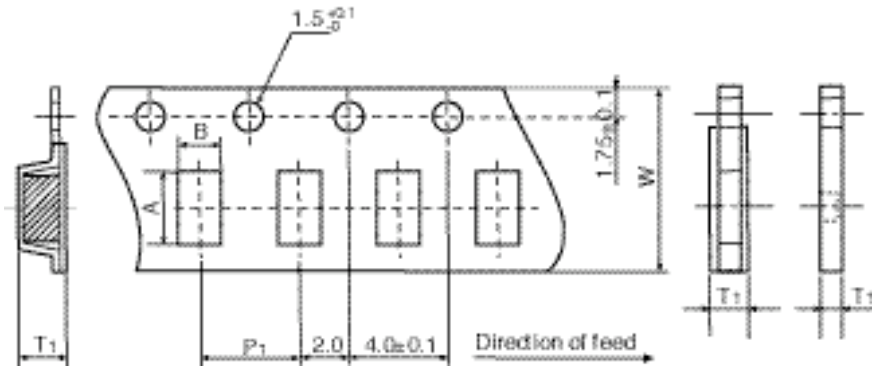
6. Packaging Specifications

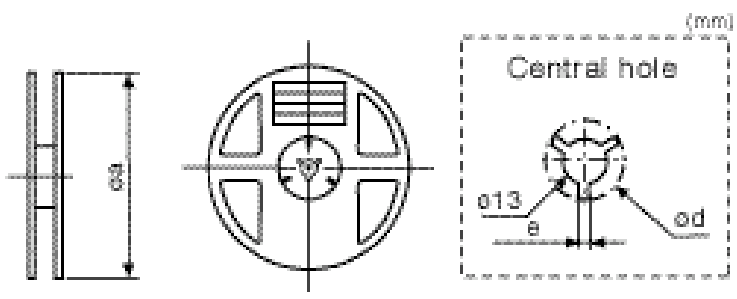
KOA's multilayer components are provided on tape-and-reel for use in pick-and-place machines. The reel size is 7 inch.

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	7 (178)	0.827 (21)	0.079 (2.0)
2A 0805			
2B 1206			

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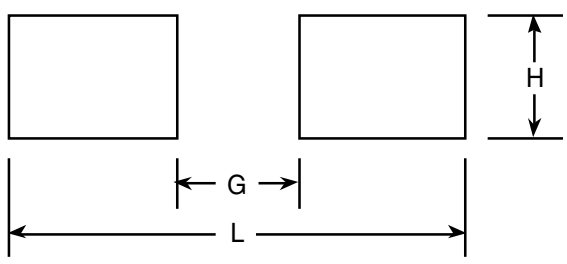
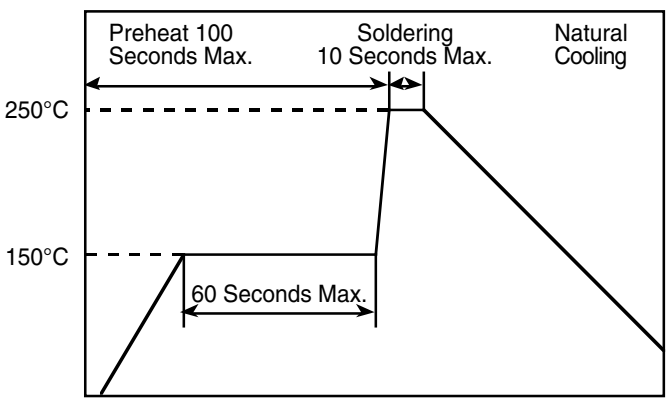
9. Recommended PC Board Land Patterns - mm (inches)

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)

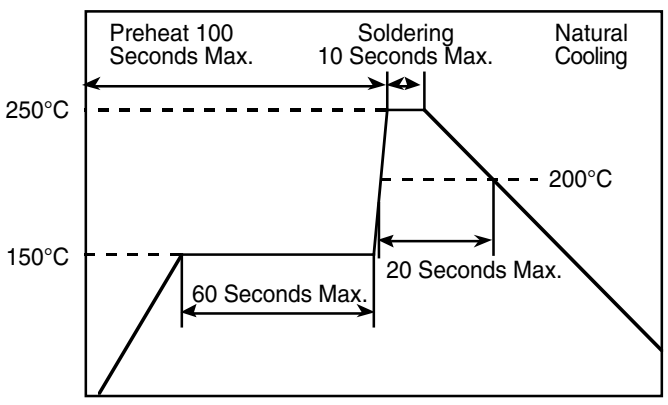


10. Recommended Temperature Profiles for Soldering

Recommended Temperature Profile for Wave Soldering



Recommended Temperature Profile for Reflow Soldering



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