

# Chip Ferrite Bead High Current type

SIM02-36 Series

MERITEK

## FEATURE

- Operating temperature: -55°C ~ +125°C (Including self-temperature rise)
- Monolithic Inorganic Material Construction
- Low DC Resistance
- Noise reduction solution for Signal Line
- Excellent Solderability and Heat Resistance



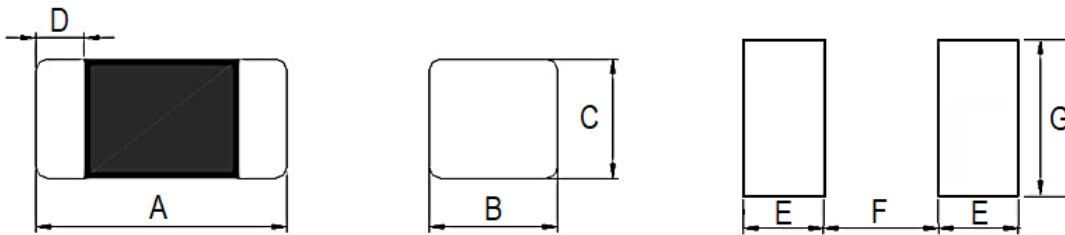
## PART NUMBERING SYSTEM

SIM   02   100   Y   2A0   36  
(1)   (2)   (3)   (4)   (5)   (6)



No	item	Code	Description	
(1)	Product Code	SIM	Signal Chip Inductor, Multi-Layer Chip Ferrite Bead Type	
(2)	Dimension	02	02: 0402, 1.0x0.5mm	See Dimensions Table
(3)	Impedance	100	100: 10Ω	First two digit: Significant, Third: Multiplier
(4)	Tolerance	Y	Y: ±25%	-25% ~ +25%
(5)	Rated Current	2A0	2A0: 2.0A	A: Decimal
(6)	Series Code	36	Chip Ferrite Bead, High Current Type	Internal Control Code

## DIMENSIONS



Size Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
SIM02 (0402)	1.00±0.10	0.50±0.10	0.50±0.10	0.1~0.3	0.50	0.40	0.60
SIM03 (0603)	1.60±0.15	0.80±0.15	0.80±0.15	0.2~0.6	0.80	0.85	0.95
SIM05 (0805)	2.00±0.20	1.25±0.20	0.85±0.20	0.2~0.8	1.05	1.00	1.45
SIM06 (1206)	3.20±0.20	1.60±0.20	1.10±0.20	0.4~1.0	1.05	2.20	1.80
SIM10 (1210)	3.20±0.20	2.50±0.20	1.30±0.20	0.6~1.0	1.05	2.20	2.70
SIM86 (1806)	4.50±0.20	1.60±0.20	1.60±0.20	0.6~1.0	1.05	3.30	1.80
SIM82 (1812)	4.50±0.20	3.20±0.20	1.50±0.20	0.6~1.0	1.05	3.30	3.40

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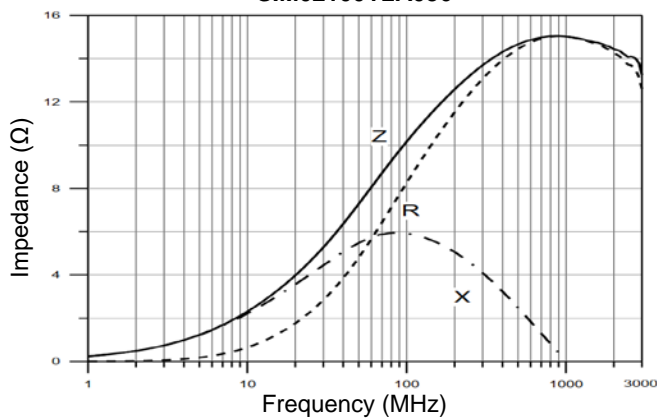
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## ELECTRICAL CHARACTERISTICS

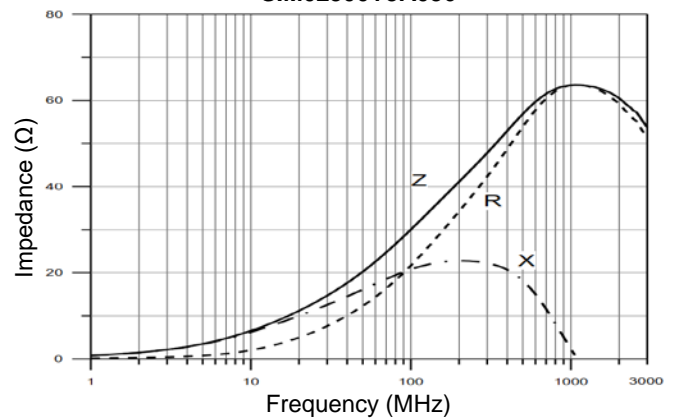
Size	Series	Impedance ( $\Omega$ )	Tolerance (%)	Test Frequency (MHz)	DCR ( $\Omega$ ) Max	Rated Current (mA) Max
0402	SIM02100Y2A036	10	$\pm 25\%$	100	0.030	2000
	SIM02300Y3A036	30	$\pm 25\%$	100	0.030	3000
	SIM02121Y1A236	120	$\pm 25\%$	100	0.090	1200
	SIM02121Y2A036	120	$\pm 25\%$	100	0.055	2000

## CHARICTERISTIC CURVES

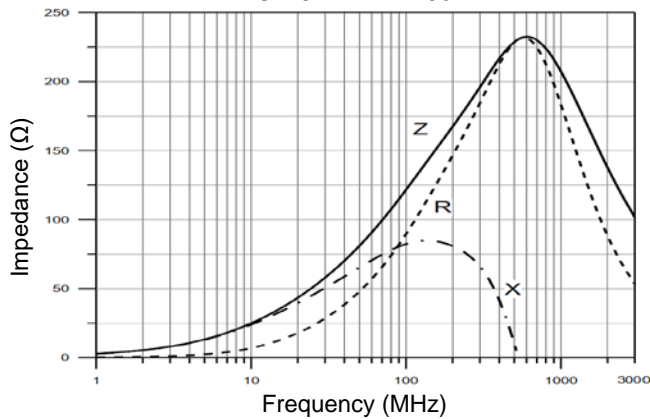
SIM02100Y2A036



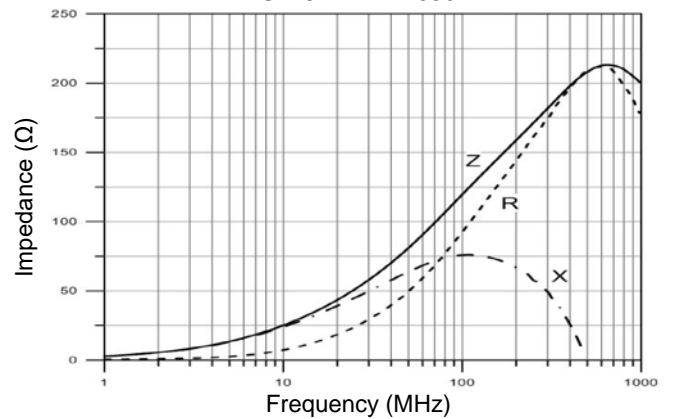
SIM02300Y3A036



SIM02121Y1A236



SIM02121Y2A036



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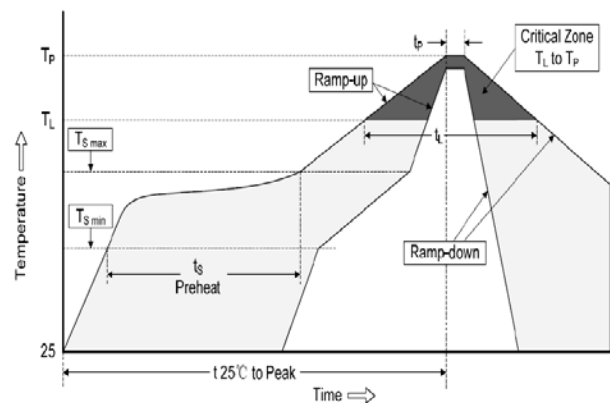
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## RELIABILITY TEST CONDITON AND REQUIREMENT

Item	Test Conditions	Requirement															
<b>Solderability</b>	Solder: Sn-3Ag-0.5Cu, Solder temperature: 240±5°C, Depth: completely cover the termination. Dip time: 3±1sec.	More than 95% of coverage															
<b>Resistance to Soldering Heat</b>	Solder temperature: 265±3°C for 6±1 seconds; Preheating: 100°C ~ 150°C for 1 min. Solder: Sn-3Ag-0.5Cu	Appearance: No damage. Electrical and Mechanical Characteristics shall be satisfied															
<b>Vibration</b>	Oscillation Frequency: 10~2K~10 Hz, Direction: X, Y, X Testing Time: 12 hours (4 hours, 3 orientations)	Appearance: No damage. Impedance: within ±30% of initial value															
<b>Shock</b>	Test condition: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Type</th> <th>Peak Value (g's)</th> <th>Normal duration (ms)</th> <th>Wave Form</th> <th>Velocity change (ft/sec)</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> <tr> <td>Lead</td> <td>100</td> <td>6</td> <td>Half-sine</td> <td>12.3</td> </tr> </tbody> </table>	Type	Peak Value (g's)	Normal duration (ms)	Wave Form	Velocity change (ft/sec)	SMD	100	6	Half-sine	12.3	Lead	100	6	Half-sine	12.3	Appearance: No damage. Impedance: within ±30% of initial value
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SMD	100	6	Half-sine	12.3													
Lead	100	6	Half-sine	12.3													
<b>Terminal strength</b>	With component mounted on a PCB apply a force 10N to the side of a device being tested. This force shall be applied for 10 +1 seconds. Also, the force shall be applied gradually as not to shock the component being tested.	Appearance: no damage.															
<b>Thermal Shock</b>	Number of cycles: 1000. Condition for 1 cycle: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>No.</th> <th>Temp. (°C)</th> <th>Time (min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±5°C</td> <td>30±3</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>2 ~ 5</td> </tr> <tr> <td>3</td> <td>+125±2°C</td> <td>30±3</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>2 ~ 5</td> </tr> </tbody> </table> Measured at room temperature after placing for 24±2 hrs.	No.	Temp. (°C)	Time (min.)	1	-55±5°C	30±3	2	Room Temp.	2 ~ 5	3	+125±2°C	30±3	4	Room Temp.	2 ~ 5	Appearance: No damage. Impedance: within ±30% of initial value
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1	-55±5°C	30±3															
2	Room Temp.	2 ~ 5															
3	+125±2°C	30±3															
4	Room Temp.	2 ~ 5															
<b>Bending</b>	Device mounted on a test substrate, bend the substrate by 3mm, hold for 10sec and then return.	Appearance: The terminal electrode and the ferrite must not be damaged.															
<b>Load Humidity</b>	Humidity: 85±2%R.H. Temperature: 85±2°C. Duration: 1000hrs Min. with 100% rated current. Measured at room temperature after 24±2 hrs.	Appearance: No damage. Impedance: within ±30% of initial value															
<b>Life Test</b>	Temperature: 125±2°C, Duration: 1000±12 Hrs. Measured at room temperature after 24±2 Hrs.	Appearance: No damage. Impedance: within ±30% of initial value															

## RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	120°C
	Temp. Max $T_{s(max)}$	180°C
	Time (min. to max.) ( $t_s$ )	50 ~ 150 seconds
Reflow	Temp. ( $T_L$ )	230°C
	Time (min. to max.) ( $t_L$ )	90 ~ 120 seconds
Peak Temperature ( $T_P$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		10 seconds max.
Reflow times:		3 times Max.



\*Specifications subject to change without notice.