

Chip Ferrite Bead General Type

SIM-3A Series

MERITEK

FEATURE

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



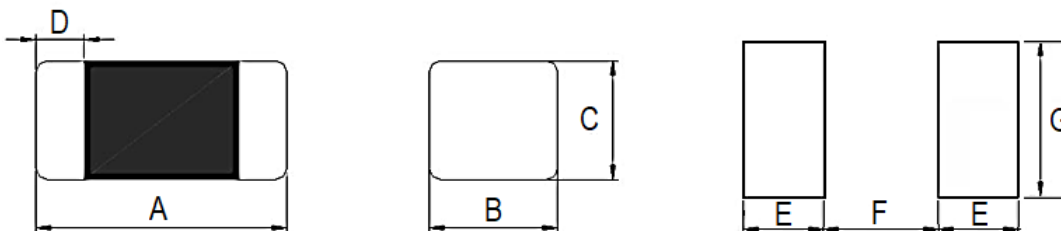
PART NUMBERING SYSTEM



SIM (1) 02 (2) 301 (3) Y (4) A10 (5) 3A (6)

No	item	Code	Description	
(1)	Product Code	SIM	Signal Inductor series, Multi-Layer Chip Ferrite Bead Type	
(2)	Dimension	02	02: 0402, 1.0x0.5mm	03: 0603, 1.6x0.8mm
(3)	Impedance	301	301: 300Ω	First two digit: Significant, Third: Multiplier
(4)	Tolerance	Y	Y: ±25%	-25% ~ +25%
(5)	Rated Current	A10	A10: 0.10A	A: Decimal
(6)	Series Code	3A	Chip Ferrite Bead, General 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±0.05	0.50±0.05	0.50±0.05	0.2±0.10	0.50	0.40	0.60
SIM03 (0603)	1.60±0.15	0.80±0.15	0.80±0.15	0.4±0.20	0.80	0.85	0.95

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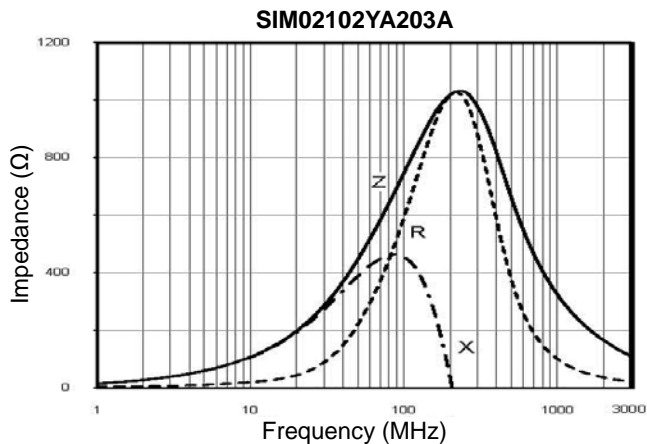
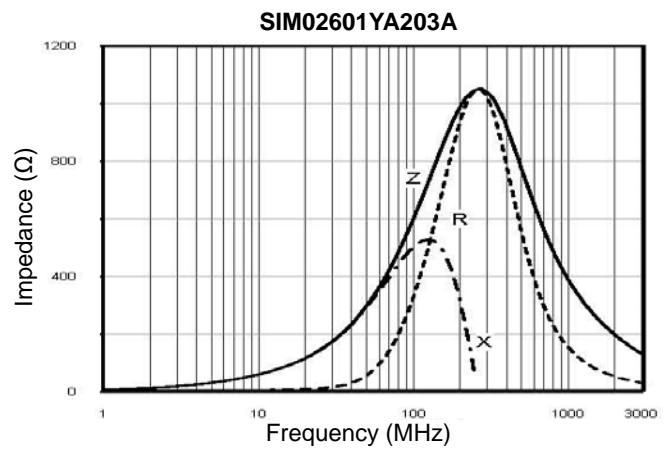
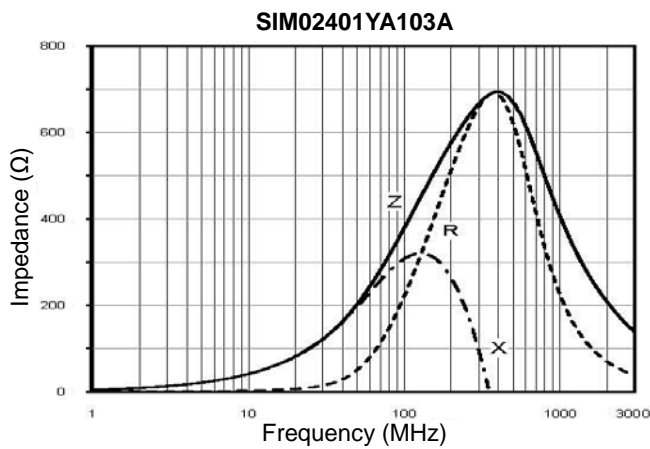
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ELECTRICAL CHARACTERISTICS

Size	Part Number	Impedance (Ω)	Tolerance (%)	Test Frequency (MHz)	DCR (Ω) Max	Rated Current (mA) Max
0402	SIM02301YA103A	300	25%	100	0.85	100
	SIM02401YA103A	400	25%	100	0.90	100
	SIM02601YA203A	600	25%	100	1.00	200
	SIM02751YA203A	750	25%	100	1.00	200
	SIM02102YA203A	1000	25%	100	1.00	200

CHARACTERISTIC CURVES



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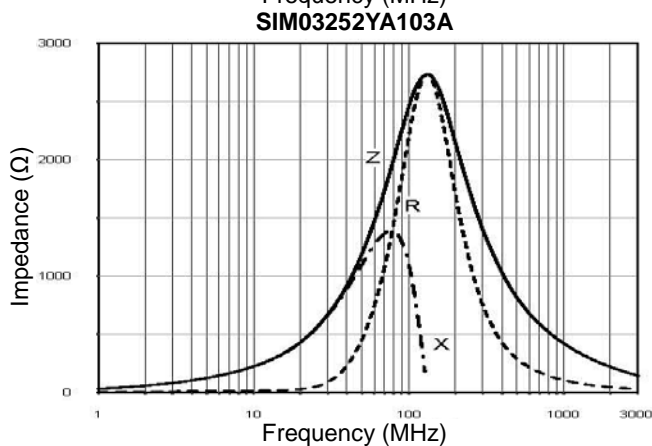
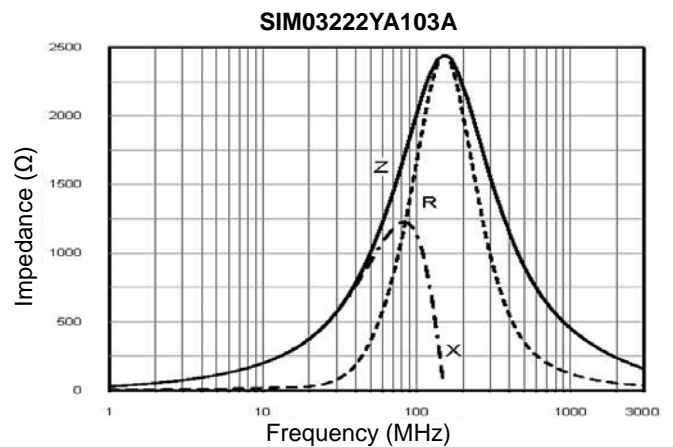
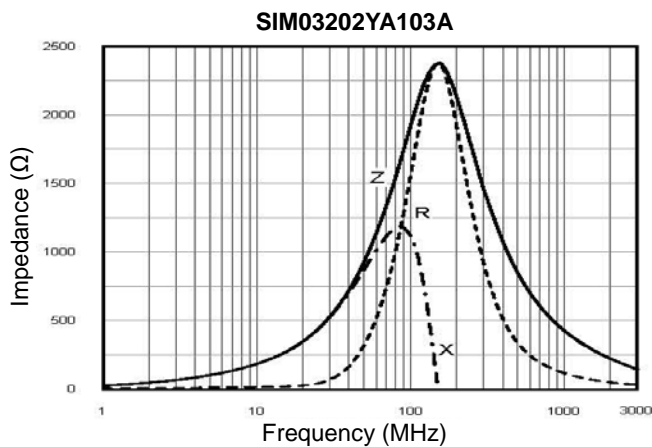
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ELECTRICAL CHARACTERISTICS

Size	Part Number	Impedance (Ω)	Tolerance (%)	Test Frequency (MHz)	DCR (Ω) Max	Rated Current (mA) Max
0603	SIM03102YA203A	1000	25%	100	0.60	200
	SIM03112YA203A	1100	25%	100	0.80	200
	SIM03152YA103A	1500	25%	100	0.90	100
	SIM03182YA103A	1800	25%	100	1.00	100
	SIM03202YA103A	2000	25%	100	1.00	100
	SIM03222YA103A	2200	25%	100	1.00	100
	SIM03252YA103A	2500	25%	100	1.00	100
	SIM03272YA053A	2700	25%	100	1.05	50

CHARACTERISTIC CURVES



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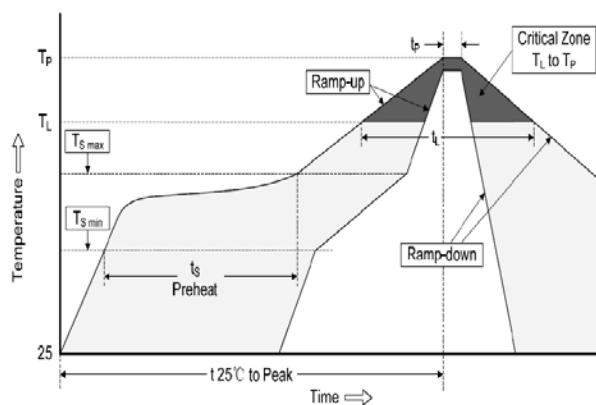
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RELIABILITY TEST CONDITON AND REQUIREMENT

Item	Test Conditions	Requirement															
Solderability	Solder: Sn-3Ag-0.5Cu, Solder temperature: 240±5°C, Depth: completely cover the termination. Dip time: 3±1sec.	More than 95% of coverage															
Resistance to Soldering Heat	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															
Vibration	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															
Shock	Test condition: <table border="1"> <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													
Terminal strength	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.															
Thermal Shock	Number of cycles: 1000. Condition for 1 cycle: <table border="1"> <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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2	Room Temp.	2 ~ 5															
3	+125±2°C	30±3															
4	Room Temp.	2 ~ 5															
Bending	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.															
Load Humidity	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															
Life Test	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.