

Chip Ferrite Bead General Type

SIM02-38 series

MERITEK

FEATURE

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



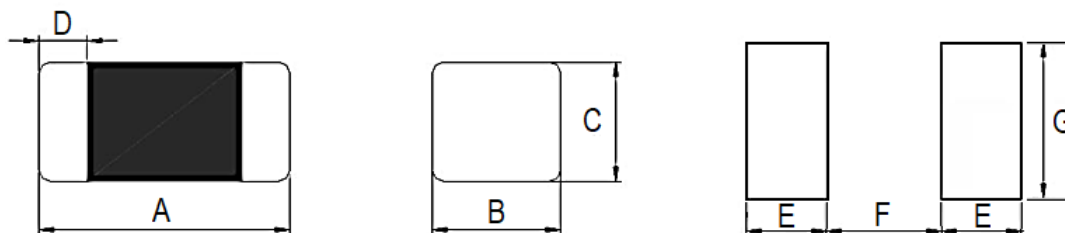
PART NUMBERING SYSTEM

SIM 02 100 Y A50 38
(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 Dimension Table
(3)	Impedence	100	100: 10Ω	First two: Significant, Third: Multiplier
(4)	Tolerance	Y	Y: ±25%	-25% ~ +25%
(5)	Rated Current	A50	A50: 0.5A	Max Current, 'A' denotes decimal point
(6)	Series Code	38	Chip Ferrite Bead	Internal Control Code

DIMENSIONS



Size Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)
SIM01 (0201)	0.60±0.03	0.30±0.03	0.30±0.03	0.1~0.2	0.35	0.30	0.40
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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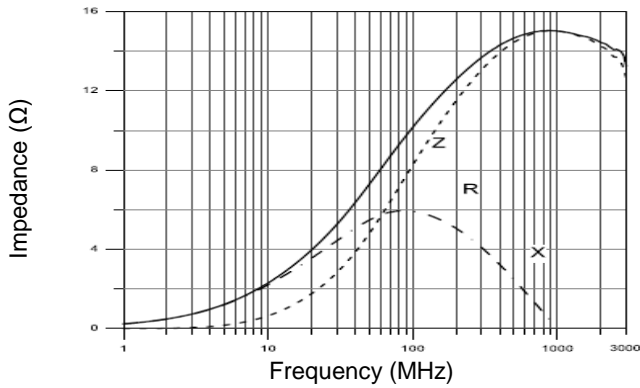
ELECTRICAL CHARACTERISTICS

Size	Part Number	Impedance (Ω)	Tolerance (%)	Test Frequency (MHz)	DCR (Ω) Max	Rated Current (mA) Max
0402	SIM02100YA5038	10	±25	100	0.05	500
	SIM02300YA30A38	30	±25	100	0.20	300
	SIM02600YA20A38	60	±25	100	0.40	200
	SIM02700YA2038	70	±25	100	0.40	200
	SIM02800YA2038	80	±25	100	0.40	200
	SIM02101YA20A38	100	±25	100	0.45	200
	SIM02121YA20A38	120	±25	100	0.50	200
	SIM02151YA2038	150	±25	100	0.60	200
	SIM02181YA1038	180	±25	100	0.65	100
	SIM02221YA10A38	220	±25	100	0.70	100
	SIM02301YA10A38	300	±25	100	0.75	100
	SIM02331YA1038	330	±25	100	0.75	100
	SIM02471YA10A38	470	±25	100	0.90	100
	SIM02501YA1038	500	±25	100	1.00	100
	SIM02601YA05A38	600	±25	100	1.10	50
	SIM02102YA0538	1000	±25	100	1.50	50
	SIM02300YA30B38	30	±25	100	0.20	300
	SIM02600YA20B38	60	±25	100	0.40	200
	SIM02101YA20B38	100	±25	100	0.50	200
	SIM02121YA20B38	120	±25	100	0.50	200
	SIM02221YA10B38	220	±25	100	0.80	100
	SIM02301YA10B38	300	±25	100	0.85	100
	SIM02471YA10B38	470	±25	100	1.00	100
	SIM02601YA05B38	600	±25	100	1.50	50
	SIM02300YA30K38	30	±25	100	0.15	300
	SIM02600YA20K38	60	±25	100	0.30	200
	SIM02101YA20K38	100	±25	100	0.50	200
	SIM02121YA20K38	120	±25	100	0.50	200
	SIM02221YA10K38	220	±25	100	0.80	100
	SIM02301YA10K38	300	±25	100	0.85	100
	SIM02471YA10K38	470	±25	100	1.00	100
	SIM02601YA05K38	600	±25	100	1.50	50
	SIM02100YA5038	10	±25	100	0.10	500
	SIM02300YA30H38	30	±25	100	0.20	300
	SIM02600YA3038	60	±25	100	0.40	300
	SIM02101YA3038	100	±25	100	0.55	300
	SIM02121YA3038	120	±25	100	0.55	300
	SIM02221YA2038	220	±25	100	0.80	200
	SIM02301YA10H38	300	±25	100	1.00	100
	SIM02471YA0538	470	±25	100	1.50	50
SIM02601YA05H38	600	±25	100	2.50	50	

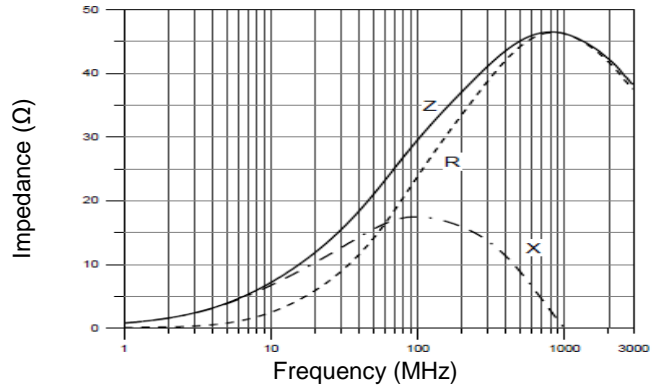
Notes: 1. Maximum Rated Current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

CHARACTERISTIC CURVES

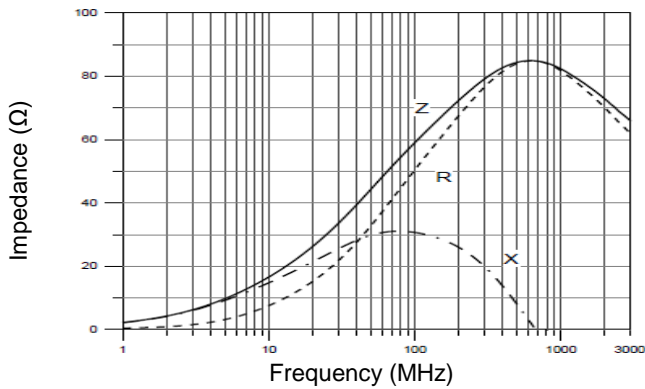
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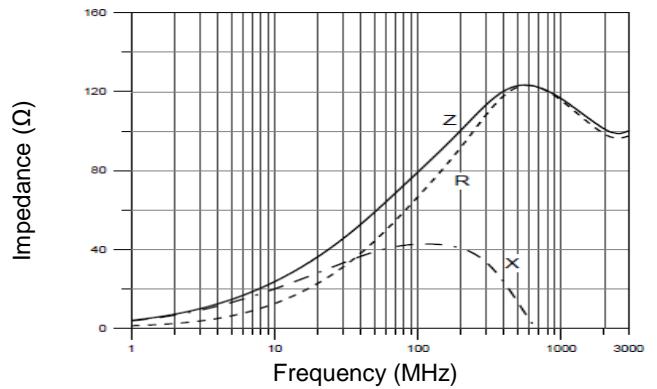
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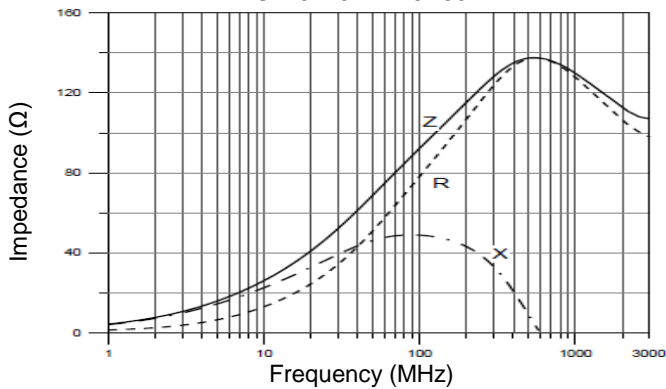
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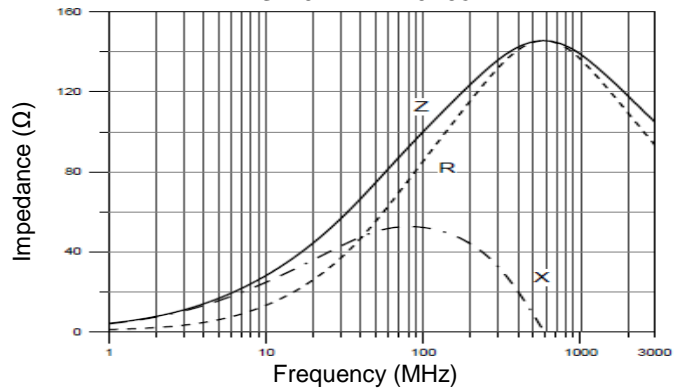
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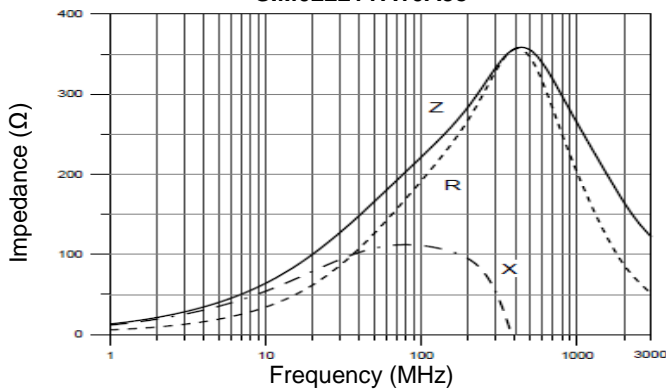
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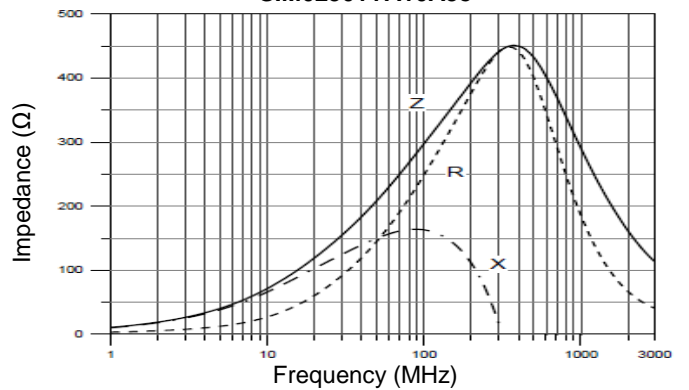
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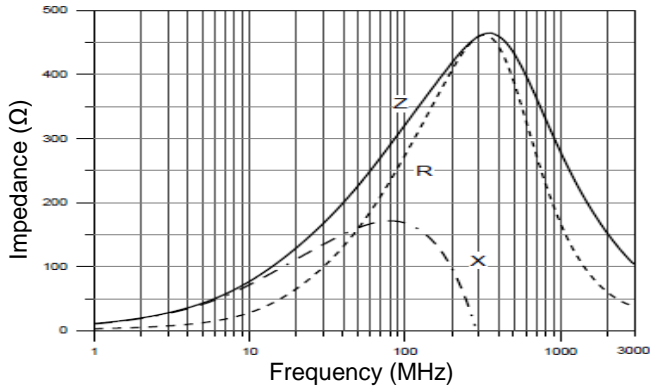


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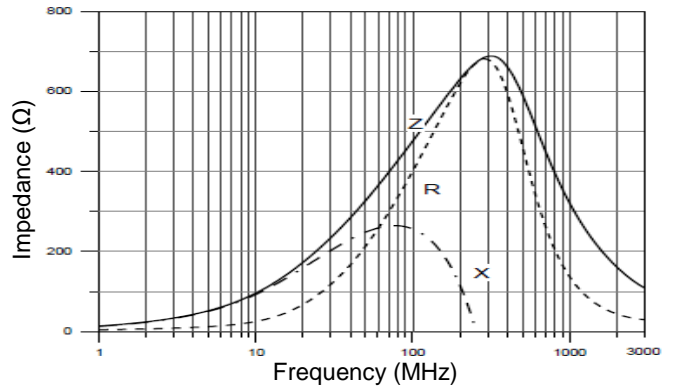


CHARACTERISTIC CURVES

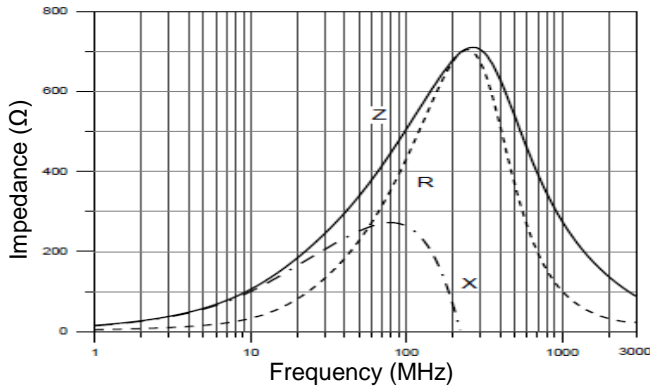
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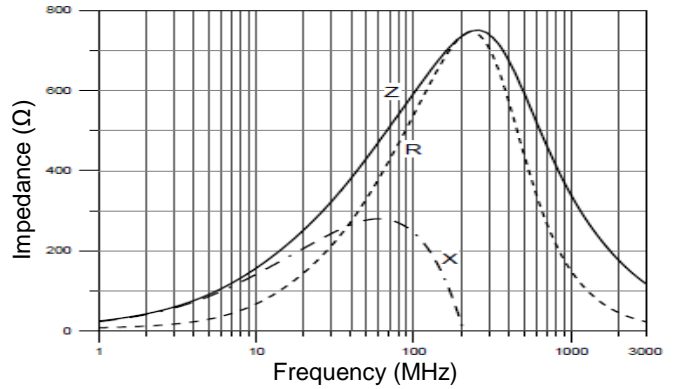
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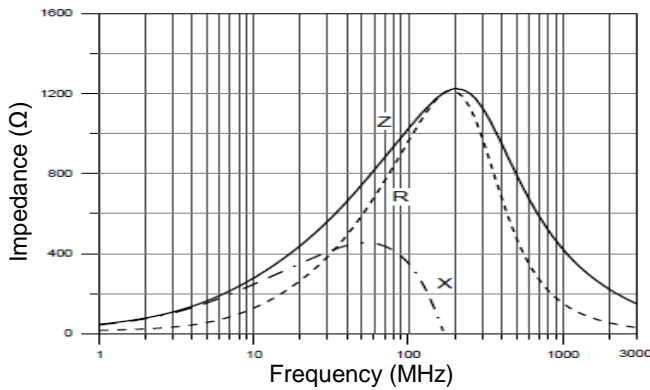
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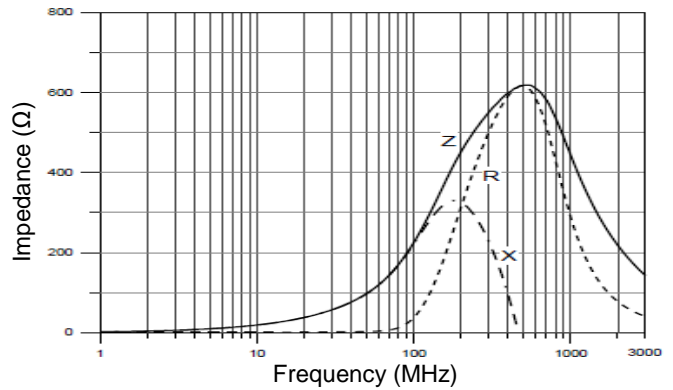
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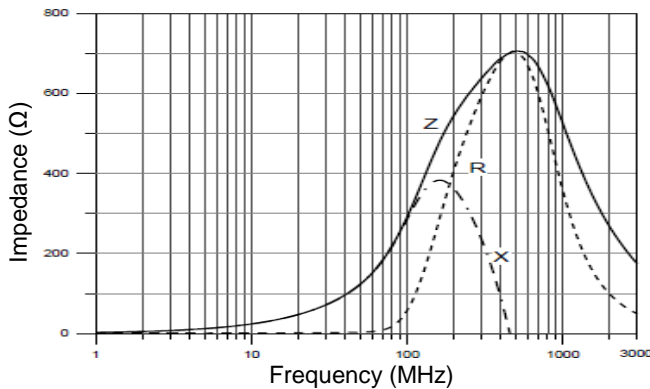
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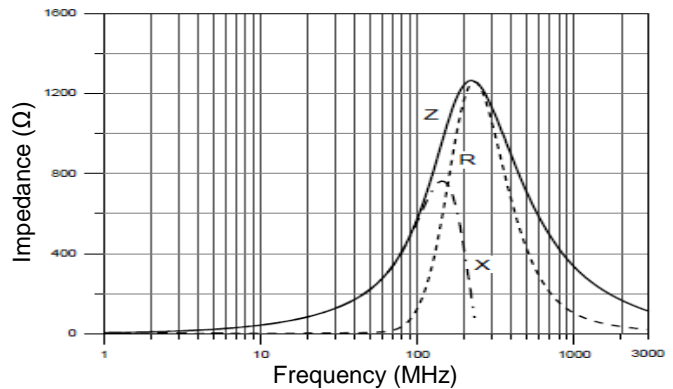
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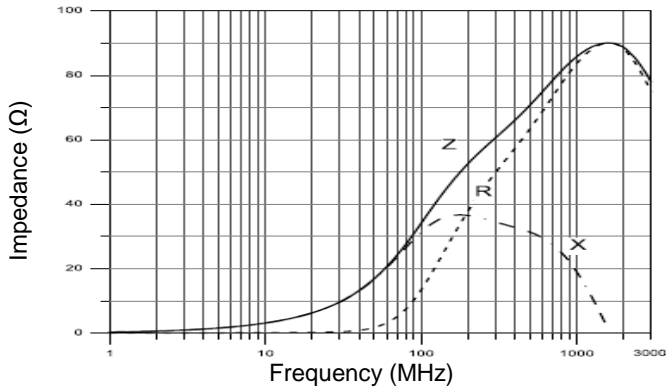


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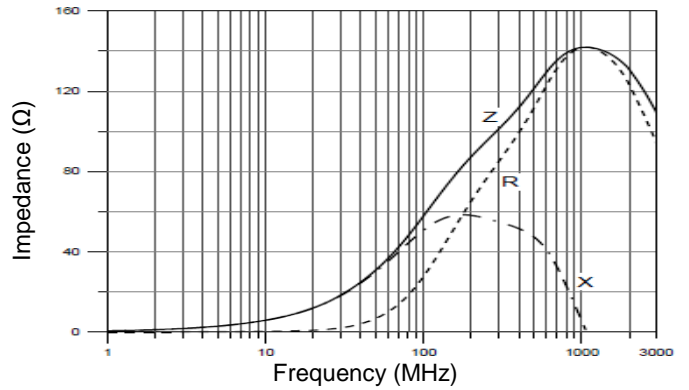


CHARACTERISTIC CURVES

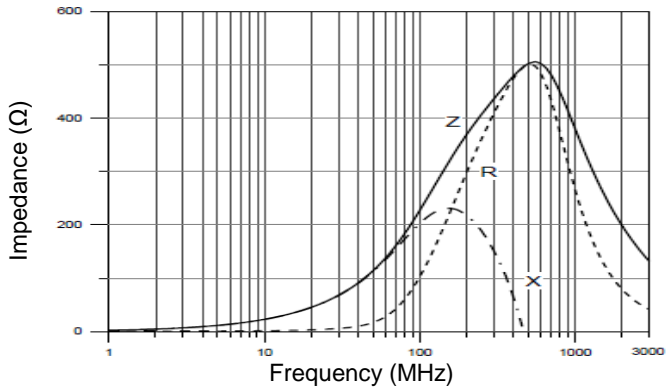
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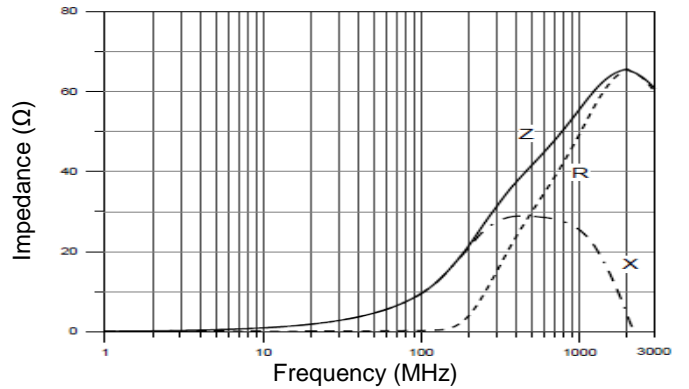
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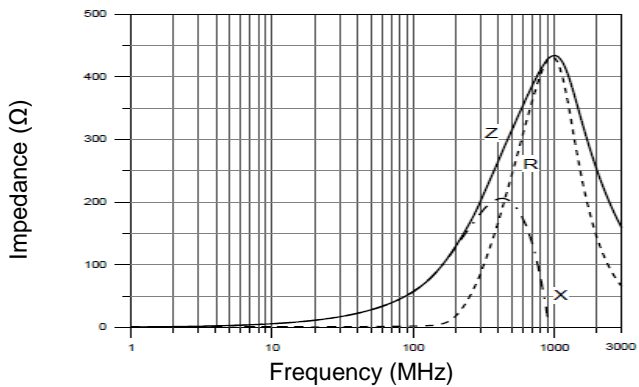
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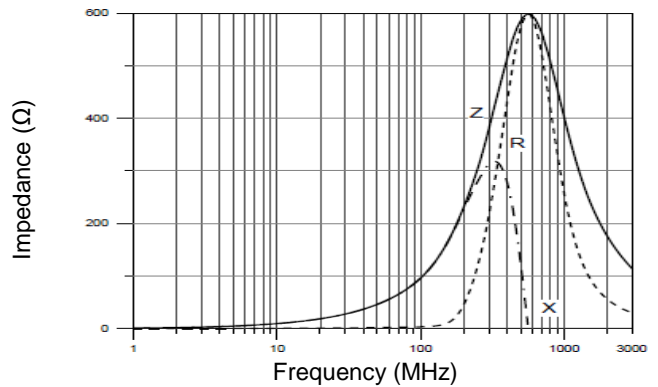
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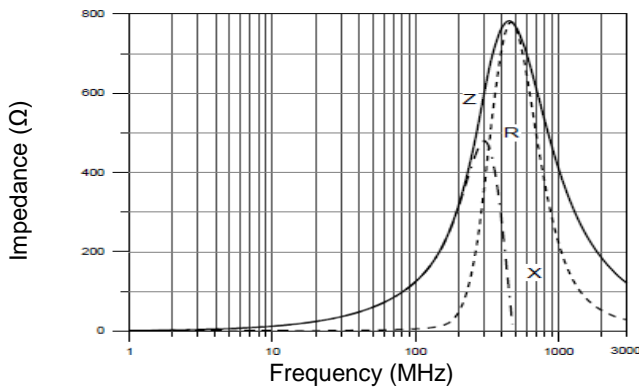
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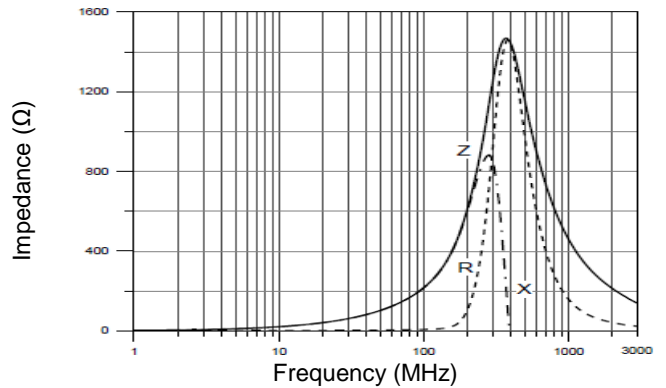
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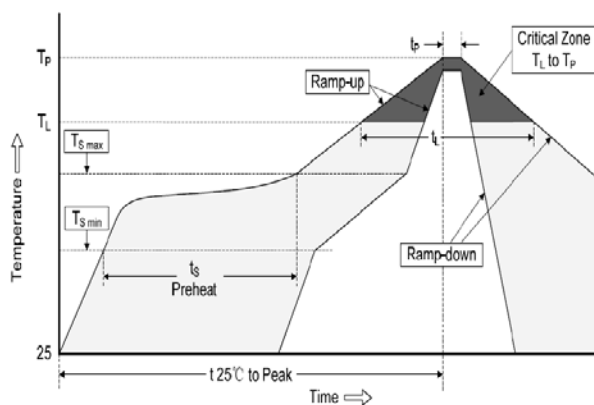


RELIABILITY TEST CONDITON AND REQUIREMENT

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" 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
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													
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" 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
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															
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.