Multilayer Ferrite Chip Inductor
High Current type

SIM03-21 Series

MERITEK

FEATURE

- Closed Magnetic Circuit Avoids Crosstalk
- Low DC Resistance
- Suitable for High Density Installation and Reflow Soldering
- Application: DC/DC Converters, Smart Phone, PAD, Power Supply

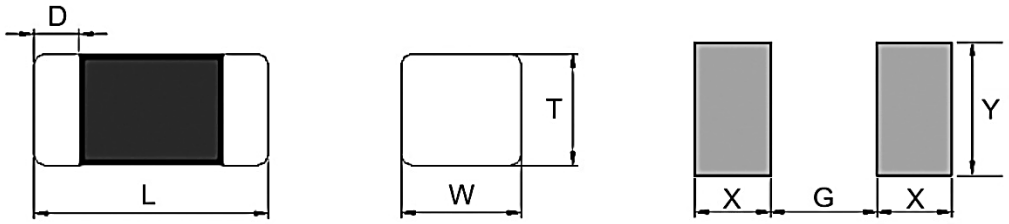
RoHS

ELECTRICAL CHARACTERISTICS

Part Number	Inductance (μH)	Test Frequency (Hz)	DCR Max(Ω) ±25%	Min SRF (MHz)	Max IDC (mA)
SIM03R24M1A221	0.24	0.1V/1M	0.100	90	1200
SIM03R47M1A221	0.47	0.1V/1M	0.100	70	1200
SIM031R0MA9521	1.00	0.1V/1M	0.200	60	950
SIM032R2MA7521	2.20	0.1V/1M	0.300	50	750

Note:
1. Rated current (IDC) based on temperature rise (ΔT: <40°C) approximately
2. Operating temperature range: -40°C ~ +85°C

DIMENSIONS



Unit: mm

L	W	T	D	G	X	Y
1.60±0.15	0.80±0.15	0.80±0.15	0.30±0.20	0.6	1.1	1.0

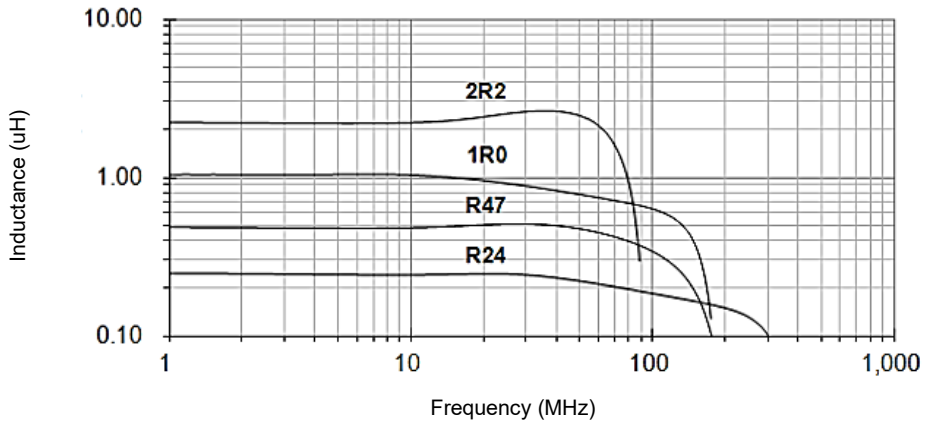
PART NUMBERING SYSTEM

SIM	03	1R0M	A95	21
(1)	(2)	(3)	(4)	(5)

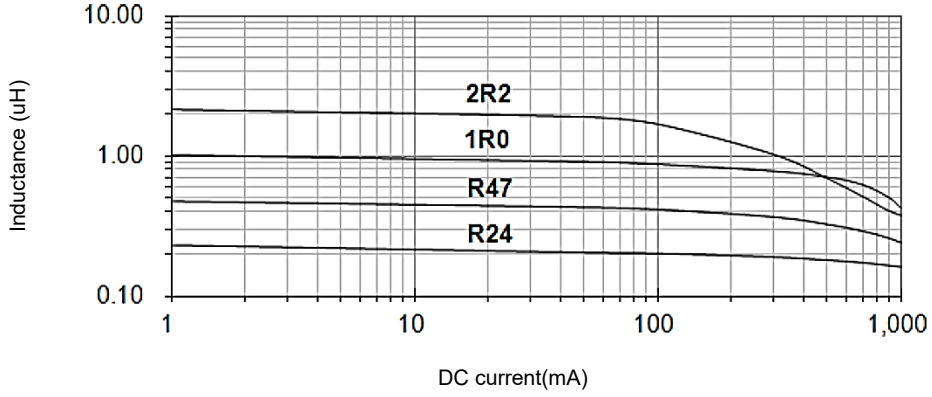
No.	Item	Code	Description	
(1)	**Product Code**	SIM	Signal Inductor Series, Multilayer type	
(2)	**Size Code**	03	03: 0603, 1.6x0.8mm	See Dimensions Table
(3)	**Inductance**	1R0M	1R0:1.0uH ±20%(M)	First two digits: Significant, Third: Multiplier
(4)	**Rated Current**	A95	A95: 950mA	Max Current, 'A' denotes decimal point
(5)	**Series Code**	21	Ferrite Chip Inductor, High Current Type, Internal control or project reference	

CHARICTERISTIC CURVES

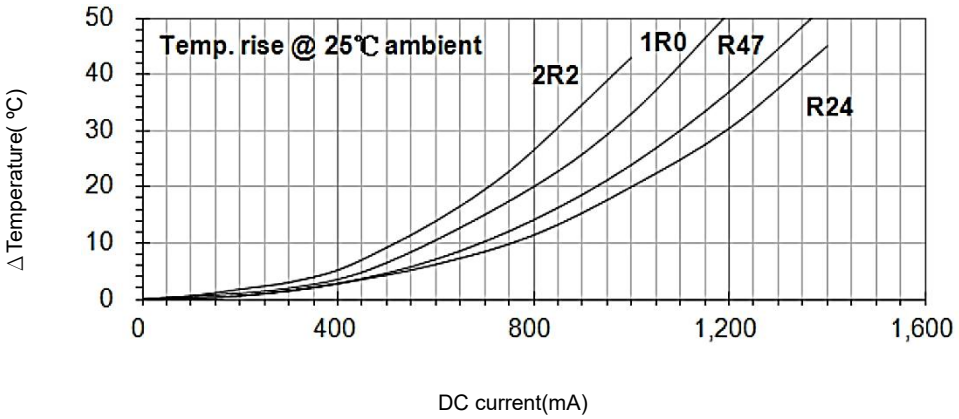
Inductance vs Frequency



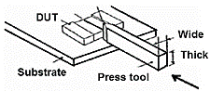
Inductance vs DC-bias



Temperature Rise vs DC-bias

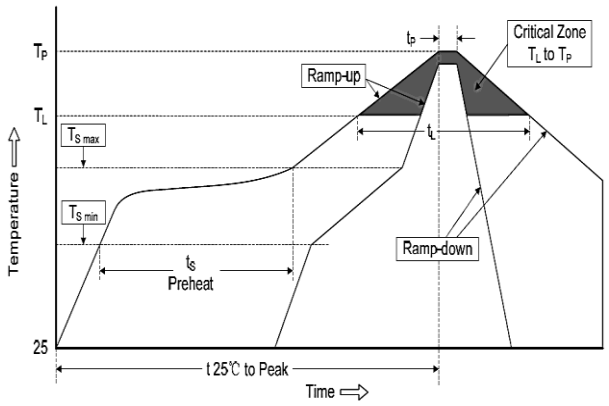


RELIABILITY

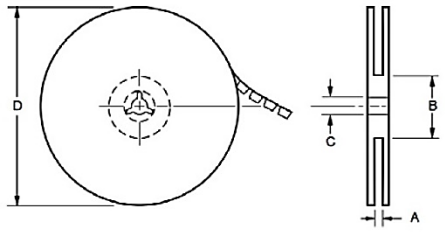
<table>
<tr><th>Item</th><th>Test Standards / Conditions / Equipment</th><th>Requirement</th></tr>
<tr><td>High Temperature Resistacne.</td><td>Temperature: 85±5˚C
Testing Time: 1000hrs
Measured after exposure in the room condition for 24hrs</td><td>Appearance: No damage
Inductance: within ±20% of initial value (L ≤0.47uH)
Inductance: within±30% of initial value (L >0.47uH)</td></tr>
<tr><td>Humidity Test</td><td>Temperature: 40±2˚C
Relative Humidity: 90~95%RH
Testing Time: 1000hrs
Measured after exposure in the room condition for 24hrs</td><td>Appearance: No damage
Inductance: within ±20% of initial value</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>Pre-heating: 260˚C, 1min.
Solder composition: Sn/3.0Ag/0.5Cu
Solder temperature: 260±5˚C
Immersion time: 10±1sec</td><td>Appearance: No damage
More than 95% of the terminal electrode should be covered with solder.
Inductance: within ±20% of initial value</td></tr>
<tr><td>Temperature Cycle</td><td>Condition for 1 cycle
<table>
<tr><td>Step</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Temperature</td><td>-40±3˚C</td><td>25±2˚C</td><td>85±3˚C</td><td>25±2˚C</td></tr>
<tr><td>Duration</td><td>30 min</td><td>3 min</td><td>30 min</td><td>3 min</td></tr>
</table>
Number of cycles: 100
Measured after exposure in the room condition for 24hrs</td><td>Appearance: No damage
Inductance: within±20% of initial value (L ≤0.47uH)
Inductance: within±30% of initial value (L >0.47uH)</td></tr>
<tr><td>Solderability</td><td>Pre-heating: 150˚C, 1min.
Solder composition: Sn/3.0Ag/0.5Cu
Solder temperature: 235±5˚C
Immersion time: 5±1sec</td><td>More than 95% of the terminal electrode should be covered with solder</td></tr>
<tr><td>Terminal Strength</td><td>Component mounted on a PCB apply a force of 5N to the side of a device being tested. This force shall be applied for 10 seconds. And the force shall be applied gradually as not to shock the component being tested.
 
</td><td>Appearance: No damage.</td></tr>
</table>

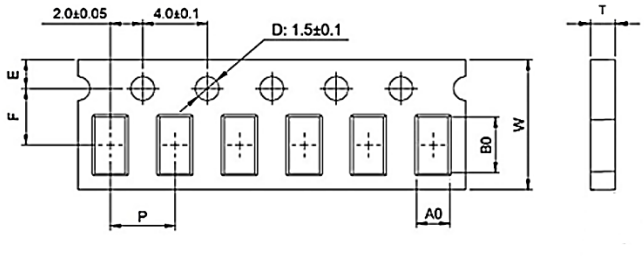
RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min. to max.) (t_s)	60~120 seconds
Average ramp up rate $T_{s(max)}$ to T_L		3°C/second max.
Average ramp up rate T_L to peak		3°C/second max.
Reflow	Temp. (T_L)	217°C
	Time (min. to max.) (t_L)	60~150 seconds
Peak Temperature (T_P)		260°C
Time within 5°C of actual peak Temperature (t_p)		3 ~5 seconds
Ramp-down Rate		6°C/second max.



PACKAGING DIMENSION





Unit: mm

Series	Reel Dimension				Tape Dimensions							Parts Per Reel
	A ±0.5	B ±0.5	C ±0.2	D ±1	W ±0.1	P ±0.1	A0 ±0.05	B0 ±0.05	E ±0.1	F ±0.1	T ±0.05	
SIM03-21	9.00	60.0	13.0	178	8.0	4.0	0.97	1.80	1.75	3.50	0.75	4000

*Specifications subject to change without notice