

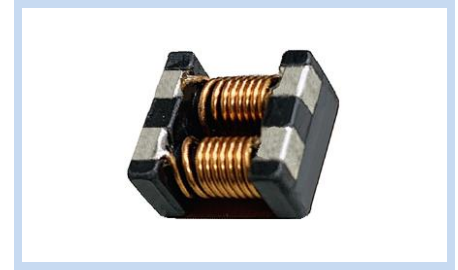
# Common Mode Filter 9.0x7.0mm

SIC-90741 series

MERITEK

## FEATURE

- Common Mode Filter For Large Current Applications
- Excellent Impedance Characteristics for Noise Suppression
- Low Profile Construction Design
- Application: High-Density Portable Devices, Personal Computers, Display Panels, DC Power Lines and Automotive Power Trains



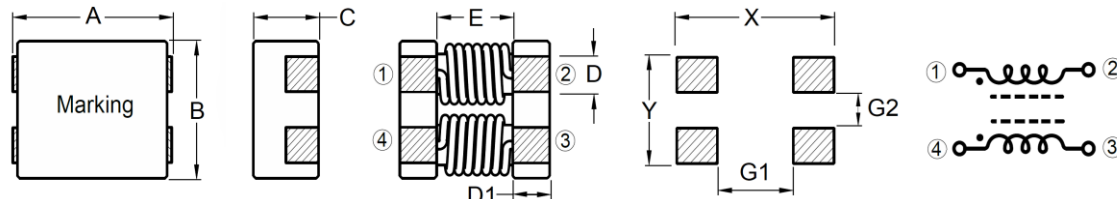
## ELECTRICAL CHARACTERISTICS – 9070

Part Number	Common Mode Impedance (Ω)		Test Frequency (MHz)	DCR Max (mΩ)	Rated Current (A) Max	Rated Voltage (Vdc) Max.	IR Min (MΩ)
	Min	Typ					
SIC3016A090741	225	300	100	6	6.0	80	10
SIC5016A090741	450	600	100	8	6.0	80	10
SIC7015A090741	500	700	100	10	5.0	80	10
SIC1024A090741	750	1000	100	13	4.0	80	10
SIC2222A590741	1700	2200	100	60	2.5	80	10
SIC2722A090741	2000	2700	100	65	2.0	80	10
SIC3023A090741	2500	3000	100	70	3.0	80	10

Notes:

1. All test data referenced to 25°C ambient.
2. Operating Temperature: -40°C ~ +125°C (Including Self-temperature rise)

## DIMENSIONS



Unit: mm

Size Code	A ±0.5	B ±0.5	C Max	D	D1	E Typ	X	Y	G1	G2
907	9.0	7.00	4.8	1.5 ±0.2	1.7 ±0.2	5.7	11	5.0	5.0	1.5

## PART NUMBERING SYSTEM

SIC   302   3A0   907   41  
(1)   (2)   (3)   (4)   (5)

No	Item	Code	Description
(1)	Product Code	SIC	Surface Mount Inductor, Common Mode Choke type
(2)	Impedance	302	3000Ω
(3)	Rated Current	3A0	3.0A
(4)	Size Code	907	9.0 X 7.0mm
(5)	Series Code	41	Common Mode Filter, for Power Line

# Common Mode Filter

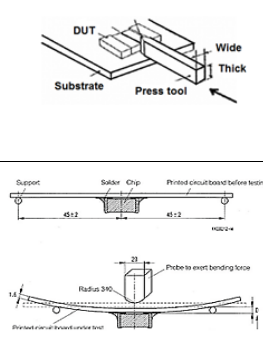
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### RELIABILITY TEST CONDITON AND REQUIREMENT

Item	Test Standards / Conditions / Equipment	Requirement															
<b>Impedance</b>	Agilent-4291A, Agilent-16197A	Refer to specification															
<b>DC Resistance</b>	Agilent-4338B	Refer to specification															
<b>I.R</b>	Agilent-4339	Refer to specification															
<b>Temperature Rise Test</b>	1. Applied the allowed DC current 2. Temperature measured by digital surface thermometer	Rated Current < 1A : $\Delta T = 20^{\circ}\text{C}$ Max Rated Current $\geq 1\text{A}$ : $\Delta T = 40^{\circ}\text{C}$ Max															
<b>Mechanical Shock</b>	<table border="1"> <thead> <tr> <th>Type</th> <th>Peak value (g's)</th> <th>Normal duration (D) (ms)</th> <th>Wave form</th> <th>Velocity change (Vi) ft/sec</th> </tr> </thead> <tbody> <tr> <td>SMD</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> <tr> <td>Lead</td> <td>50</td> <td>11</td> <td>Half-sine</td> <td>11.3</td> </tr> </tbody> </table>	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi) ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3	Appearance: No damage Impedance: within $\pm 15\%$ of initial value Inductance: within $\pm 10\%$ of initial value Q: Shall not exceed the specification value RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value
	Type	Peak value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vi) ft/sec												
SMD	50	11	Half-sine	11.3													
Lead	50	11	Half-sine	11.3													
3 shocks in each direction along 3 perpendicular axes (18 shocks).																	
<b>Solderability</b>	Method B1, 4 Hrs at $155^{\circ}\text{C}$ dry heat at $255^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Test Time: 5 +0/-0.5 seconds. Method D category 3. (steam aging 8 hours $\pm 15\text{min}$ ) at $260^{\circ}\text{C} \pm 5^{\circ}\text{C}$ Test Time: 30+0/-0.5 seconds.	More than 95% of the terminal electrode should be covered with solder.															
<b>Resistance to Soldering Heat</b>	Solder temperature: $260 \pm 5^{\circ}\text{C}$ for 10 seconds Temperature ramp/immersion and emersion rate 25mm/s $\pm 6$ mm/s. Completely cover the termination. Number of cycles: 1 heat cycle	Appearance: No damage Impedance: within $\pm 15\%$ of initial value Inductance: within $\pm 10\%$ of initial value Q: Shall not exceed the specification value RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value															
<b>Vibration</b>	Oscillation Frequency: 10~2K~10 Hz for 20 minutes Total Amplitude: $1.52\text{mm} \pm 10\%$ Testing Time: 12 hours (20 minutes, 12 cycles each of 3 orientations)																
<b>Load Humidity</b>	Humidity: $85 \pm 2\%$ R.H. Temperature: $85^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Duration: 1000Hrs Min at 100% rated current Measured at Room Temperature after 24 $\pm 2$ hrs	Appearance: No damage Impedance: within $\pm 15\%$ of initial value Inductance: within $\pm 10\%$ of initial value Q: Shall not exceed the specification value RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value															
<b>Life Test</b>	Temperature: $125 \pm 2^{\circ}\text{C}$ Duration: 1000Hrs Min. with 100% rated current Measured at Room Temperature after 24 $\pm 2$ Hrs																
<b>Thermal Shock</b>	Temperature: $-40 \sim 125^{\circ}\text{C}$ Dwell Time: 15minutes, Transfer Time: 20seconds Max Number of Cycles: 300cycles Measured at room temperature after placing for 24 $\pm 2$ hrs																
<b>Terminal Strength</b>	Component mounted on a PCB apply a force to the side of a device being tested. >0.805inch(2012mm): 1Kg, <=0.805inch(2012mm): 0.5Kg Duration 60 +1 seconds. The force shall be applied gradually as not to shock the component being tested.	Appearance : No damage															
<b>Board Flex</b>	Place the 100x40mm FR4 board into a fixture with the component facing down. Apply a force which will bend the board: >=0.805in(2012mm): 1.2mm <0.805in(2012mm): 0.8mm Duration: 10 seconds. The Force is to be applied only once to the board	Appearance : No damage															
<b>Moisture Resistance</b>	1. Baked at $50^{\circ}\text{C}$ for 25hrs, measure at room temp after 4hrs. 2. Raise temperature to $65 \pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs, 3. Keep at $65^{\circ}\text{C}$ for 3 hours, cool down to $25^{\circ}\text{C}$ in 2.5hrs. 4. Raise temperature to $65 \pm 2^{\circ}\text{C}$ 90-100%RH in 2.5hrs 5. Keep at $65^{\circ}\text{C}$ for 3hrs, cool down to $25^{\circ}\text{C}$ in 2.5hrs 6. Keep at $25^{\circ}\text{C}$ for 2hrs then keep at $-10^{\circ}\text{C}$ for 3hrs 7. Keep at $25^{\circ}\text{C}$ 80-100%RH for 15min,Vibrate at the frequency of 10 to 55 Hz to 10 Hz, Measure at room temperature after 1~2 hrs.	Appearance: No damage Impedance: within $\pm 15\%$ of initial value Inductance: within $\pm 10\%$ of initial value Q: Shall not exceed the specification value RDC: within $\pm 15\%$ of initial value and shall not exceed the specification value															

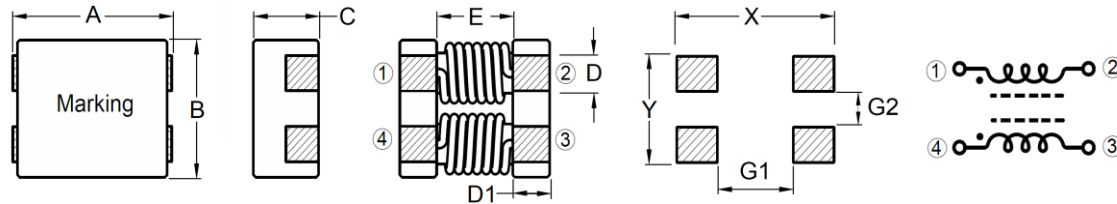


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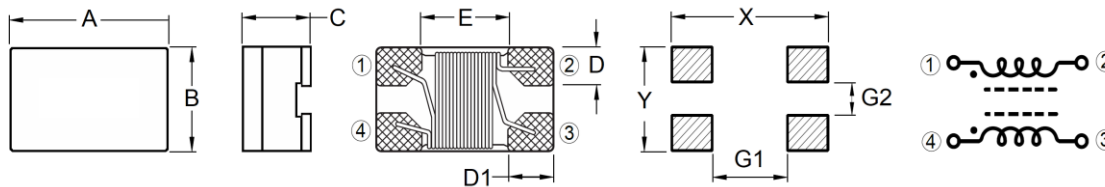
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## DIMENSIONS – SIC-41 Series



Unit: mm

Size Code	A ±0.5	B ±0.5	C Max	D	D1	E Typ	X	Y	G1	G2
121	12	10.8	6.4	2.7 ±0.2	2.5 ±0.2	7.0	12.2	8.1	6.8	2.3
70F	7.0	6.00	3.8	1.5 ±0.5	1.7 ±0.5	3.5	9.0	4.5	4.0	1.5
70C	7.0	6.00	3.8	1.5 Typ	1.7 Typ	3.5	9.0	4.5	4.0	1.5
907	9.0	7.00	4.8	1.5 ±0.2	1.7 ±0.2	5.7	11	5.0	5.0	1.5

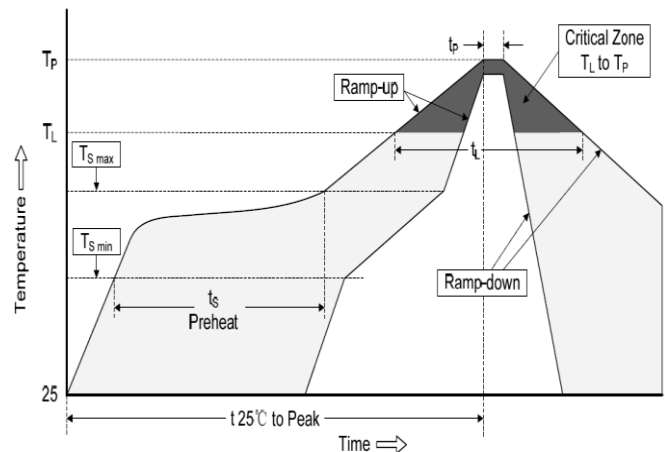


Unit: mm

Size Code	A ±0.2	B ±0.2	C ±0.2	D ±0.1	D1 ±0.1	E Typ	X	Y	G1	G2
04 (0504)	1.2	1.00	0.9	0.35	0.35	0.5	1.5	1.2	0.6	0.3
03 (0603)	1.6	0.85	1.1	0.30	0.30	1.0	2.3	0.75	0.6	0.25
05 (0805)	2.0	1.20	1.2	0.50	0.50	1.0	2.6	1.25	1.1	0.45
06 (1206)	3.2	1.60	2.0	0.50	0.50	2.2	3.7	1.6	1.9	0.4
10 (1210)	3.2	2.50	2.2	0.80	0.90	1.4	4.4	3.5	1.6	0.6
12 (1812)	4.5	3.20	2.8	1.00	1.20	2.1	4.8	3.8	2.5	0.7

## 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 (Liquidus Temperature) ( $T_L$ ) to peak		3°C/second max
$T_{s(max)}$ to $T_L$ (Ramp-up rate)		3°C/second max
Reflow	Temp. ( $T_L$ )	217°C
	Time (min. to max.) ( $t_L$ )	60 ~ 150 seconds
Peak Temperature ( $T_P$ )		See table below
Time within 5°C of actual peak Temperature ( $t_p$ )		10 seconds max
Ramp-down Rate		6°C/second max
Reflow Times		3 times max



Peak Temperature ( $T_P$ )			
Volume	< 350mm <sup>3</sup>	350-2000mm <sup>3</sup>	> 2000mm <sup>3</sup>
Thickness < 1.6mm	260°C	260°C	260°C
Thickness 1.6-2.5mm	260°C	250°C	245°C
Thickness ≥ 2.5mm	250°C	245°C	245°C

\*Specifications subject to change without notice