DATA SHEET

Wire Wound Chip Common Mode Choke Coil

P/N: RCA- 3216S-SERIES

Moisture Sensitivity Level: 1

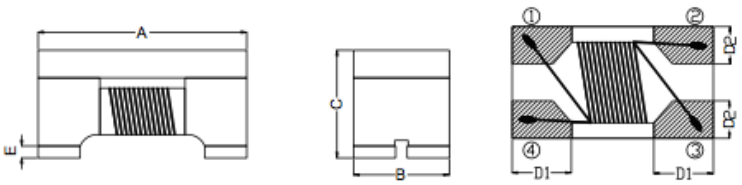
RoHS compliance.

Halogen Free available.

Qualification to AEC-Q200

*Content in this sheet are subject to change without prior notice

1. Paching Dimensions (mm)

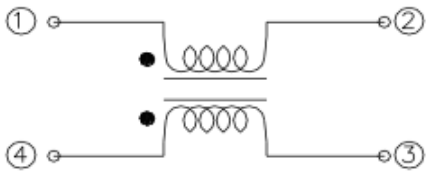


3216	Dimensions
A	3.2 ± 0.2
B	1.6 ± 0.2
C	2.0 ± 0.2
D1	0.5Typ
D2	0.5Typ

2. Part Number

RCA	–	3216	–		–	T
A		B		C		D

A: Series (RCA: For Automotive Electronics)
B: Dimension A x B
C: Impedance ±25%
D: Packing T=Taping and Reel



3. ELECTRICAL CHARACTERISTICS:

Part Number	Impedance (Ω)	Rated Current (mA) Max	Rated Volt (Vdc) Max	DCR (Ω) Max	IR (Ω) Min
RCA-3216S-900T	90	400	50	0.30	10M
RCA-3216S-121T	120	350	50	0.30	10M
RCA-3216S-161T	160	350	50	0.40	10M
RCA-3216S-221T	220	300	50	0.45	10M
RCA-3216S-261T	260	300	50	0.50	10M
RCA-3216S-361T	360	300	50	0.60	10M
RCA-3216S-601T	600	300	50	0.80	10M
RCA-3216S-102T	1000	230	50	1.00	10M
RCA-3216S-222T	2200	200	50	1.20	10M

Note:

Operating temperature : -40 to +125℃

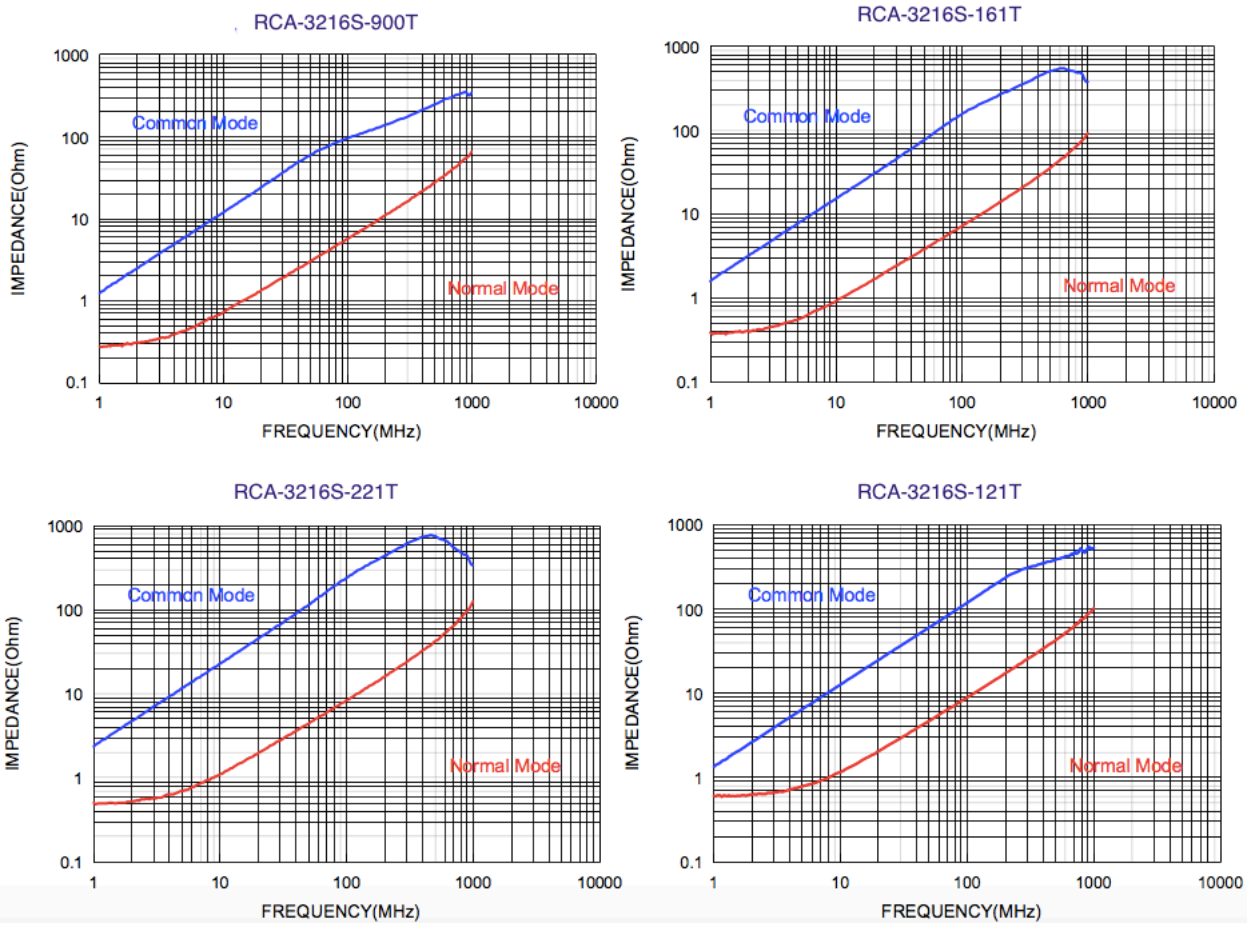
Typical Heat Rating DC Current would cause an approximately △T of 40℃

If Use Wave soldering is there will be some risk. Re-flow soldering temperatures below 240

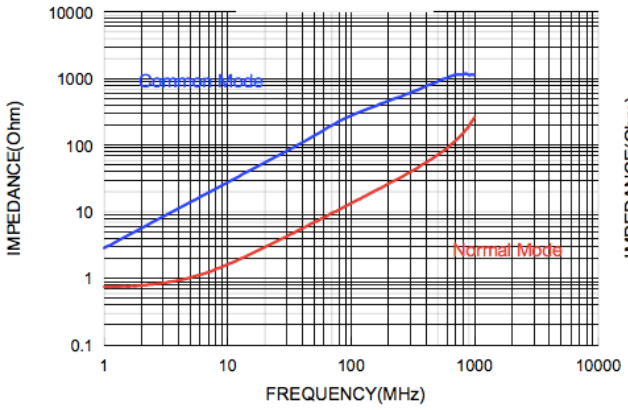
Degrees, there will be unwitting risk

Solder standard according to IPC-A-610D 8.2.1 Chip Components – Bottom Only Termination

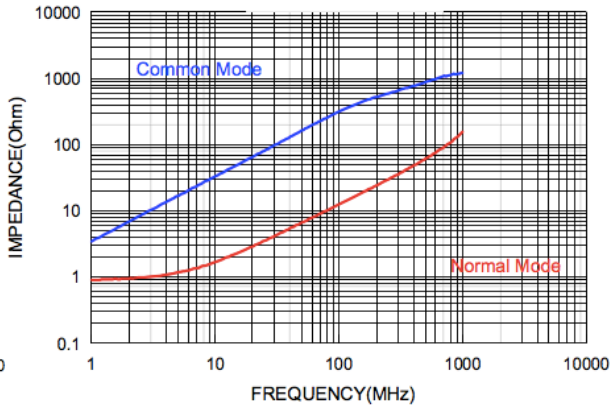
4. PERFORMANCE CURVES:



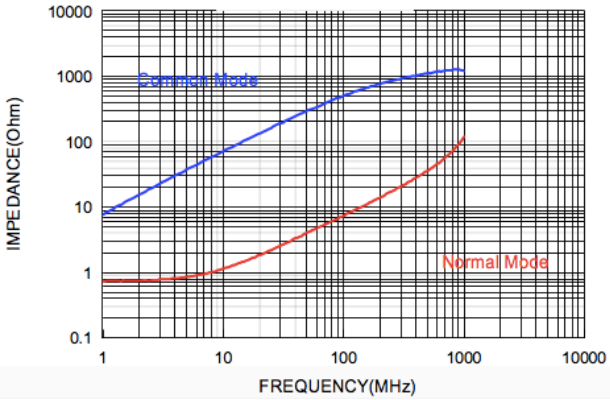
RCA-3216S-261T



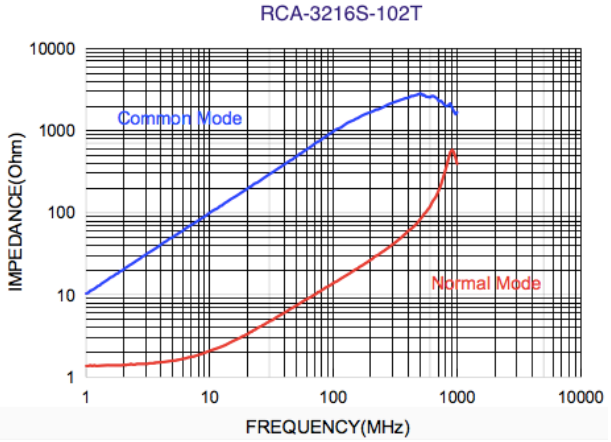
RCA-3216S-361T



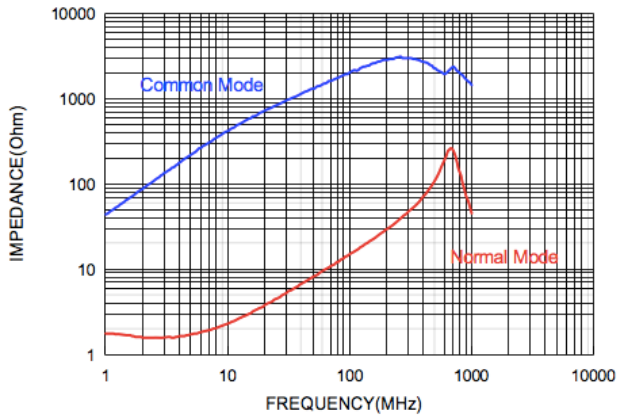
RCA-3216S-601T



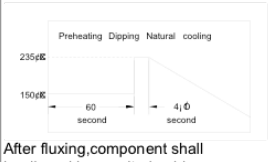
RCA-3216S-102T



RCA-3216S-222T



5. Reliabllity and Test Condition

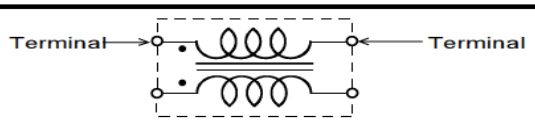
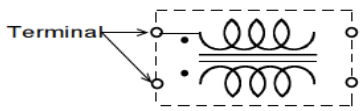
Item	Performance	Test Condition
Operating Temperature	-40 ~125℃(Including self-temperature rise)	
Electrical Performance Test		
Inductance L	Refer to standard electrical characteristic list	Agilent-4291, Agilent-4287 Agilent-4192, Agilent-4285
Q		
SRF		Agilent-4291
DC Resistance		Agilent-4338
Rated Current	Base on temp. rise & △L/L0A≦30%.	Saturation DC Current (Isat) will cause L0 to drop approximately △L(%).
Temperature Rise Test	ΔT 40 Max	Heat Rated Current (Irms) Willcausethecoil temperature rise approximately △T(℃) without core loss. 1.Applied the allowed DC current. 2.Temperature measured by digitalsurfacethermometer
Mechanical Performance Test		
Resistance to Soldering Heat MIL-STD-202 METHOD 210	1. Inductors shall be no evidence of electrical and mechanical damage. 2. Inductance : within ±10% of initial value	Temp.: 260±5℃ Time: 10±1.0 Sec
Solderability Test ANSI/J-STD-002	More than 95% of terminal electrode should be covered with solder.	 After fluxing,component shall be dipped in a melted solder bath at 235±5℃ for 4±1seconds.

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td colspan="3">Reliability Test</td></tr>
<tr><td>Humidity Test
MIL-STD-202
METHOD 103</td><td rowspan="5">1.Visual examination : No mechanical damage
2.Inductance : within±10% of initial value

Conditions for 1 cycle
<table><tr><th>Step</th><th>Temperature(℃)</th><th>Times(min.)</th></tr><tr><td>1</td><td>-55±2</td><td>30±3</td></tr><tr><td>2</td><td>Room</td><td>Within5</td></tr><tr><td>2</td><td>85±5</td><td>30±3</td></tr></table>Total:100 cycles
Measured at room temperature after placing for 2 to 3 hrs</td><td>1.Temperature : 40±2℃
2.Humidity : 90 ~ 95%
3.Time : 500 ±8hrs
4.Measured at room temperature
after placing for 2 to 3 hrs</td></tr>
<tr><td>Thermal Shock Test
MIL-STD-202
METHOD 107</td><td></td></tr>
<tr><td>High Temperature Life Test
MIL-STD-202
METHOD 108</td><td>1.Temperature : 85±2℃
2.Time : 500±8hrs
3.Measured at room temperature
after placing for 2to3 hrs</td></tr>
<tr><td>Humidity Resistance Test
MIL-STD-202
METHOD 103</td><td>Temperature:40±2℃
Humidity:90~ 95%
3.Time:500±8hr.
4.Recovery:2 to 3hrs of recovery under the standard condition after the removal from test chamber.</td></tr>
<tr><td>Low temperature Storage Test
JESD22-A119</td><td>1.Temperature : -40±2℃
2.Time : 500±8hrs
3.Measured at room temperature
after placing for 2to3 hrs</td></tr>
<tr><td>Random Vibration Test
MIL-STD-202
Method 204</td><td>Appearance: Cracking, shipping and any other defects harmful to the characteristics should not be allowed.
.Inductance : within±10%</td><td>Frequency: 10-55-10Hz for 15 min.
Amplitude: 1.52mm
Directions and times:
X, Y, Z directions for 15 min.
This cycle shall be performed 12 times
in each of three mutually perpendicular directions
(Total 9hours).</td></tr>
</table>

Terminal to be Tested

When measuring and supplying the voltage, the following terminal is applied.

<table>
<tr><th>No.</th><th>Item</th><th>Terminal to be Tested</th></tr>
<tr><td>1</td><td>Impedance (|Z|)
(Measurement Terminal)</td><td rowspan="2"> 
</td></tr>
<tr><td>2</td><td>DC Resistance (Rdc)
(Measurement Terminal)</td></tr>
<tr><td>3</td><td>Insulation Resistance (I.R.)
(Measurement Terminal)</td><td rowspan="4"> 
</td></tr>
<tr><td>4</td><td>Withstanding Voltage
(Measurement Terminal)</td></tr>
<tr><td>5</td><td>Humidity Load (Supply Terminal)</td></tr>
<tr><td>6</td><td>Heat Life (Supply Terminal)</td></tr>
</table>

6. Soldering and Mounting

1. Soldering

Mildly activated rosin fluxes are preferred.terminations are suitable for all wave and re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

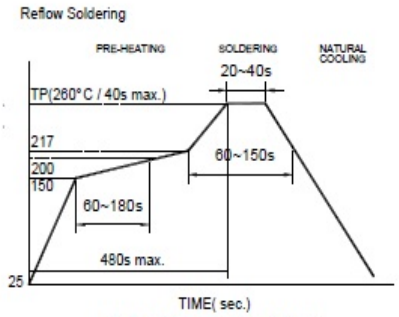
1.1 Solder re-flow:

Recommended temperature profiles for re-flow soldering in Figure 1.

1.2 Soldering Iron(Figure 2):

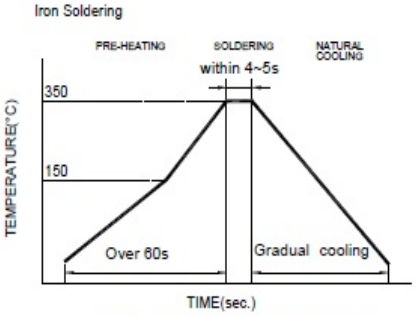
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- **Preheat circuit and products to 150°C**
- **355°C tip temperature (max)**
- **Never contact the ceramic with the iron tip**
- **1.0mm tip diameter (max)**
- **Use a 20 watt soldering iron with tip diameter of 1.0mm**
- **Limit soldering time to 4~5 sec.**



Reflow times: 3 times max.

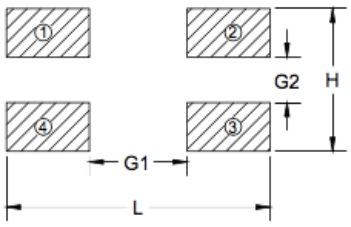
Fig.1



Iron Soldering times: 1 times max.

Fig.2

Recommended PC Board Pattern(mm)

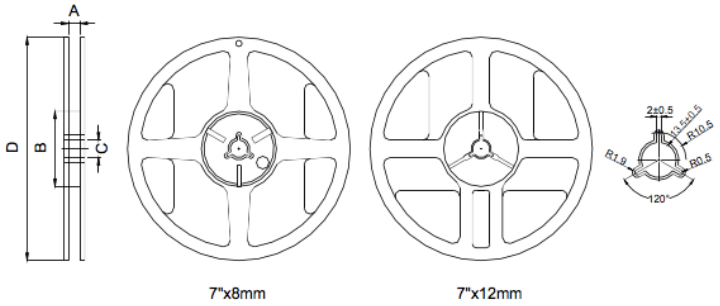


	3216
L	3.7
H	1.6
G1	1.9
G2	0.4

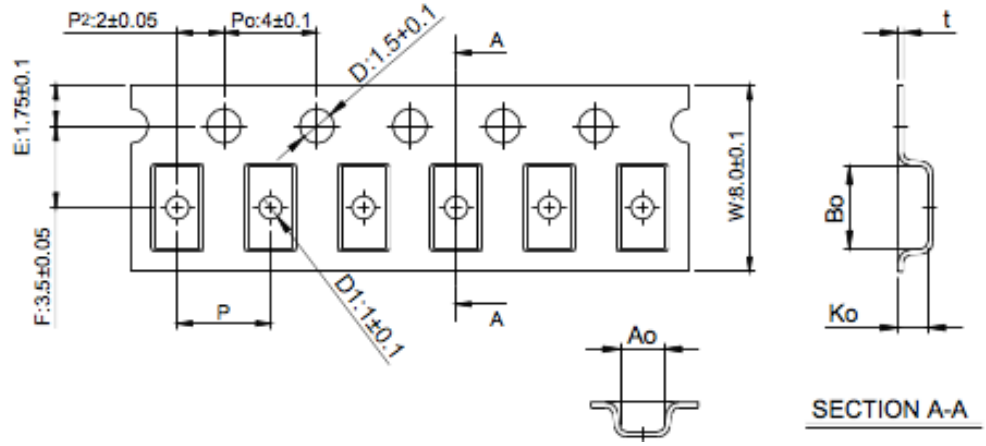
7.Packaging Information

Packaging Quantity: 2000pcs/Reel

Reel Dimension:



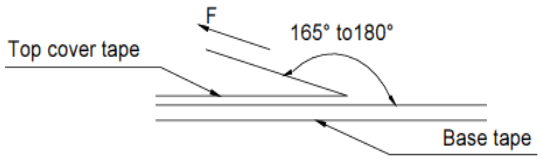
Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60±2	13.5±0.5	178±2



Part Number	Bo ±0.1	Ao±0.1	Ko±0.1	P±0.1	t±0.05
RCA-3216S	4	2	2.1	4.00	0.2

單位:mm

Tearing Off Force



The force for tearing off cover tape is 15 to 80 grams in the arrow direction under the following conditions.

Room Temp. (℃)	Room Humidity (%)	Room atm (hPa)	Tearing Speed mm/min
5~35	45~85	860~1060	300

Application Notice

- Storage Conditions

  To maintain the solderability of terminal electrodes:

  1. products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.
  2. Temperature and humidity conditions: Less than 40℃ and 60% RH.
  3. Recommended products should be used within 12 months form the time of delivery.
  4. The packaging material should be kept where no chlorine or sulfur exists in the air.

- Transportation

  1. Products should be handled with care to avoid damage or contamination from perspiration and skin oils.
  2. The use of tweezers or vacuum pick up is strongly recommended for individual components.
  3. Bulk handling should ensure that abrasion and mechanical shock are minimized.

Modify records

Version	Page	Description
V01	N/A	New issued