

CUSTOMER: _____

DATE: _____

APPROVAL SPECIFICATION



PRODUCT NAME: Winding Wire Common Mode Choke Coil

YOUR PART NO.:

OUR PART NO.: MGRC3216

VERSION: V1.0

RECEPTION THE SPECIFICATION HAS BEEN ACCEPTED. COMPANY: DATE:		
CFMD	CHKD	RCVD

MANUFACTURING NAME

SHENZHEN MICROGATE TECHNOLOGY CO., LTD

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CATALOG

	Component SPEC Version Record.....	3
1	Scope.....	4
2	Product Identification.....	4
3	Appearance, Dimensions	4
4	Electrical Schematic.....	4
5	Testing Conditions.....	5
6	Rating.....	5
7	Test Equipment.....	6
8	Reliable Performance.....	7-8
9	Recommended Soldering Conditions.....	9-10
10	Packaging.....	10-11

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2/11

Component SPEC Version Record

Rev.	Effective Date	Changed Contents	Change Reasons	Approved By
1.0	2019.06.14	New released	/	Remo

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3/11

1.Scope

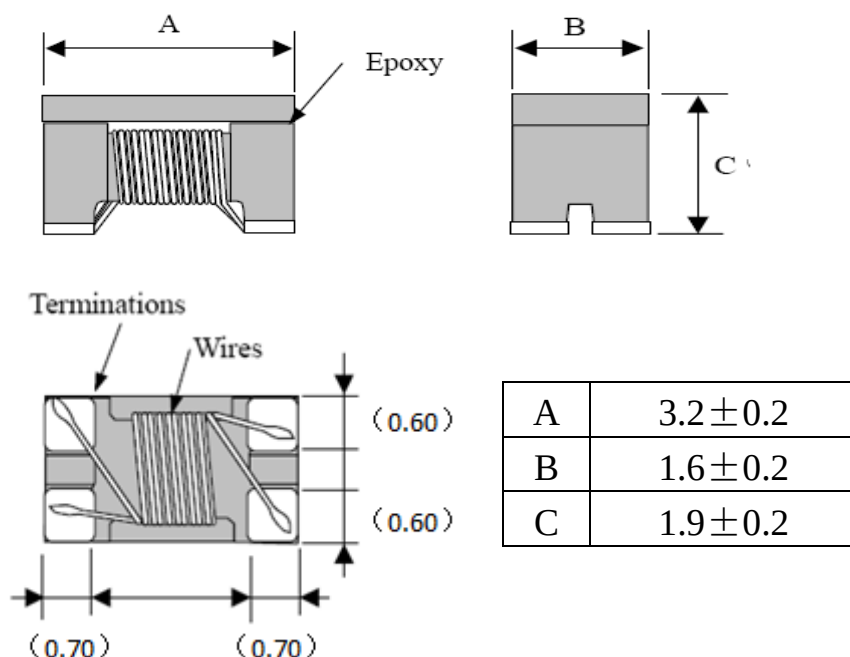
This specification applies to the MGRC3216 series of Common Mode Choke Coil.

2.Product Identification

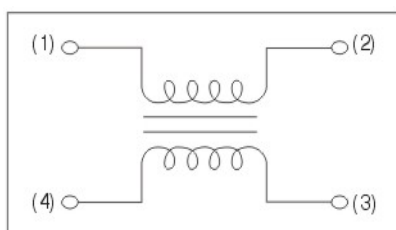
<u>MGRC</u>	<u>3216</u>	<u>M</u>	<u>□□□</u>	<u>T</u>	-	<u>2</u>	-	<u>LF</u>
①	②	③	④	⑤		⑥		⑦

- ① Series name (Wire Wound Chip Common Mode Choke Coil)
- ② Dimensions L×W: (3216:3.2mm*1.6mm)
- ③ Material code (M For Standard)
- ④ Impedance: (Example 900=90×10⁰=90Ω, 222=22×10²=2200)
- ⑤ Packing Style: (T: Taping B: Bulk)
- ⑥ Number of signal lines
- ⑦ Lead Free

3.Appearance, Dimensions



4.Electrical Schematic



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4/11

5. Testing Conditions

<Unless otherwise specified>

Temperature : Ordinary Temperature 5 to 35°C

Humidity : Ordinary Humidity 25 to 85% (RH)

<In case of doubt>

Temperature : 20±2°C

Humidity : 60 to 75% (RH)

Atmospheric Pressure : 86 to 106 kPa

6. Rating

MGRC3216M TYP

Part NO.	Common mode impedance@100MHz	Max. DC Resistance	Max. Rate Current	Rate Voltage	Min. Insulation Resistance
Units	Ω	Ω	mA	V	M Ω
MGRC3216M900T-2-LF	90±25%	0.30	370	50	10
MGRC3216M161T-2-LF	160±25%	0.40	340	50	10
MGRC3216M261T-2-LF	260±25%	0.50	310	50	10
MGRC3216M601T-2-LF	600±25%	0.80	260	50	10
MGRC3216M102T-2-LF	1000±25%	1.00	230	50	10
MGRC3216M222T-2-LF	2200±25%	1.20	200	50	10

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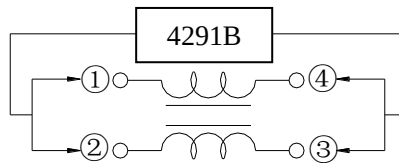
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5/11

7. Test Equipment

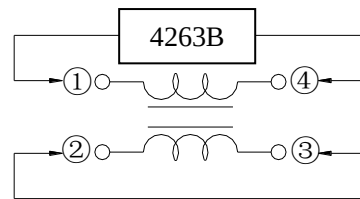
(1) Common mode impedance

Measured by using 4291B RF impedance/material analyzer



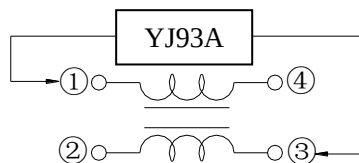
(2) DC resistance

Measured by using 4263B LCR meter

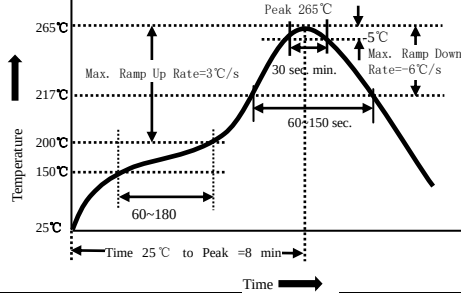
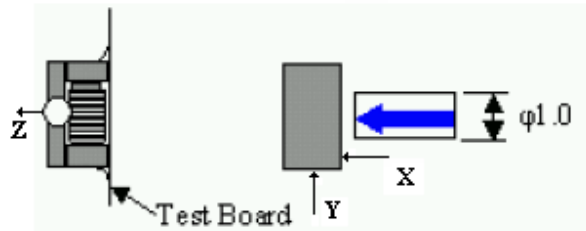
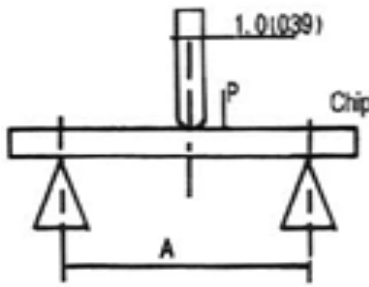


(3) Insulation resistance

Measured by using YJ93A Standard DC voltage source.



8. Reliable Performance

NO.	Item	Specifications	Test Methods
1	Solder-Ability	Terminal area shall be at least 95% covered .	Solder: 96.5% Sn +3.0%Ag+0.5%Cu Temperature: 245°C±5°C Flux: rosin Duration: 3.5±0.5s
2	Resistance to Soldering Heat	1) No case deformation or change in appearance. 2) $ \Delta Z/Z_0 \leq 20\%$	①The peak temperature: 260+5/-0°C. ②Reflow:2 times. ③Temperature curve is as below: 
3	Terminal Strength	The terminal and body should be no damage	Solder a chip to test substrate, and then laterally apply a load 10N in the X, Y and Z directions 
4	Bending Strength	No mechanical damage should be noticed	Soldering a chip to a test subatrate, bend the substrate by 2mm and then return 

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7/11

NO.	Item	Specifications	Test Methods
5	Vibration	1) No mechanical damage shall be noticed 2) $ \Delta Z/Z_0 \leq 20\%$	Frequency: 10 to 55Hz Amplitude: 1.5mm Direction and time :X, Y and Z directions for 2 hours each.
6	Humidity resistance		a. Test condition Temp.: $85 \pm 2^\circ\text{C}$ Humidity: 90%~95% Test time: 1000 ± 24 h b. Measurement method: The component should be stabilized at normal condition for (24 ± 2) hours before test.
7	High temperature resistance		a. Test condition Applied rated current. Temp.: $85 \pm 2^\circ\text{C}$ Test time: 1000 ± 24 h b. Measurement method: The component should be stabilized at normal condition for (24 ± 2) hours before test.
8	Low temperature resistance		a. Test condition Temp.: $-40 \pm 2^\circ\text{C}$ Test time: 1000 ± 24 h b. Measurement method: The component should be stabilized at normal condition for (24 ± 2) hours before test.
9	Thermal shock (Temperature cycle)		a. Test condition 1) Temp.: -40°C , time: 30 ± 3 min 2) Temp.: $+85^\circ\text{C}$, time: 30 ± 3 min 5 cycles b. Measurement method: The component should be stabilized at normal condition for (24 ± 2) hours before test.

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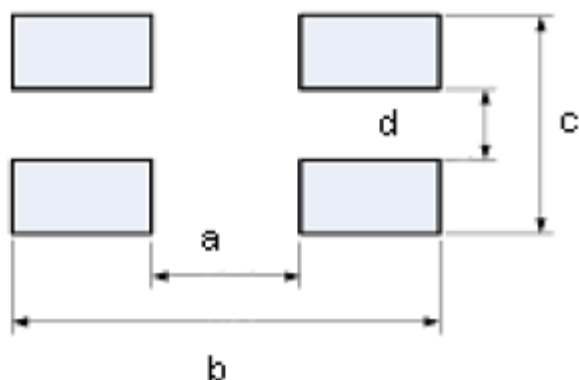
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8/11

9. Recommended Soldering Conditions

(1) Recommended Footprint



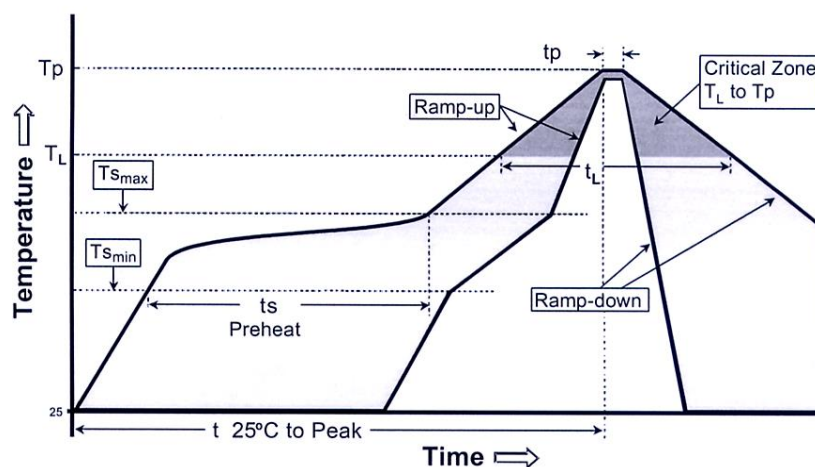
a	1.60 mm
b	3.70 mm
c	1.60 mm
d	0.40 mm

(2) Recommended Reflow soldering conditions

Profile Feature	Lead-Free Assembly
Average Ramp-Up Rate (T _{smax} to T _p)	3°C /second max.
Preheat - Temperature Min (T_{smin}) - Temperature Max (T_{smax}) - Time (t_{smin} to t_{smax}) min to t_{smax})	150 °C 200 °C 60-180 seconds
Time maintained above: - Temperature (T_L) - Time (t_L)	217 °C 60-150 seconds
Peak/Classification Temperature (T _p)	255 °C
Peak/Classification Time (T _p)	30 seconds max.
Time within 5 °C of actual Peak Temperature (t _p)	20-40 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.

Note 1: All temperatures refer to topside of the package, measured on the package body surface.

Standard soldering profile



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9/11

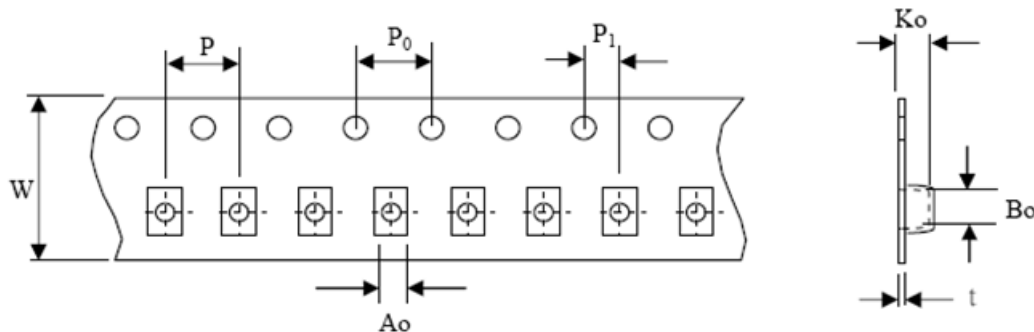
(3) Reworking with soldering iron

The following conditions must be strictly followed when using a soldering iron.

Pre-heating	150℃, 1 minute
Tip temperature	350℃ max
Soldering iron output	30w max
End of soldering iron	φ 1mm max
Soldering time	5 seconds max

10.Packaging

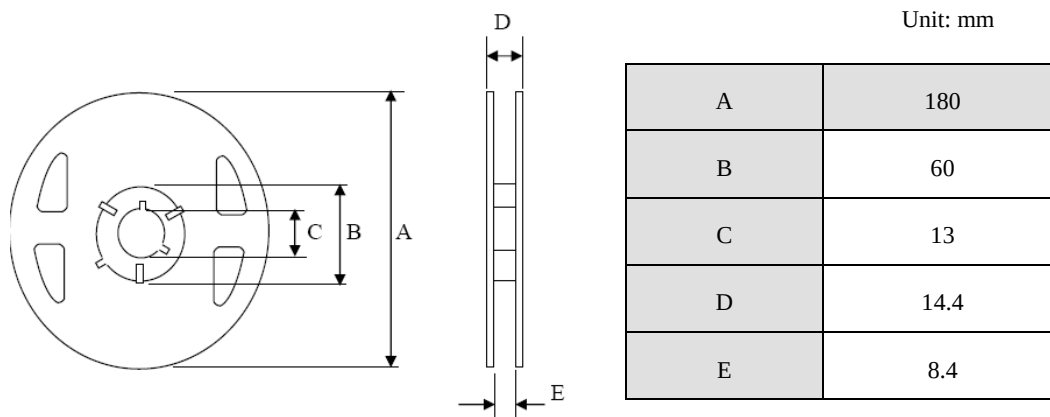
(1) Dimensions of Tape:



(Dimensions in mm; Tolerance : ±0.1)

Symbol	W	P	P ₀	P ₁	A ₀	B ₀	K ₀	t
Dimension	8.0	4.0	4.0	2.0	1.95	3.55	2.35	0.21

(2) Dimensions of Reel



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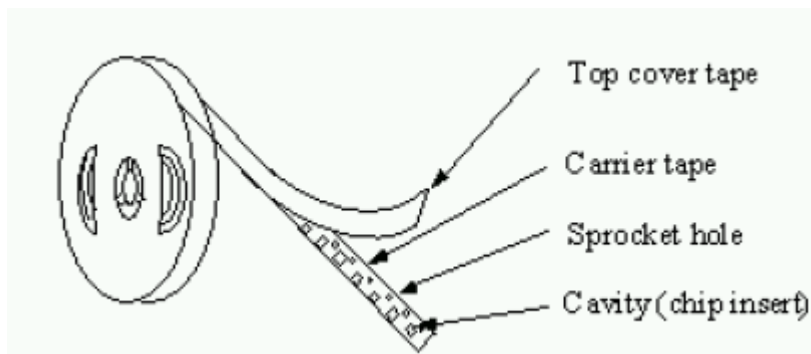
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10/11

(3) Pulling strength of tapes:

Carrier tape	10N or more (1kgf or more)
Cover tape	5N or more (1kgf or more)

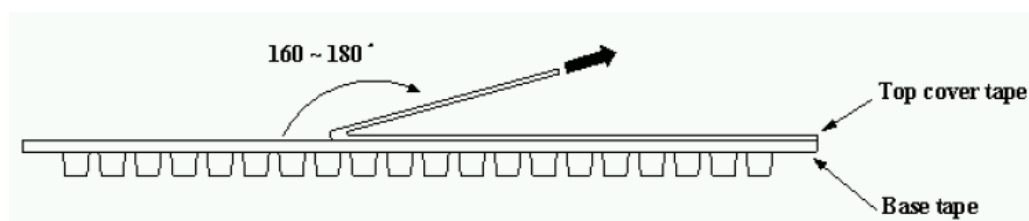
(4) Taping figure and drawing direction:



Tape material: Base tape: Polystyrene Cover tape: polyester

(5) Peeling strength of cover tape:

Cover tape	0.10~1.0N
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Test condition:

Temperature: 5~35°C

Humidity: 45~85%

(6) Packing quantity

Φ180 mm reel T type: 2000pcs/reel

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11/11