

CUSTOMER: _____

DATE: 2019.6.14 _____

APPROVAL SPECIFICATION



PRODUCT NAME: Winding Wire Common Mode Choke Coil

YOUR PART NO.:

OUR PART NO.: MGRC2012C series

VERSION: V1.0

<p>RECEPTION</p> <p>THE SPECIFICATION HAS BEEN ACCEPTED.</p> <p>DATE:</p> <p>COMPANY:</p>		
CFMD	CHKD	RCVD

MANUFACTURING NAME

SHENZHEN MICROGATE TECHNOLOGY CO., LTD

Address: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Postcode :518122

TEL: 86-755-28085000

FAX: 86-755-28085605

CFMD.	CHKD.	DSGD.
Remo	Yusheng Wang	Wei Liu

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

SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000 Fax: 0755-28085605 Postcode: 518122

2/11

Component SPEC Version Record

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

SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000 Fax: 0755-28085605 Postcode: 518122

1.Scope

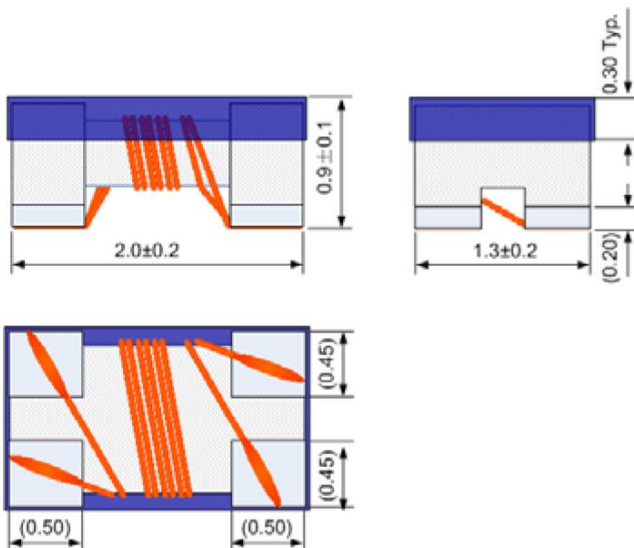
This specification applies to the MGRC2012C series of Common Mode Choke Coil.

2.Product Identification

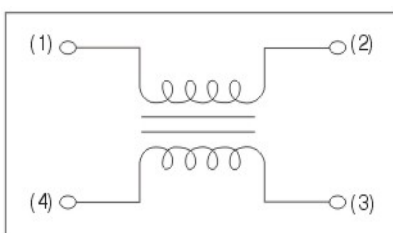
MGRC 2012 C(H) □□□ T - 2 - LF
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Series name (Wire Wound Chip Common Mode Choke Coil)
- ② Dimensions L×W: (2012=2.0×1.2 mm)
- ③ Material code (C For Coating, H For High-speed)
- ④ Impedance: (Example 900=90×10⁰=90Ω, 121=12*10¹=120)
- ⑤ Packing Style: (T: Taping B: Bulk)
- ⑥ Number of signal lines
- ⑦ Lead Free

3.Appearance, Dimensions



4.Electrical Schematic



SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000 Fax: 0755-28085605 Postcode: 518122

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

MGRC2012C TYPE

Part NO.	Common mode impedance@100MHz	Max. DC Resistance	Max. Rate Current	Rate Voltage	Min. Insulation Resistance
Units	Ω	Ω	mA	V	MΩ
MGRC2012C670T-2-LF	67±25%	0.35	330	50	10
MGRC2012C900T-2-LF	90±25%	0.35	330	50	10
MGRC2012C121T-2-LF	120±25%	0.45	280	50	10
MGRC2012C181T-2-LF	180±25%	0.50	250	50	10

MGRC2012CH TYPE

Part NO.	Common mode impedance@100MHz	Max. DC Resistance	Max. Rate Current	Rate Voltage	Min. Insulation Resistance
Units	Ω	Ω	mA	V	MΩ
MGRC2012CH670T-2-LF	67±25%	0.50	250	50	10
MGRC2012CH900T-2-LF	90±25%	0.50	200	50	10
MGRC2012CH121T-2-LF	120±25%	0.60	200	50	10

SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000

Fax: 0755-28085605

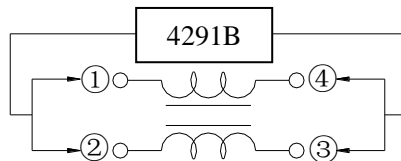
Postcode: 518122

5/11

7. Test Equipment

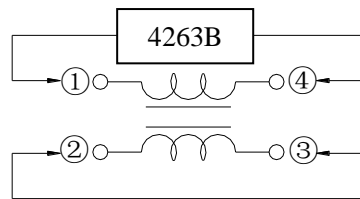
(1) Common mode impedance

Measured by using 4291B RF impedance/material analyzer



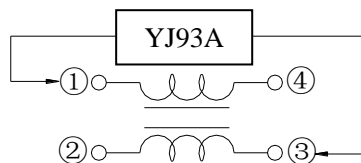
(2) DC resistance

Measured by using 4263B LCR meter



(3) Insulation resistance

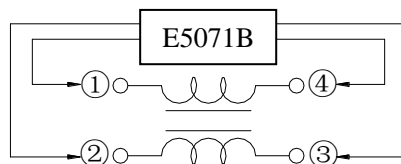
Measured by using YJ93A Standard DC voltage source.



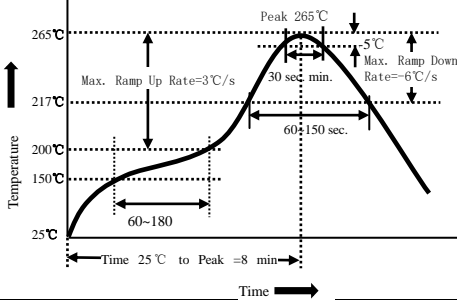
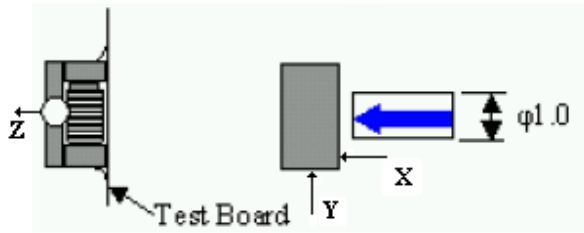
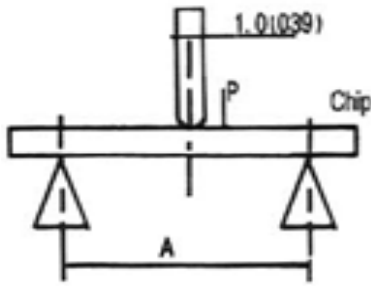
(4) Cut off frequency

Measured by using E5071B network analyzer

Cut off frequency is defined as frequency of 3dB attenuation.



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\%$	<p>①The peak temperature: 260+5/-0°C. ②Reflow:2 times. ③Temperature curve is as below:</p> 
3	Terminal Strength	The terminal and body should be no damage	<p>Solder a chip to test substrate, and then laterally apply a load 5N in the X, Y and Z directions</p> 
4	Bending Strength	No mechanical damage should be noticed	<p>Soldering a chip to a test subatrate, bend the substrate by 2mm and then return</p> 

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±2°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±2°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±2°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±3min 2) Temp.: +85°C, time: 30±3min 5 cycles b. Measurement method: The component should be stabilized at normal condition for (24±2) hours before test.

SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000

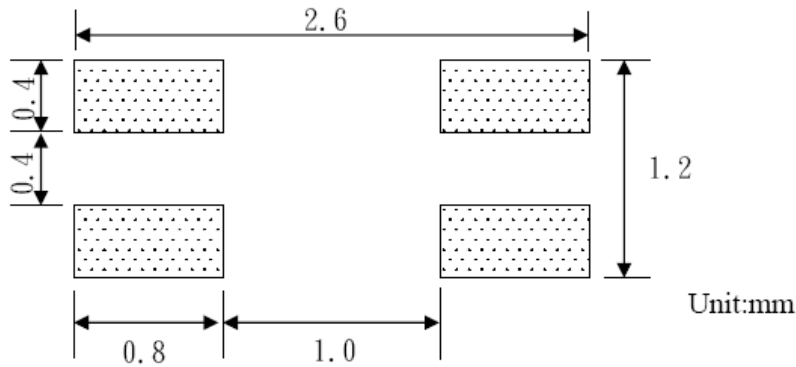
Fax: 0755-28085605

Postcode: 518122

8/11

9. Recommended Soldering Conditions

(1) Recommended Footprint

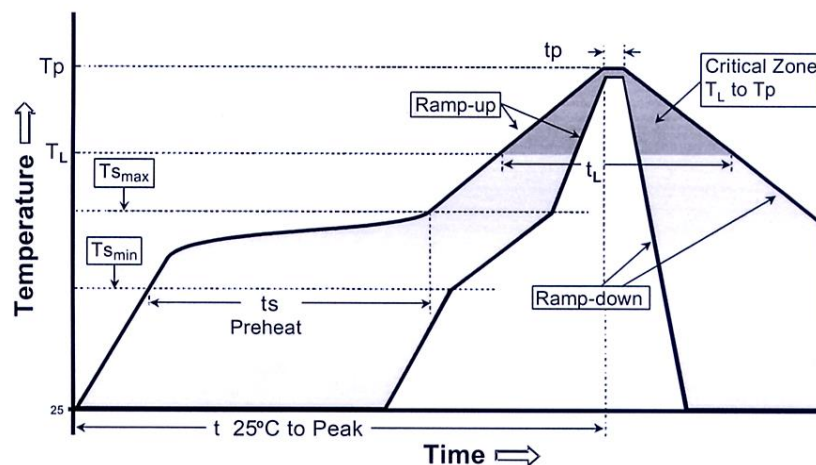


(2) Recommended Reflow soldering conditions

Profile Feature	Lead-Free Assembly
Average Ramp-Up Rate (T _{smax} to T _p)	3°C /second max.
Preheat <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - 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



SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000 Fax: 0755-28085605 Postcode: 518122

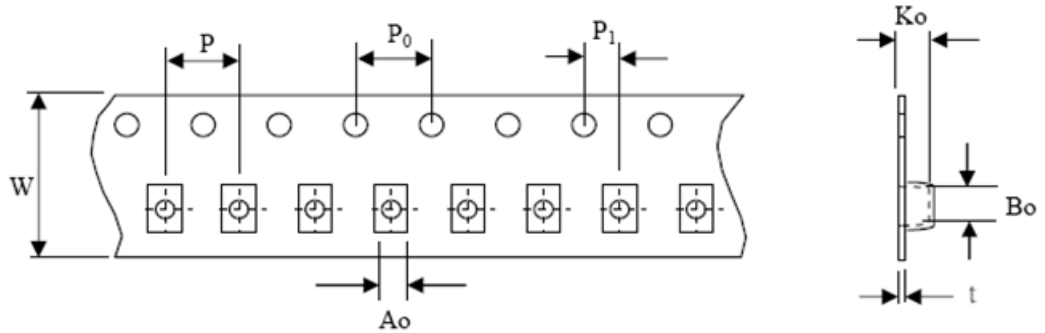
(3) Reworking with soldering iron

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

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

10.Packaging

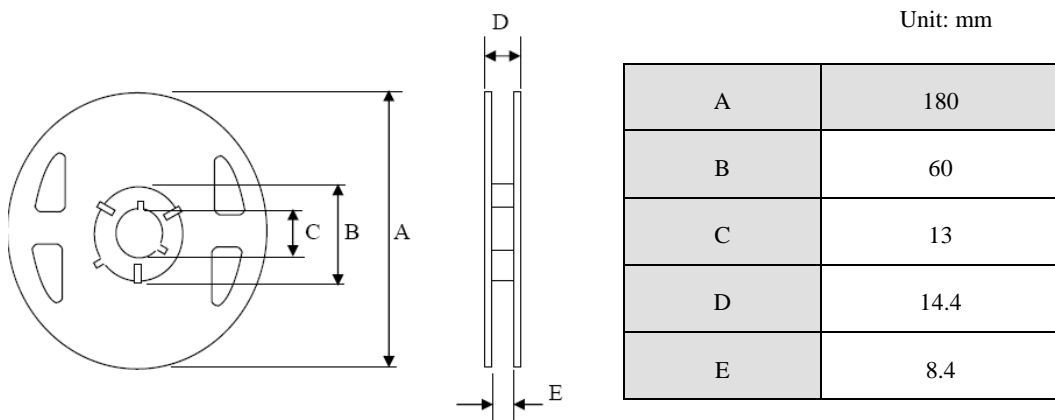
(1) Dimensions of Tape:



(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	1.5	2.25	1.15	0.24

(2) Dimensions of Reel



SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000

Fax: 0755-28085605

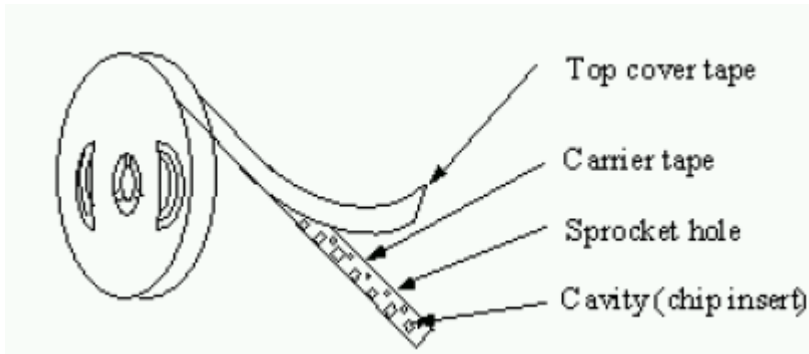
Postcode: 518122

10/11

(3) Pulling strength of tapes:

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

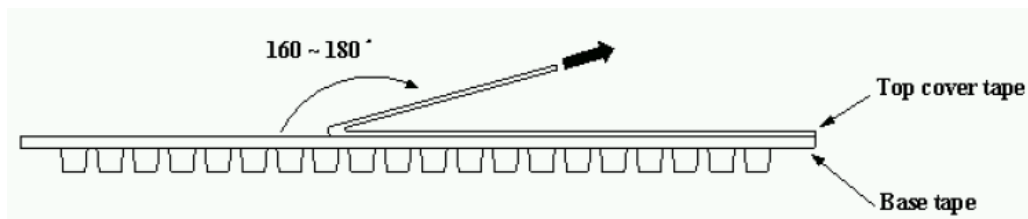
(4) Taping figure and drawing direction:



Tape material: Base tape: Polystyrene Cover tape: polyester

(5) Peeling strength of cover tape:

Cover tape	0.10~1.0N
------------	-----------



Test condition:

Temperature: 5~35°C

Humidity: 45~85%

(6) Packing quantity

Φ180 mm reel T type: 2000pcs/reel

SHENZHEN MICROGATE TECHNOLOGY COLTD.

Add: Microgate Smart Park, Technology Road, Zhukeng Community, Longtian Street, Pingshan District, Shenzhen.

Tel: 0755-28085000

Fax: 0755-28085605

Postcode: 518122

11/11