

CUSTOMER: \_\_\_\_\_

DATE: \_\_\_\_\_

# APPROVAL SPECIFICATION



PRODUCT NAME: Winding Wire Common Mode Choke Coil

YOUR PART NO.:

OUR PART NO.: MGRC2520

VERSION: V1.0

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

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### 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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## 1.Scope

This specification applies to the MGRC2520 series of Common Mode Choke Coil.

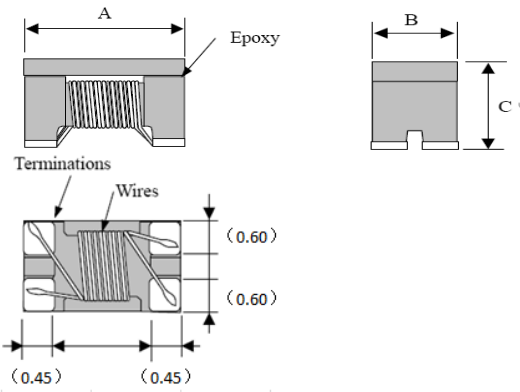
## 2.Product Identification

MGRC    2520    M    □□□    T    -    2    -    LF  
 ①            ②            ③            ④            ⑤            ⑥            ⑦

- ① Series name (Wire Wound Chip Common Mode Choke Coil)
- ② Dimensions L×W: (2520:2.5mm\*2.0mm)
- ③ Material code (M For Standard)
- ④ Impedance: (Example 900=90×10<sup>0</sup>=90Ω, 801=80\*10<sup>1</sup>=800)
- ⑤ Packing Style: (T: Taping    B: Bulk)
- ⑥ Number of signal lines
- ⑦ Lead Free

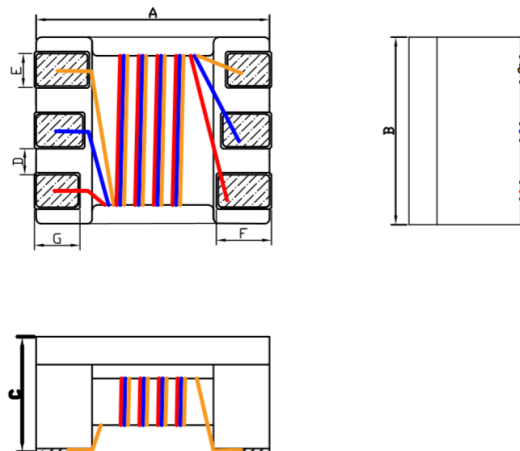
## 3.Appearance, Dimensions

### 2520-2P



A	2.5±0.2
B	2.0±0.2
C	1.2±0.2

### 2520-3P



A	2.50±0.2 mm
B	2.00±0.2 mm
C	1.20±0.1 mm
D	0.35 mm Typ.
E	0.3±0.1 mm
F	0.55±0.1 mm
G	0.45±0.1 mm

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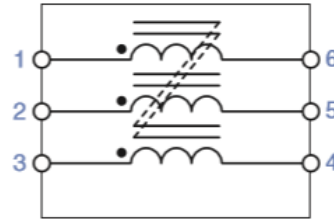
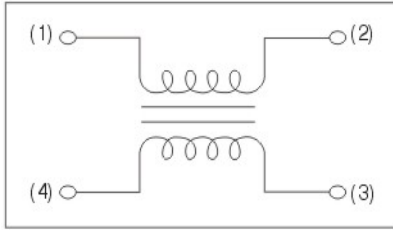
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#### 4. Electrical Schematic



#### 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

##### MGRC2520M TYP

Part NO.	Common mode impedance@100MHz	Max. DC Resistance	Max. Rate Current	Rate Voltage	Min. Insulation Resistance
Units	$\Omega$	$\Omega$	mA	V	M $\Omega$
MGRC2520M900T-2-LF	90±25%	0.15	500	50	10
MGRC2520M161T-2-LF	160±25%	0.20	450	50	10
MGRC2520M201T-2-LF	200±25%	0.20	450	50	10
MGRC2520M301T-2-LF	300±25%	0.25	400	50	10
MGRC2520M451T-2-LF	450±25%	0.30	350	50	10
MGRC2520M601T-2-LF	600±25%	0.38	330	50	10
MGRC2520M801T-2-LF	800±25%	0.44	280	50	10
MGRC2520M102T-2-LF	102±25%	0.50	240	50	10
MGRC2520M801T-3-LF	800±25%	1.60	150	50	10

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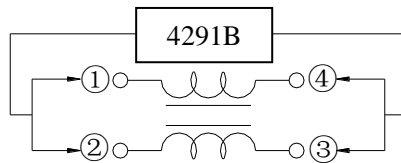
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## 7. Test Equipment

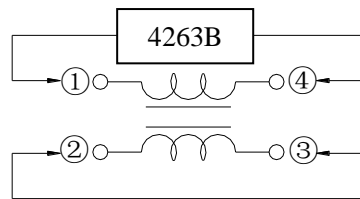
### (1) Common mode impedance

Measured by using 4291B RF impedance/material analyzer



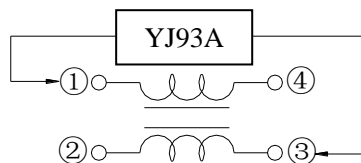
### (2) DC resistance

Measured by using 4263B LCR meter

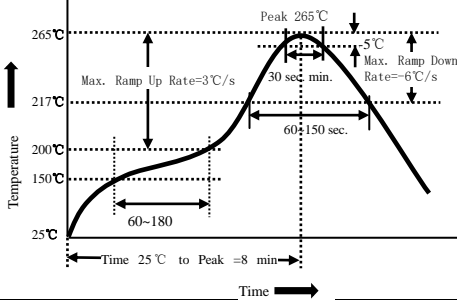
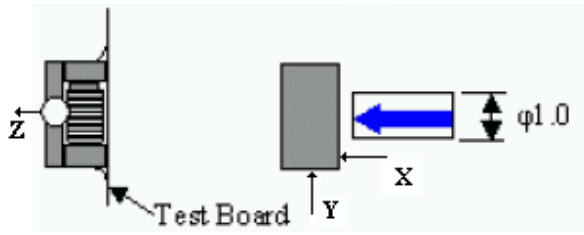
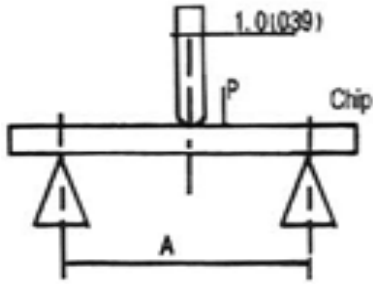


### (3) Insulation resistance

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\%$	<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> 

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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.

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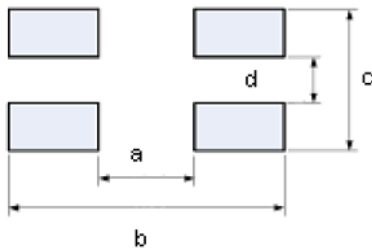
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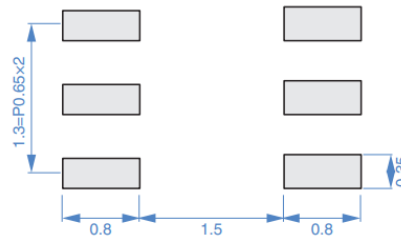


## 9. Recommended Soldering Conditions

### (1) Recommended Footprint



a	1.20 mm
b	3.20 mm
c	2.00 mm
d	0.60 mm

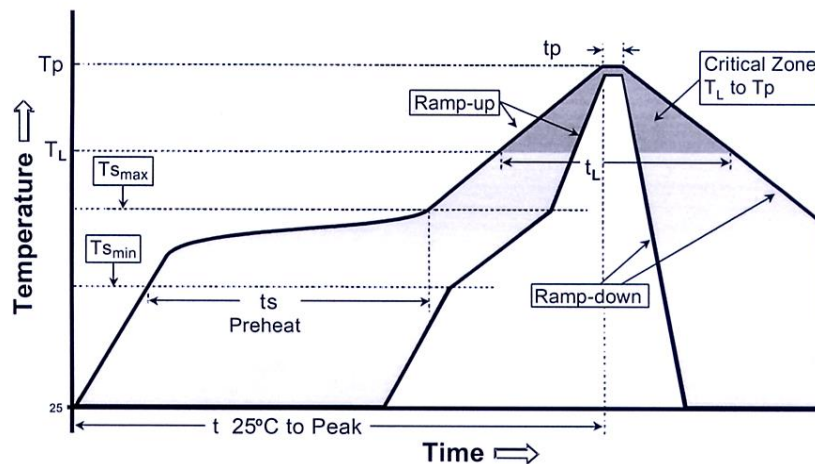


### (2) Recommended Reflow soldering conditions

Profile Feature	Lead-Free Assembly
Average Ramp-Up Rate ( T <sub>smax</sub> to T <sub>p</sub> )	3°C /second max.
Preheat <ul style="list-style-type: none"> <li>Temperature Min (T<sub>smin</sub>)</li> <li>Temperature Max (T<sub>smax</sub>)</li> <li>Time ( t<sub>smin</sub> to t<sub>smax</sub>) min to t<sub>smax</sub>)</li> </ul>	150 °C 200 °C 60-180 seconds
Time maintained above: <ul style="list-style-type: none"> <li>Temperature (T<sub>L</sub>)</li> <li>Time (t<sub>L</sub>)</li> </ul>	217 °C 60-150 seconds
Peak/Classification Temperature (T <sub>p</sub> )	255 °C
Peak/Classification Time (T <sub>p</sub> )	30 seconds max.
Time within 5 °C of actual Peak Temperature (t <sub>p</sub> )	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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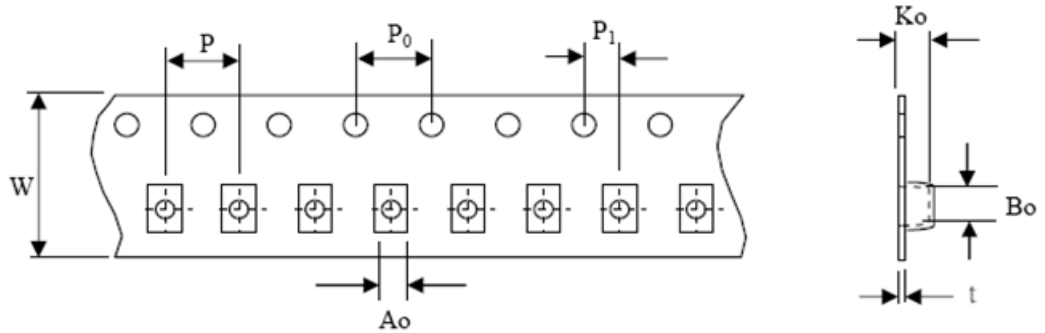
(3) Reworking with soldering iron

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

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

**10.Packaging**

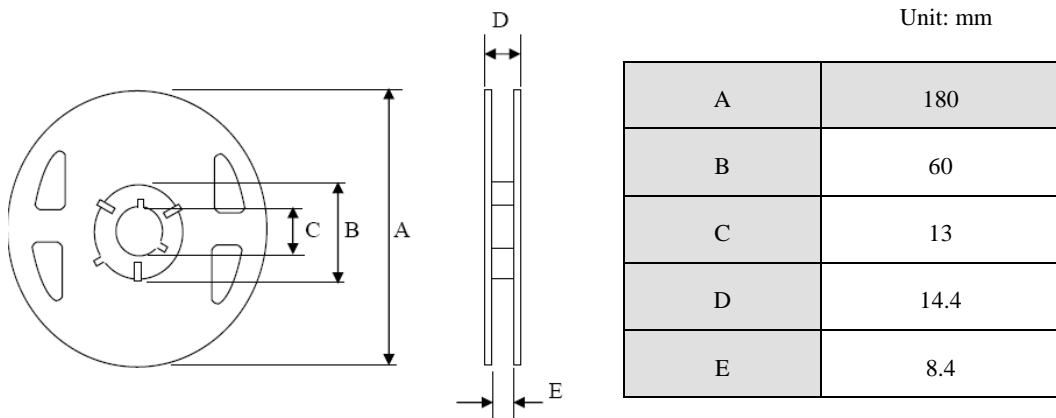
(1) Dimensions of Tape:



(Dimensions in mm; Tolerance : ±0.1)

Symbol	W	P	P <sub>0</sub>	P <sub>1</sub>	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	t
Dimension	8.0	4.0	4.0	2.0	2.35	2.85	1.55	0.21

(2) Dimensions of Reel



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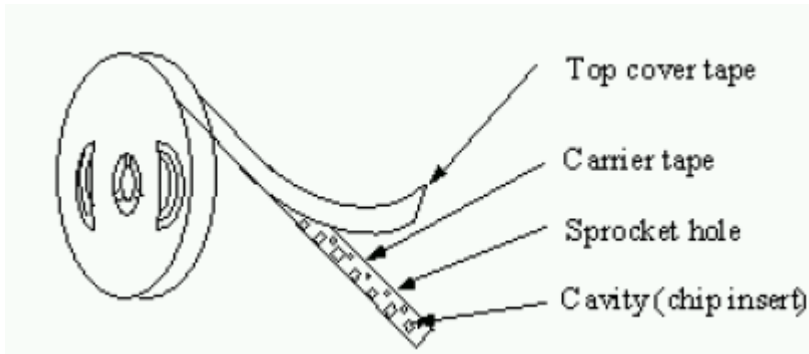
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(3) Pulling strength of tapes:

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

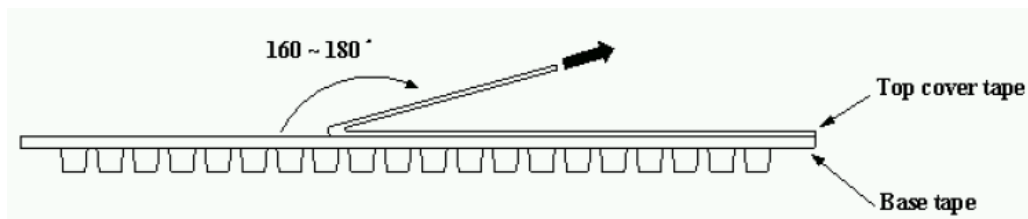
(4) Taping figure and drawing direction:



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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