Wire Wound Chip Common Mode Choke Coil
DLW5BTM §§§ TQ2 § Reference Specification

1. Scope

This reference specification applies to Wire Wound Chip Common Mode Choke Coil.

2. Part Numbering

(ex.) DL W 5B T M 102 T Q 2 L

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

(1) Chip Common Mode Choke Coil
(2) Structure (W : Winding Type)
(3) Dimension (L ™W)
(4) Type
(5) Category (M : Laser Marking Type)
(6) Impedance (Typ. at 100MHz)
(7) Circuit
(8) Features
(9) Number of Line
(10) Packaging Code L : Taping (- 180mm/reel) / K : Taping (- 330mm/reel)
B : Bulk

3.Rating

Customer Part Number	MURATA Part Number	Impedance at 10MHz, Under Standard Tesiting Conditions (min.)	Impedance at 100MHz, Under Standard Tesiting Conditions (Typ.)	Rated Voltage V(DC)	Withstanding Voltage V(DC)	>(Rated Current (A)	DC Resistance (Rdc) (max.)	Insulation Resistance (M min.)
	DLW5BTM101TQ2L DLW5BTM101TQ2K DLW5BTM101TQ2B	10	100	50	125	6	0.013	10
	DLW5BTM251TQ2L DLW5BTM251TQ2K DLW5BTM251TQ2B	20	250			5	0.020	
	DLW5BTM501TQ2L DLW5BTM501TQ2K DLW5BTM501TQ2B	30	500			4	0.027	
	DLW5BTM102TQ2L DLW5BTM102TQ2K DLW5BTM102TQ2B	60	1000			2.5	0.034	
	DLW5BTM142TQ2L DLW5BTM142TQ2K DLW5BTM142TQ2B	100	1400			2	0.056	

· Operating Temperature : - 40 °C to + 105 °C · Storage Temperature : - 40 °C to + 105 °C

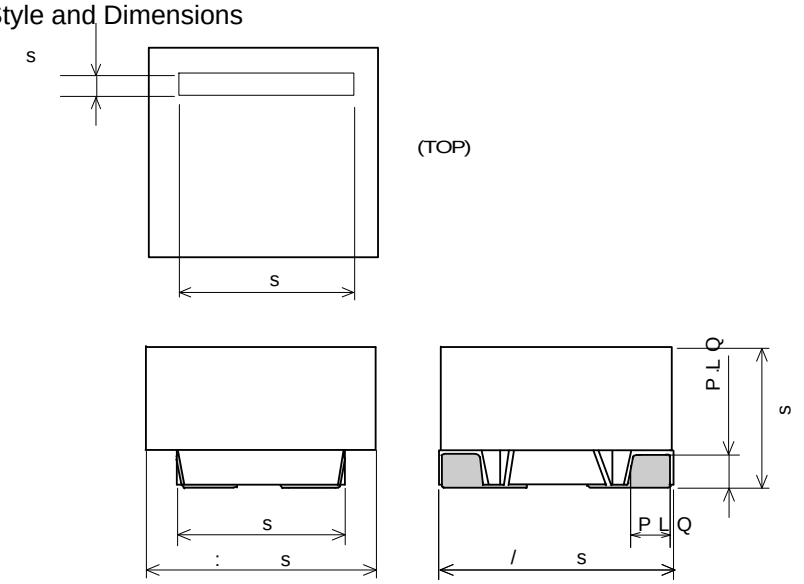
*Derating

4. Standard Testing Conditions

< Unless otherwise specified >
Temperature : Ordinary Temp. 15 ºC to 35 °C
Humidity : Ordinary Humidity 25 %(RH) to 85 %(RH)

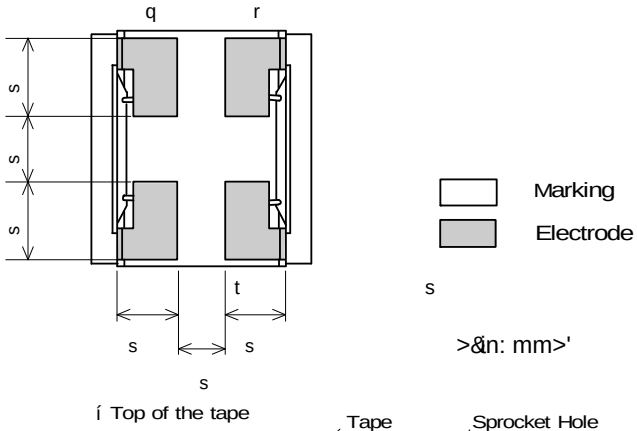
< In case of doubt >
Temperature : 20 °C ± 2 °C
Humidity : 60 %(RH) to 70 %(RH)
Atmospheric pressure : 86 kPa to 106 kPa

5. Style and Dimensions

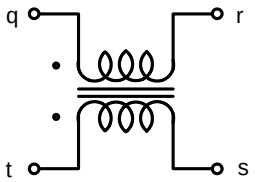


¦ Unit Mass (Typical value)

0.21g



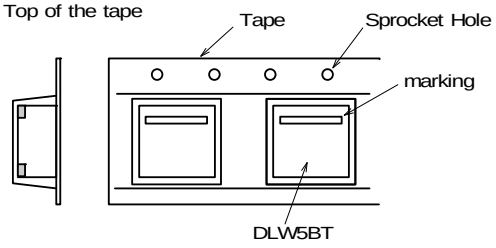
¦ Equivalent Circuites



No polarity

í Top of the tape

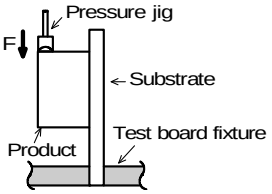
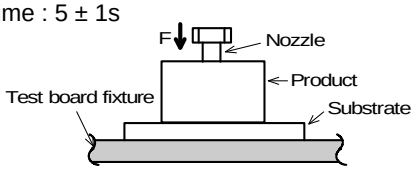
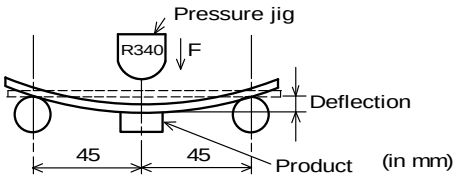
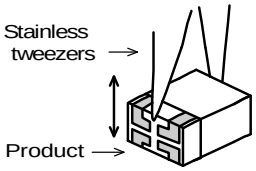
6. Marking



7. Electrical Performance

No.	Item	Specifications	Test Method
7.1	Impedance (|Z|) (at 10MHz)	Meet item 3.	Measuring Equipment :KEYSIGHT 4191A or the equivalents. Measuring Frequency : 10MHz (ref. Item 10.)
7.2	Insulation Resistance (I.R.)		Measuring Equipment : R8340A or the equivalents. Test Voltage : 100V Time : within 60 s (ref. Item 10.)
7.3	DC Resistance (Rdc)		Measuring Current : 100 mA max. (ref. Item 10.) (In case of doubt in the above mentioned standard condition,measure by 4 terminal method.)
7.4	Withstanding Voltage	Products shall not be damaged.	Voltage : 250 V(DC) Time : 60 s Charge Current : 1 mA max. (ref. Item 10.)

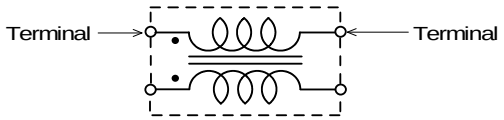
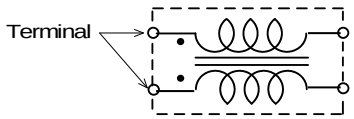
8. Mechanical Performance

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th><th>Test Method</th></tr>
<tr><td>8.1</td><td>Appearance and Dimensions</td><td>Meet item 5.</td><td>Visual Inspection and measured with Slide Calipers.</td></tr>
<tr><td>8.2</td><td>Bonding Strength and Core Strength</td><td>No evidence of chipping,breakage.
No evidence of coming off glass-epoxy substrate.</td><td>Applying Force (F) : 10N
Applying Time : 5 ± 1s
 
</td></tr>
<tr><td>8.3</td><td>Body strength</td><td>No evidence of chipping,breakage.</td><td>Applying Force (F) : 10N
Applying Time : 5 ± 1s
 
</td></tr>
<tr><td>8.4</td><td>Bending Strength</td><td>Meet Table 1.
Table 1
<table>
<tr><td>Appearance</td><td>No damaged.</td></tr>
<tr><td>Impedance change (at 10MHz)</td><td>within ± 20%</td></tr>
<tr><td>I.R.</td><td>10M min.</td></tr>
<tr><td>Withstanding Voltage</td><td>No damaged.</td></tr>
</table></td><td>Substrate : Glass-epoxy (t=1.6mm)
Deflection : 2mm
Keeping Time : 30 s
Speed of Applying Force : 0.5 mm/s
 
</td></tr>
<tr><td>8.5</td><td>Vibration</td><td></td><td>Products shall be soldered on the substrate.
Oscillation Frequency : 10 to 55 to 10Hz for 1 min.
Total Amplitude : 1.5mm
Testing Time : A period of 2 hours in each of 3 mutually perpendicular directions(Total 6 hours).</td></tr>
<tr><td>8.6</td><td>Drop</td><td></td><td>Products shall be dropped concrete or steel board.
Method : free fall
Height : 1m
The Number of Times : 10 Times</td></tr>
<tr><td>8.7</td><td>Solderability</td><td>The electrodes shall be at least 90% covered with new solder coating.</td><td>Flux : Ethanol solution of rosin,25(wt)%
Pre heating : 150 ± 10°C, 1 minute.
Solder : Sn-3.0Ag-0.5Cu
Solder Temperature : 245±5°C
Immersion Time : 4 ± 1s
Immersion and Immersion rates : 25mm/s
 
</td></tr>
<tr><td>8.8</td><td>Resistance to Soldering heat</td><td>Meet Table 1.</td><td>Flux : Ethanol solution of rosin,25(wt)%
Pre heating : 150 ± 10°C, 1 minute.
Solder : Sn-3.0Ag-0.5Cu
Solder Temperature : 270 ± 5°C
Immersion Time : 5 ± 1s
Immersion and Immersion rates : 25mm/s
Then measured after exposure in the room condition for 4 to 48 hours.</td></tr>
</table>

9. Enviromental Performance (Product shall be soldered on the glass-epoxy substrate (t=1.6mm).)

No.	Item	Specifications	Test Method
9.1	Temperature Cycle	Meet Table 1.	1 cycle 1 step : -40 °C (+0, -3)°C / 30min (+ 3,- 0) min 2 step : Ordinary temp. / 3 min max. 3 step : +105 °C (+3, -0)°C / 30min (+ 3,- 0) min 4 step : Ordinary temp. / 3 min max. Total of 100 cycles Then measured after exposure in the room condition for 4 to 48 hours.
9.2	Humidity		Temperature : 40 ± 2 °C Humidity : 90 to 95 %(RH) Time : 1000 h (+48 h , -0 h) Then measured after exposure in the room condition for 4 to 48 hours.
9.3	Humidity Load		Temperature : 40 ± 2 °C Humidity : 90 to 95 %(RH) Test Voltage : Rated Voltage Time : 1000 h (+48 h , -0 h) Then measured after exposure in the room condition for 4 to 48 hours. (ref. Item 10.)
9.4	Heat life		Temperature : 105 ± 2 °C Test Voltage : 2times for Rated Voltage Time : 1000 h (+48 h , -0 h) Then measured after exposure in the room condition for 4 to 48 hours. (ref. Item 10.)
9.5	Cold Resistance		Temperature : - 40 ± 2 °C Time : 1000 h (+48 h , -0 h) Then measured after exposure in the room condition for 4 to 48 hours. (ref. Item 10.)

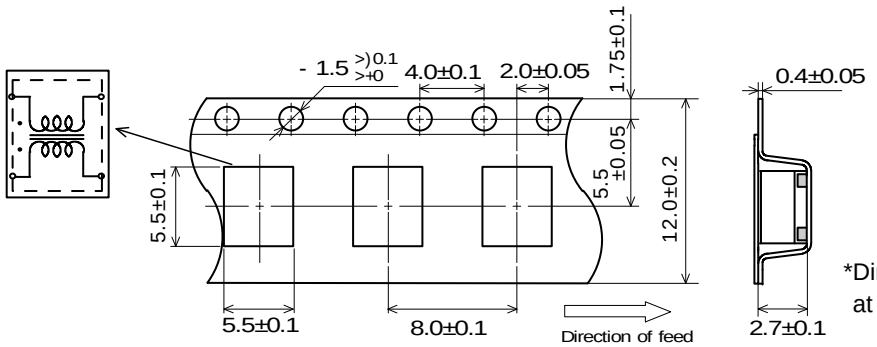
10. Terminal to be Tested When measuring and supplying the voltage, the following terminal is applied.

No.	Item	Terminal to be Tested
10.1	Impedance (|Z|) (Measurement Terminal)	
10.2	DC Resistance (Rdc) (Measurement Terminal)	
10.3	Insulation Resistance (I.R.) (Measurement Terminal)	
10.4	Withstanding Voltage (Measurement Terminal)	
10.5	Humidity Load (Supply Terminal)	
10.6	Heat Life (Supply Terminal)	

11. Impedance Frequency Characteristics (Typical)

12. Specification of Packaging

12.1. Appearance and Dimensions



*Dimension of the Cavity is measured at the bottom side.

(in mm)

12.2. Specification of Taping

(1) Packing quantity (Standard quantity) - 180 mm reel : 700 pcs. / reel - 330 mm reel :2500 pcs. / reel

(2) Packing Method

Products shall be packaged in each embossed cavity of plastic tape and sealed with cover tape.

(3) Sprocket Hole

The sprocket holes are to the right as the tape is pulled toward the user.

(4) Spliced point

The cover tape have no spliced point.

(5) Missing components number

Missing components number within 0.025% of the number per reel or 1 pc., whichever is greater, and are not continuous.The specified quantity per reel is kept.

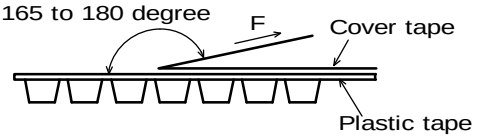
12.3. Pull Strength of Plastic Tape

Plastic Tape	5 N min.
Cover Tape	10 N min.

12.4. Peeling off force of Cover Tape

0.2N to 0.7N (minimum value is typical.)

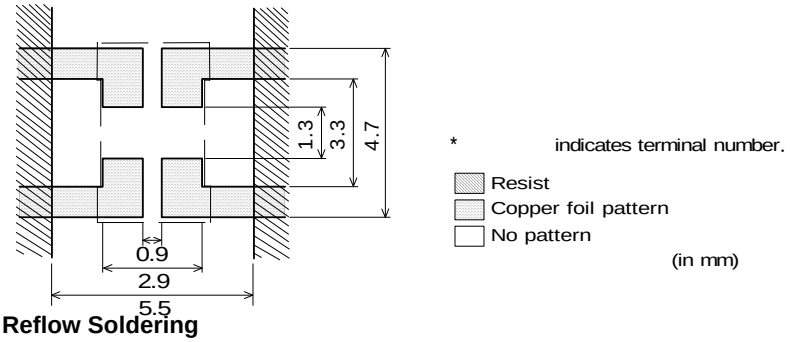
Speed of Peeling off : 300 mm / min



12.5. Dimensions of Leader-tape, Trailer and Reel

Reference Only

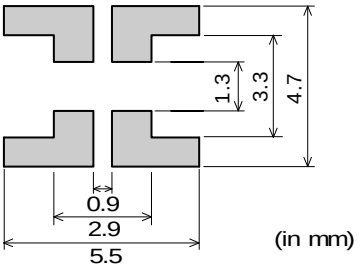
14.7. Standard Land Dimensions



14.8. Reflow Soldering

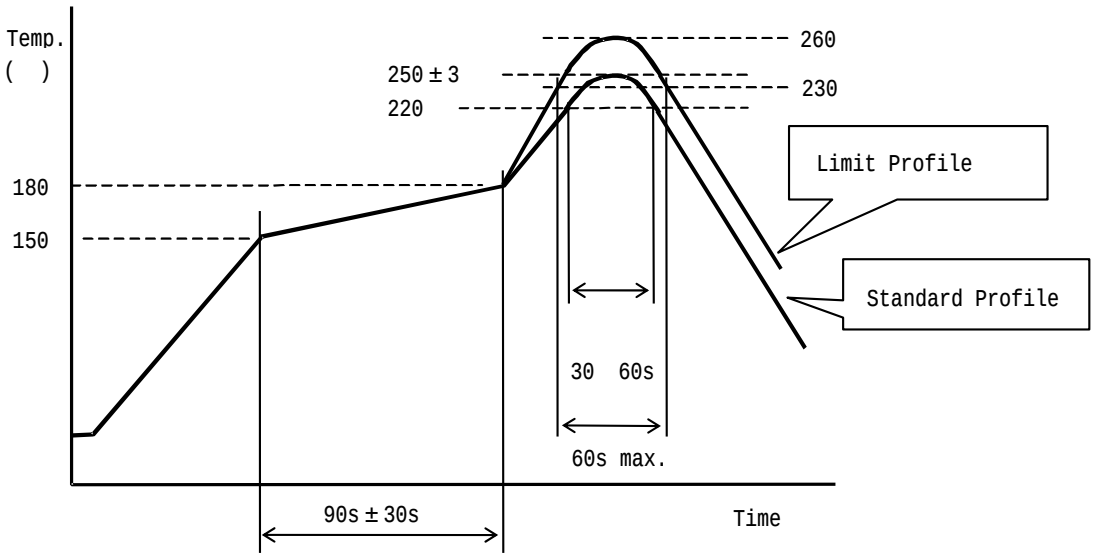
(1) Standard printing pattern of solder paste

Standard thickness of solder paste should be 150 to 200µm.
Solderability is subject to reflow condition and thermal conductivity.
Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.
Use the solder paste printing pattern of the right pattern.
For the resist and copper foil pattern, use standard land dimensions.
Use the Solder Sn-3.0Ag-0.5Cu for pattern printing.



(2) Soldering Conditions

Standard soldering profile and the limit soldering profile is as follows.
The excessive limit soldering conditions may cause leaching of the electrode and / or resulting in the deterioration of product quality.



	Standard Profile	Limit Profile
Pre-heating	150 180°C 90s ± 30s	
Heating	above 220°C 30s 60s	above 230°C 60s max.
Peak temperature	250 ± 3°C	260°C, 10s
Cycle of reflow	2 times	2 times

Reference Only

14.9. Reworking with Soldering iron

The following conditions must be strictly followed when using a soldering iron after being mounted by reflow soldering.

- Pre-heating: 150°C, 1 min
- Soldering iron output: 30W max.
- Tip temperature: 350°C max.
- Tip diameter:φ3mm max.
- Soldering time : 3(+1,-0) seconds.
- Times : 2times max.

Notes: Do not touch the products directly with the soldering iron.

14.10 Handling of a substrate

After mounting products on a substrate, do not apply any stress to the product caused by bending or twisting to the substrate when cropping the substrate, inserting and removing a connector from the substrate or tightening screw to the substrate.

Excessive mechanical stress may cause cracking in the product.

Bending Twisting

14.11 Brushing of neighborhood of products

When you clean the neighborhood of products such as connector pins, bristles of cleaning brush shall not be touched to the winding portion to prevent the breaking of wire.

14.12. Operating Environment

Do not use this product under the following environmental conditions,on deterioration of the performance, such as inslation resistance may result from the use.

(1) in corrosive gases (acidic gases,alkaline gases,chlorine,sulfur gases,organic gases and etc.)

(2) in the atmosphere where liquid such as organic solvent,may splash on the products.

14.13. Storage condition

(1) Storage period

Use the products within 12 months after delivered.

Solderability should be checked if this period is exceeded.

(2) Storage environment conditions

・Products should be stored in the warehouse on the following conditions.

Temperature : -10 °C to +40 °C

Humidity : 15 % to 85% relative humidity No rapid change on temperature and humidity.

・Products should not be stored in corrosive gases, such as sulfureous, acid gases, alkaline gases, to prevent the following deterioration.

Poor solderabirity due to the oxidized electrode.

・Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.

・Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.

・Products should not be stored under the air tights packaged condition.

(3) Delivery

Care should be taken when transporting or handling product to avoid excessive vibration or mechanical shock.

15. ! Note

(1)Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

(2)You are requested not to use our product deviating from the reference specifications.

(3)The contents of this reference specification are subject to change without advance notice. Please approve our product specifications or transact the approval sheet for product specifications before ordering.