Wire Wound Common Mode Choke -YLM4015 Series

■ Features

- This filter is characterized by small size, highly effective in noise suppression.
- High common mode impedance at noise band and low differential mode impedance at signal band.Due to the low differential mode impedance with high coupling factor,there is almost no distortion on high speed transmission of high resolution video signals.
- Operating temperature:-40℃ to +125℃.

■ Applications

- DC power line common mode noise suppression；
- Switch Mode Power Supplies and regulators；
- Variable Frequency Drives；
- AC/DC power rectifiers.

■ Product Identification

YLM □□□□□ —□□□ □

(1) (2) (3) (4)

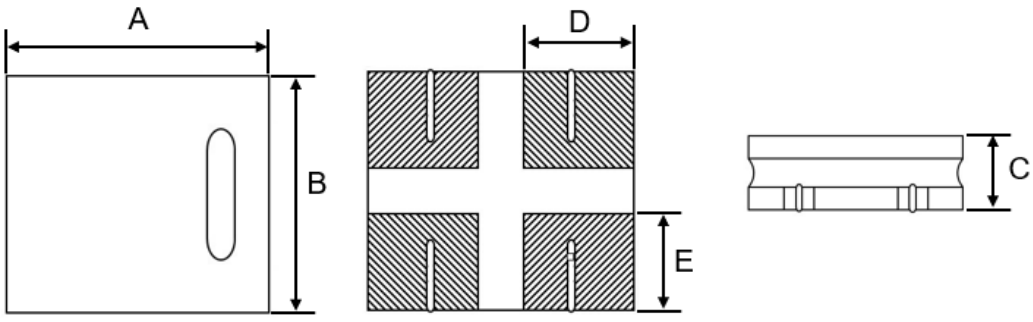
(1)： Type

(2)： Dimensions

(3)： Impedance

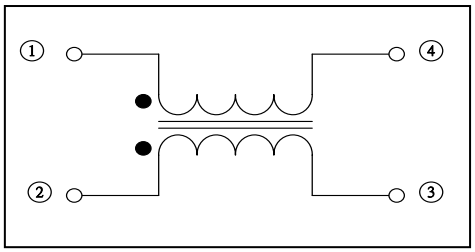
(4)： Packaging

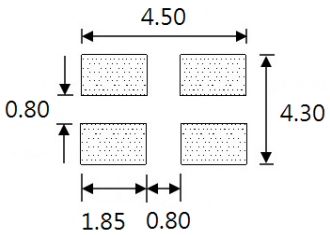
■ Shapes and Dimensions (Unit：mm)



TYPE	A	B	C Max.	D Typ.	E Typ.
YLM4015	4.00±0.2	4.00±0.2	1.60	1.55	1.40

■ Recommended PC Board Pattern





※ Guideline of solder paste thickness: ≥100μm

※ Solderability is subject to reflow conditions and thermal conductivity.

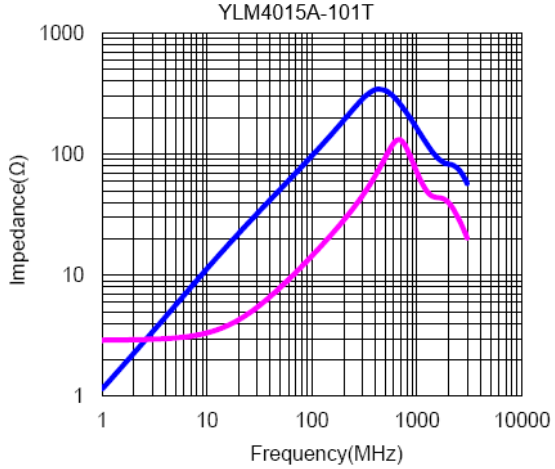
※ Please make sure that your product has been evaluated in view of your specifications with our product being mounted to your product.

■ Electrical Characteristics

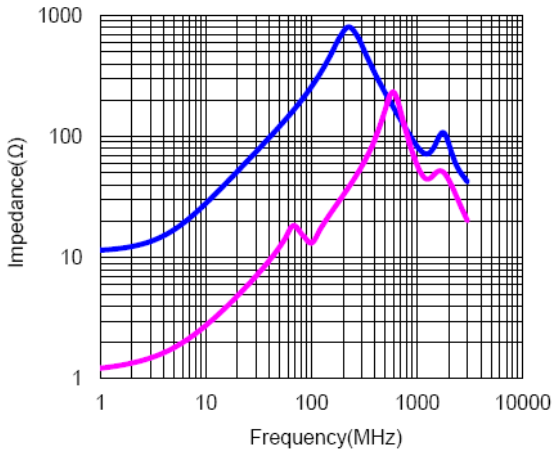
Part Number	Z(Ω) Common Mode		DCR(Ω)	DC Current(A)	Rated Voltage	Insulation Resistance	Withstand Voltage
	Impedance at 10MHz	Impedance at 100MHz	±40%	Max.	Vdc (V)Typ.	IR (MΩ) Min.	Vdc (V) Typ.
YLM4015A-101T	10±40%	100 Typ.	0.016	3.1	60	10	150
YLM4015A-251T	25±40%	250 Typ.	0.024	2.6	60	10	150
YLM4015A-401T	38±40%	400 Typ.	0.030	2.1	60	10	150
YLM4015A-501T	50±40%	500 Typ.	0.030	2.1	60	10	150
YLM4015A-601T	53±40%	600 Typ.	0.030	2.0	60	10	150
YLM4015A-851T	65±40%	850 Typ.	0.040	1.9	60	10	150
YLM4015A-102T	65±40%	1000 Typ.	0.040	2.0	60	10	150
YLM4015A-172T	100±40%	1700 Typ.	0.060	1.5	60	10	150
YLM4015A-242T	120±40%	2400 Typ.	0.075	1.4	60	10	150
YLM4015A-302T	180±40%	2200 Typ.	0.120	1.1	60	10	150

■ Performance Curves

YLM4015A-101T



YLM4015A-251T



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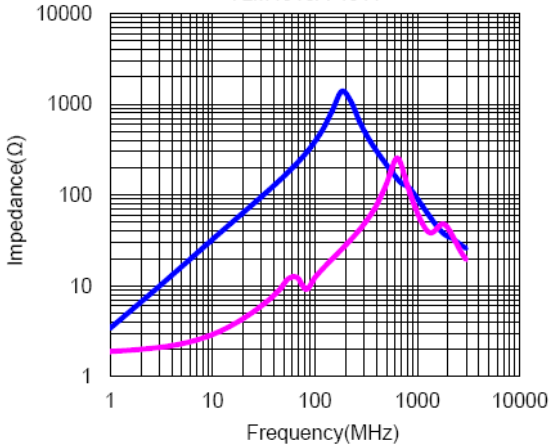

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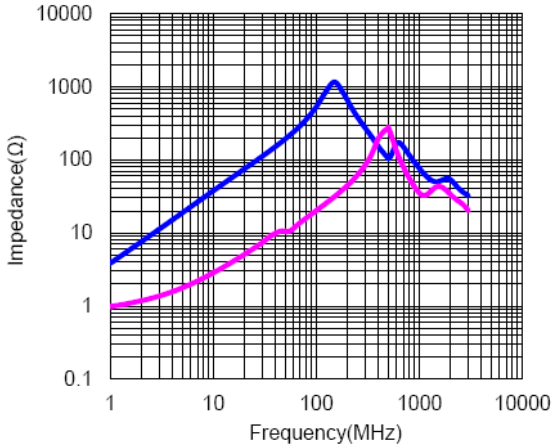

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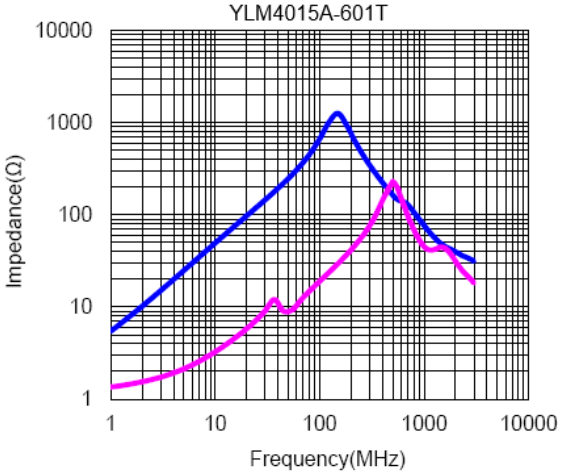
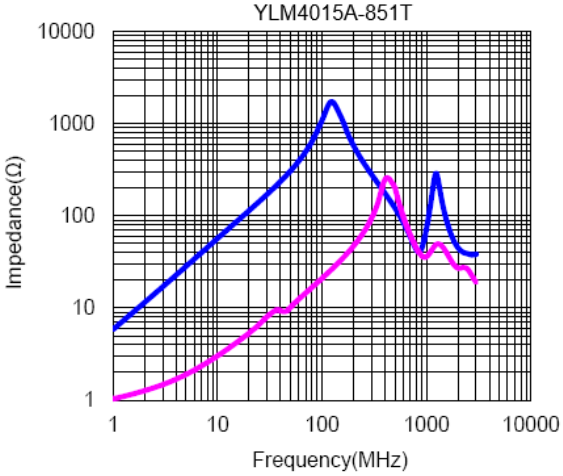
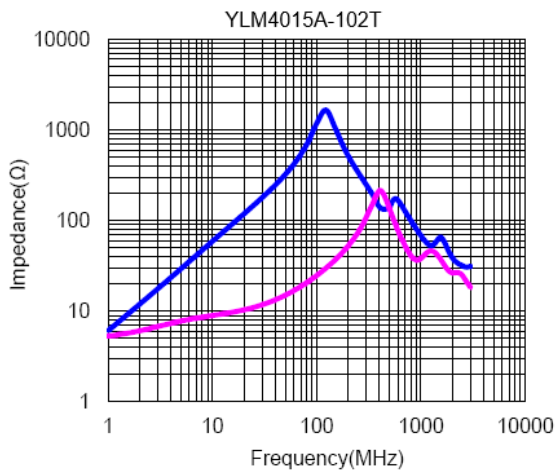
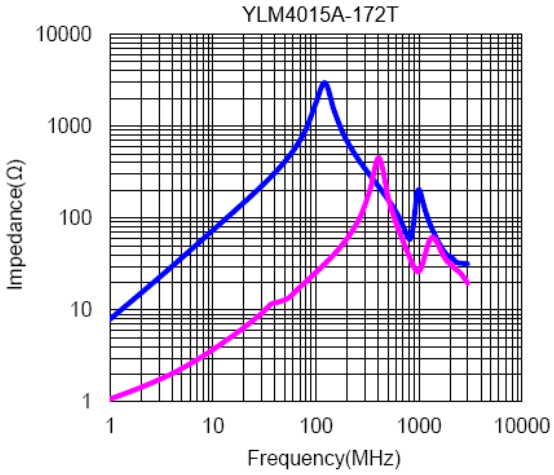


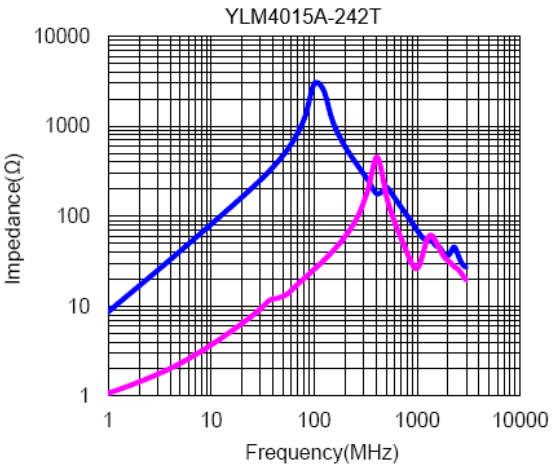
YLM4015A-851T

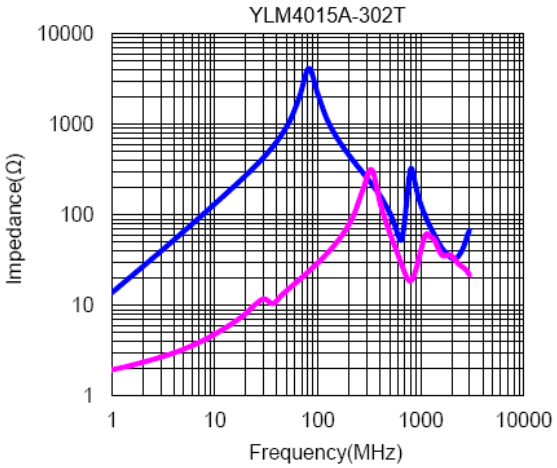


Performance Curves

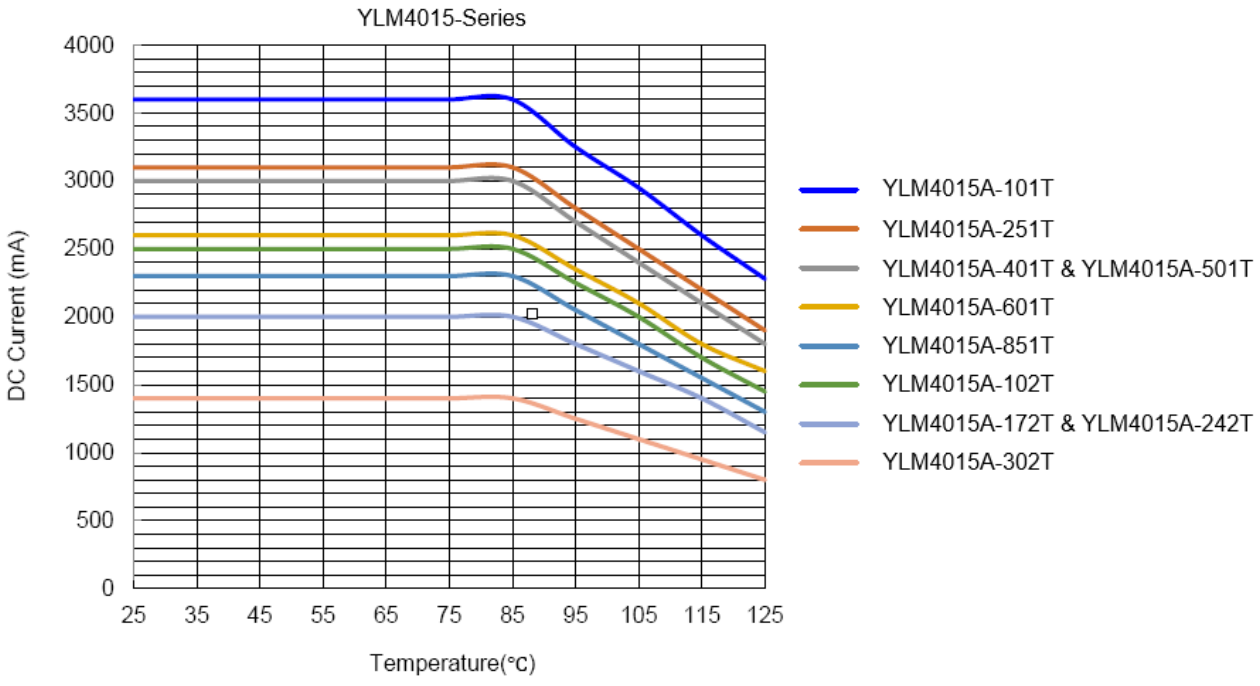




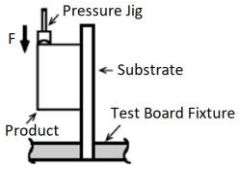
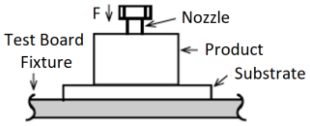
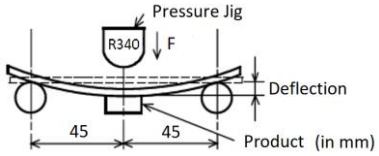
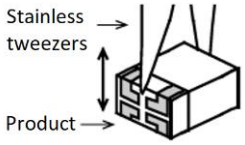




Performance Curves



■ Mechanical performance

<table>
<tr><th>No.</th><th>Item</th><th>Specifications</th><th>Test Method</th></tr>
<tr><td>1</td><td>Appearance and Dimensions</td><td>Style and Dimensions</td><td>Visual Inspection and Measured with Slide Calipers.</td></tr>
<tr><td>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>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>4</td><td>Bonding Strength</td><td rowspan="3">Meet Table 1.
Table 1<table><tr><td>Appearance</td><td>No Damaged.</td></tr><tr><td>Impedance Change (at 100MHz)</td><td>Within ±20%</td></tr><tr><td>I.R.</td><td>10MΩ Min.</td></tr><tr><td>Withstand Voltage</td><td>No Damaged.</td></tr></table></td><td>Substrate: Glass-Epoxy (t=1.6mm)
Deflection: 2.0mm
Keeping Time: 30s
Speed of Applying Force: 0.5mm/s
  </td></tr>
<tr><td>5</td><td>Vibration</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>6</td><td>Drop</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>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℃, 1 Minute.
Solder: (1) Su/Pb=60/40, (2) Su-3.0Ag-0.5Cu
Solder Temperature: (1) 230±5℃, (2) 230±5℃
Immersion Time: 4± 1s
Immersion and Immersion Rates: 25mm/s
  </td></tr>
<tr><td>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℃, 1 Minute.
Solder: (1) Su/Pb=60/40, (2) Su-3.0Ag-0.5Cu
Solder Temperature: 270±5℃
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>

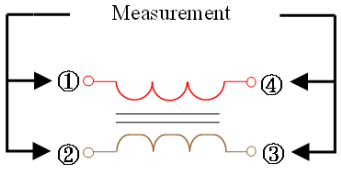
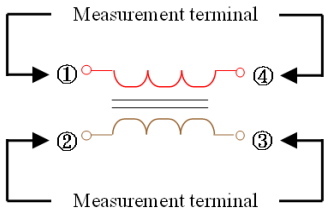
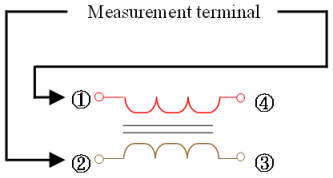
■ Enviromental Performance

Product shall be solderd on the glass-epoxy substrate (t=1.6mm)

No.	Item	Specifications	Test Method
1	Temperature Cycle	Meet Table 1.	1 Cycle 1 step: -40℃ (+0, -3)℃ / 30min (+3, -0) min 2 step: Ordinary Temp. / 3 min max. 3 step: +125℃ (+3, -0)℃ / 30min (+3, -0) min 4 step: Ordinary Temp. / 3 min max. Total of 10 Cycles Then Measured After Exposure in the Room Condition for 4 to 48 Hours.
2	Humidity		Temperature: 40±2℃ Humidity: 90 to 95% (RH) Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours.
3	Humidity Load		Temperature: 40±2℃ Humidity: 90 to 95% (RH) Test Voltage: Rated Voltage Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)
4	Heat Life		Temperature: 85±2℃ Humidity: 90 to 95% (RH) Test Voltage: Rated Voltage Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)
5	Cold Resistance		Temperature: 40±2℃ Time: 1000h (+48 h, -0 h) Then Measured After Exposure in the Room Condition for 4 to 48 Hours. (Ref. Item)

■ Terminal to be Tested

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

No.	Item	Terminal to be Tested
1	Impedance (Ω) (Measurement Terminal)	
2	DC Resistance (Ω) (Measurement Terminal)	
3	DC Current (A) (Measurement Terminal)	
4	Insulation Resistance (I.R.) (Measurement Terminal)	
5	Withstanding Voltage (V) (Measurement Terminal)	
6	Rated Voltage (V) (Measurement Terminal)	
7	Humidity Load (Supply Terminal)	
8	Heat Life (Supply Terminal)	

■ Soldering and Mounting

Soldering

Mildly activated rosin fluxes are preferred. Terminations are suitable for re-flow soldering systems.

If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

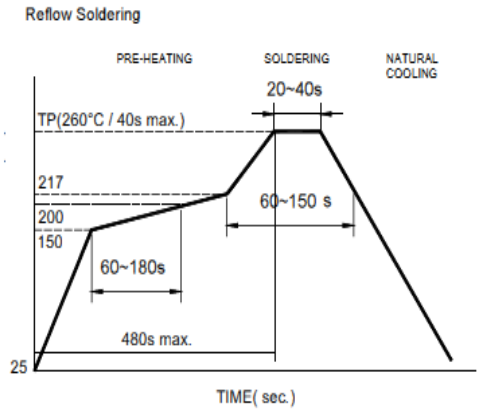
Solder re-flow:

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

Soldering Iron (Figure 2):

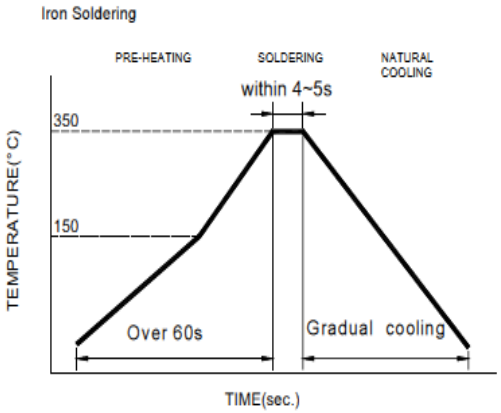
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. In the event that a soldering iron must be employed the following precautions are recommended.

- ●Preheat circuit and products to 150℃
- ●355℃ 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



Reflow times: 3 times max.

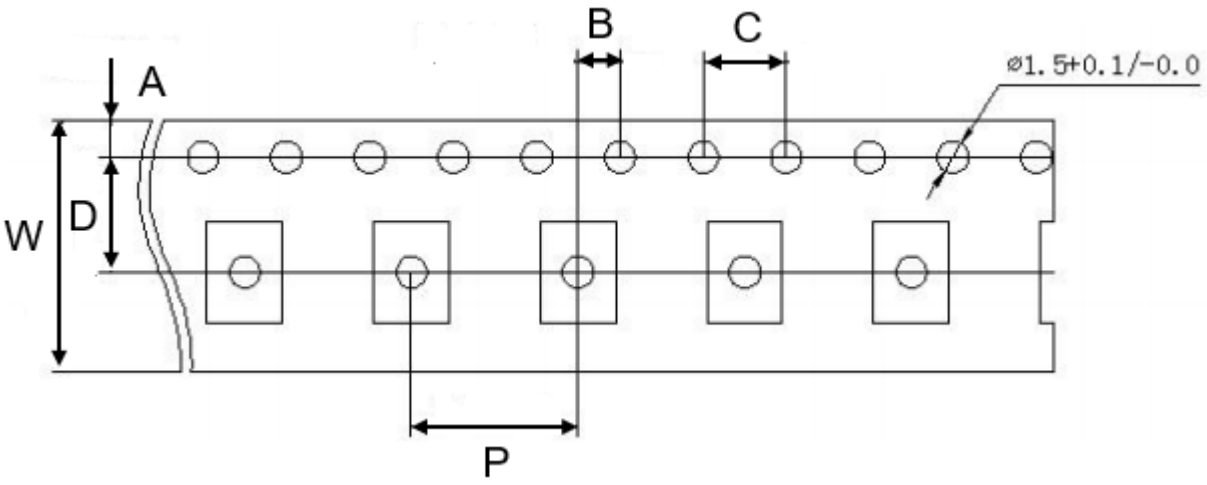
Fig.1



Iron Soldering times: 1 times max.

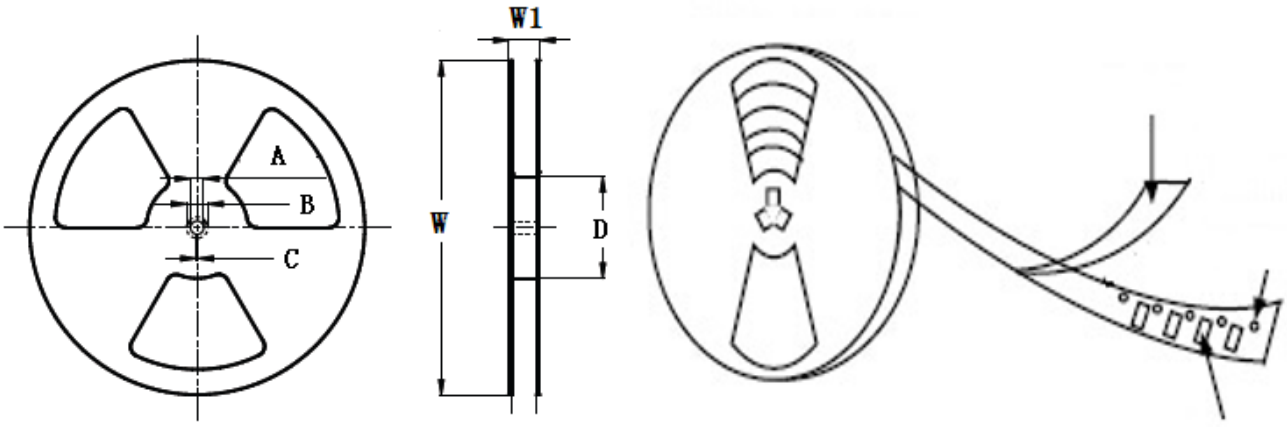
Fig.2

■ Taping Dimensions(Unit:mm)



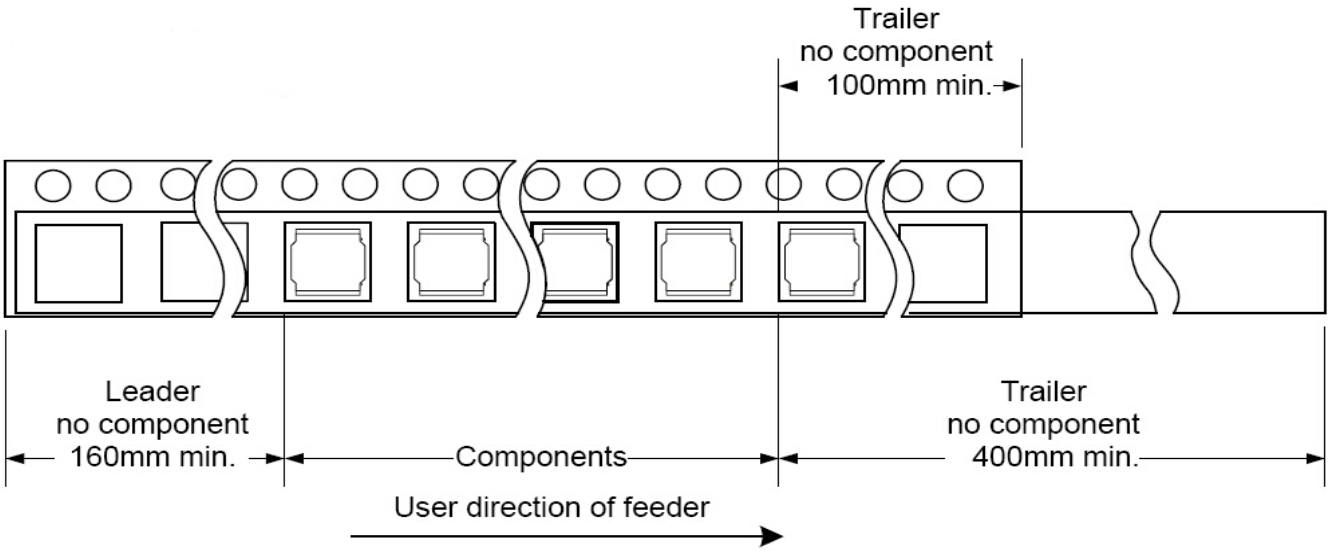
TYPE	W	A	B	C	D	P	MPQ
YLM4015	12.0±0.2	1.75±0.1	2.0±0.05	4.0±0.2	5.5±0.05	8.0±0.1	2500

■ Reel Dimensions(Unit:mm)

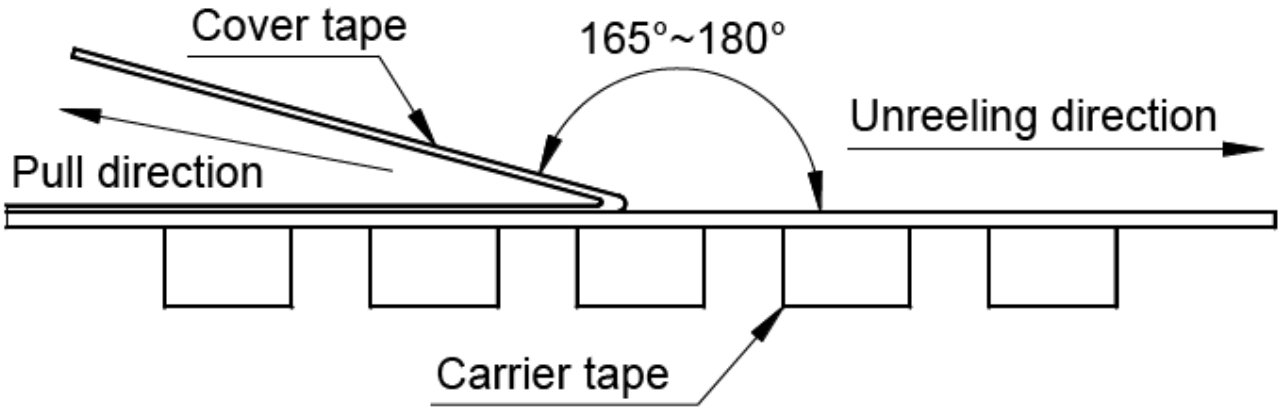


TYPE	W	W1	A	B	C	D
YLM4015	178±2.0	22.0±2.0	13.0±0.50	21.0±0.80	2.0±0.50	60.0±2.0

■ Direction of rolling



■ Cover tape peel off condition



Cover tape peel force shall be 0.1N to 1.3N.

Reference peel speed 300±10mm/min.