



APPROVAL SHEET

YLRP SERIES

Low Resistance Metal Strip Chip Resistors

Version	Date	Description of amendment	Draft	Checked
A1.0	03-Aug-2022	First edition release	罗国涛	胡紫阳
A1.1	11-Jan-2023	modify durability test limits	罗国涛	胡紫阳
A1.2	03-Mar-2023	update pulse capability curve	罗国涛	胡紫阳
A1.3	11-May-2023	Change the product's resistance range and power description	罗国涛	胡紫阳
A1.4	24-May-2024	Update the resistance range corresponding to product accuracy and the tape size parameters	罗国涛	胡紫阳

1.Product Description

Product name:YLRP series

Description:YLRP series alloy chip resistors provide precise current sensing with low TCR and high power, ideal for automotive and industrial applications.

1.1 Part Number Explanation

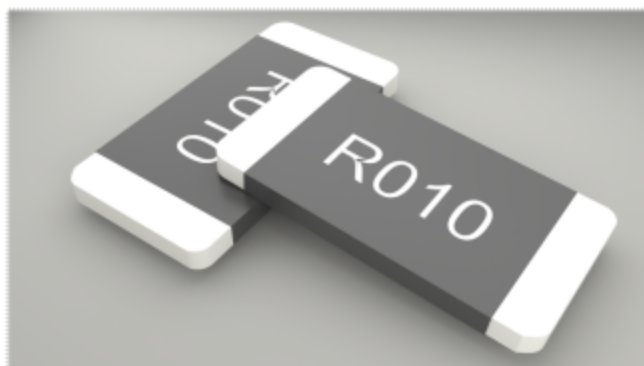
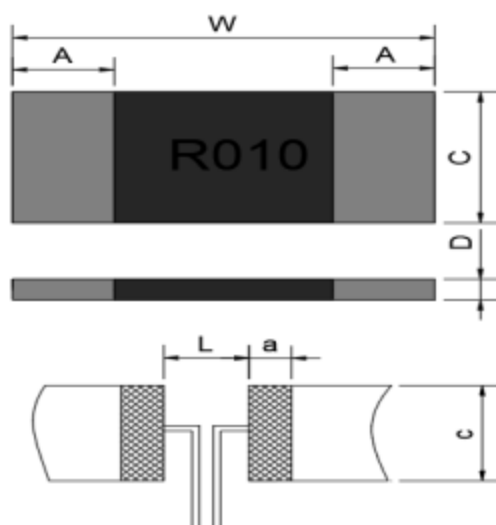
The part number of the high power precision resistor is identified by the type name, power, tolerance, temperature coefficient, size and resistance value.

Example: YLRP12-3-10F-L

Type	Size	Power	Resistance	Tolerance	TCR
YLRP	12=2512 17=2817 28=2728 37=3637	2=2W 3=3W 5=5W	10=10mΩ	B=±0.1% D=±0.5% F=±1%	E=-50~0 G=-10~0 H=0~10 L=±10 M=±15 P=±20 N=±25 Q=±30

- (1) **Type name:** YLRP series
- (2) **Size:**12=2512;17=2817; 28=2728;37=3637
- (3) **Power Rating:**2=2W;3=3W; 5=5W
- (4) **Resistance:** 10=10mΩ
- (5) **Tolerance:** B=±0.1%;D=±0.5%;F=±1%
- (6) **TCR:** E=-50~0;G=-10~0;H=0~10;L=±10;M=±15;P=±20;N=±25;Q=±30

1.2 Products & Recommend Pad Dimension

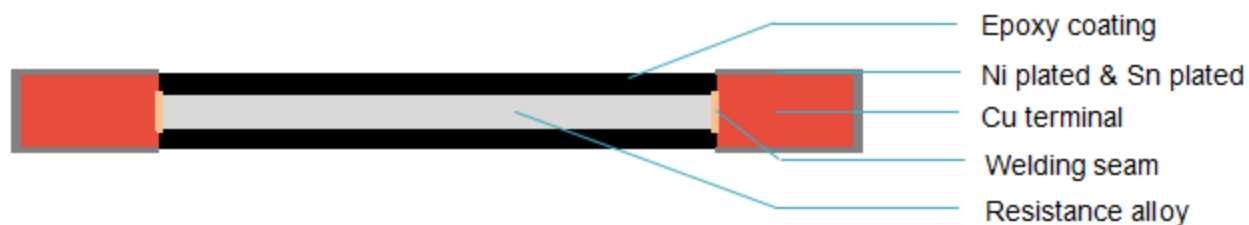


Unit/mm

Type	Resistance	W ± 0.2	C ± 0.2	A ± 0.2	D ± 0.1	L	a	c
YLRP12	2~200m Ω	6.35	3.2	0.9	0.8	4.1	2.1	4
YLRP17	4~200m Ω	7.1	4.3	1.2	0.8	3.5	2.7	5.2
YLRP37	2~200m Ω	9.14	9.4	2.2	0.8	4.5	3.0	9.9
YLRP28	3~200m Ω	6.8	7.2	1.2	0.8	4.5	3.0	7.8

1.3 Item Construction

Electron-beam welded constructions



2. Standard Electrical Specifications

Type	Size	Rated Power (W)	Material	Resistance /mΩ	Resistance Tolerance (%)	TCR① (ppm/℃)	Operating Temperature (℃)
		P70℃					
YLRP	2512	3	Manganin	2~4	±0.5% ±1%	±25	-65℃~170℃
			Karma	5~19			
		2		20~50 *51~100	±0.1% ±0.5% ±1%		
				*101~200			
	2817	5		4~19	±0.5% ±1%		
				20~50 *51~100	±0.1% ±0.5% ±1%		
		3		*101~200			
		2728		5	3~19	±0.5% ±1%	
	20~50 *51~150				±0.1% ±0.5% ±1%		
	3			*151~200			
	3637			5	2~19	±0.5% ±1%	
		20~50 *51~150			±0.1% ±0.5% ±1%		
		3		*151~200			

- Short Time Overload were tested with 2.5×Rated power for 10 s

① TCR (ppm/°C) : Test was conducted from 20°C to 120°C while 20°C worked as the reference.

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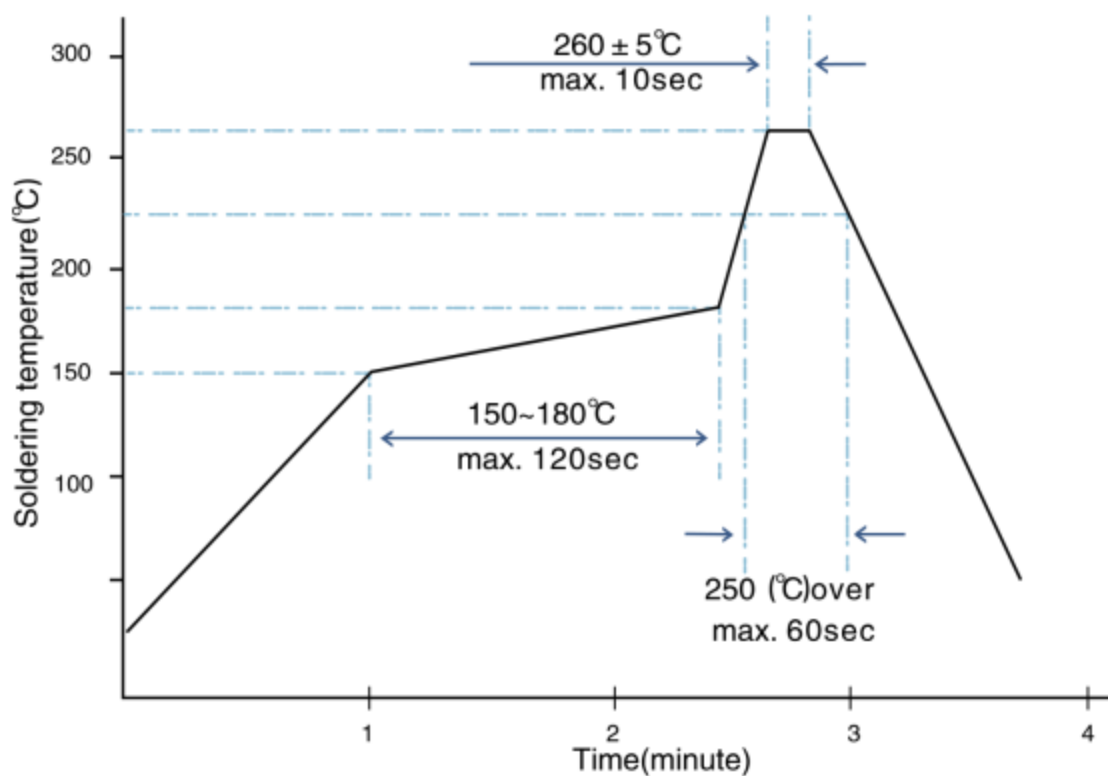
3. Endurance Test

Items	Additional Requirements	Reference	Limits
Temperature Cycling	1000 Cycles (-55°C to +150°C)	JESD22Method JA-104	±0.3%
ESD Test	1) Direct Contact (DC): ±6kV; 2) Air Discharge (AD): ±12kV, ±16kV, ±25kV;	AEC-Q200 REV D June 1	±0.5%
High Temperature Exposure	1000hrs.@T=170°C.Unpowered.	MIL-STD-202Method 108	±0.3%
Moisture Resistance	t=24hrs/cycle.Note: Steps 7a & 7b not required. Unpowered.	MIL-STD-202Method 106	±0.1%
Biased Humidity	1000hrs 85°C/85%RH. Note: Specified conditions:10% of operating power.	MIL-STD-202Method 103	±0.2%
Operational Life	Condition D Steady State TA=125°C at rated power.	MIL-STD-202Method 108	±0.5%
Thermal Shock	1000X(-55°C to +150°C)	MIL-STD-202Method107G	±0.3%
Solderability	235°C±5°C,2s±0.5s	J-STD-202	95% Coverage Minimum
Resistance to Soldering Heat	260°C±5°C, 10s±1s	MIL-STD-202Method 210	±0.3%
Short Time Overload	5×Rated power for 5 s * 2.5×Rated power for 10 s	MIL-STD-202Method 201	±0.5%
Shock	100g , 6ms , Orientation & Shock time: ±X, ±Y, ±Z; 3 times each orientation, total 18 times	MIL-STD-202 Method 213	±0.1%



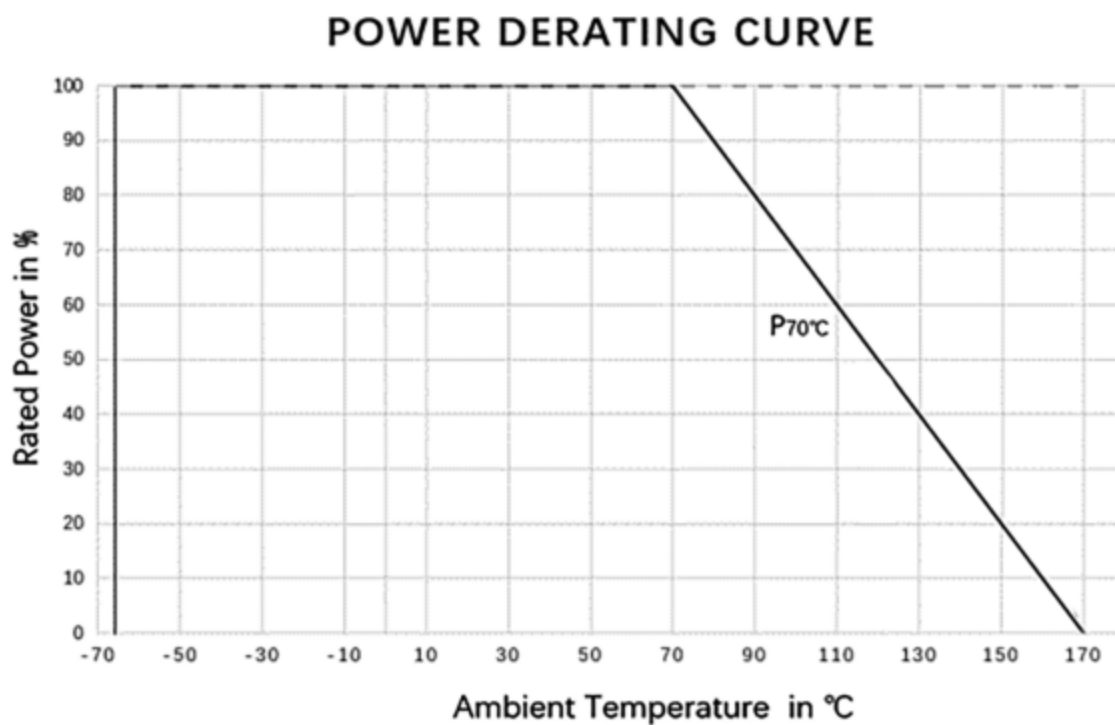
Items	Additional Requirements	Reference	Limits
Vibration	5 g's for 20 min, 12 cycles each of 3 orientations. Note: Use 8"X5" PCB .031" thick 7 secure points on one long side and 2 secure points at corners of opposite sides. Parts mounted within 2" from any secure point. Test from 10-2000 Hz.	MIL-STD-202Method204	±0.2%

4.Solder Reflow Temperature Condition



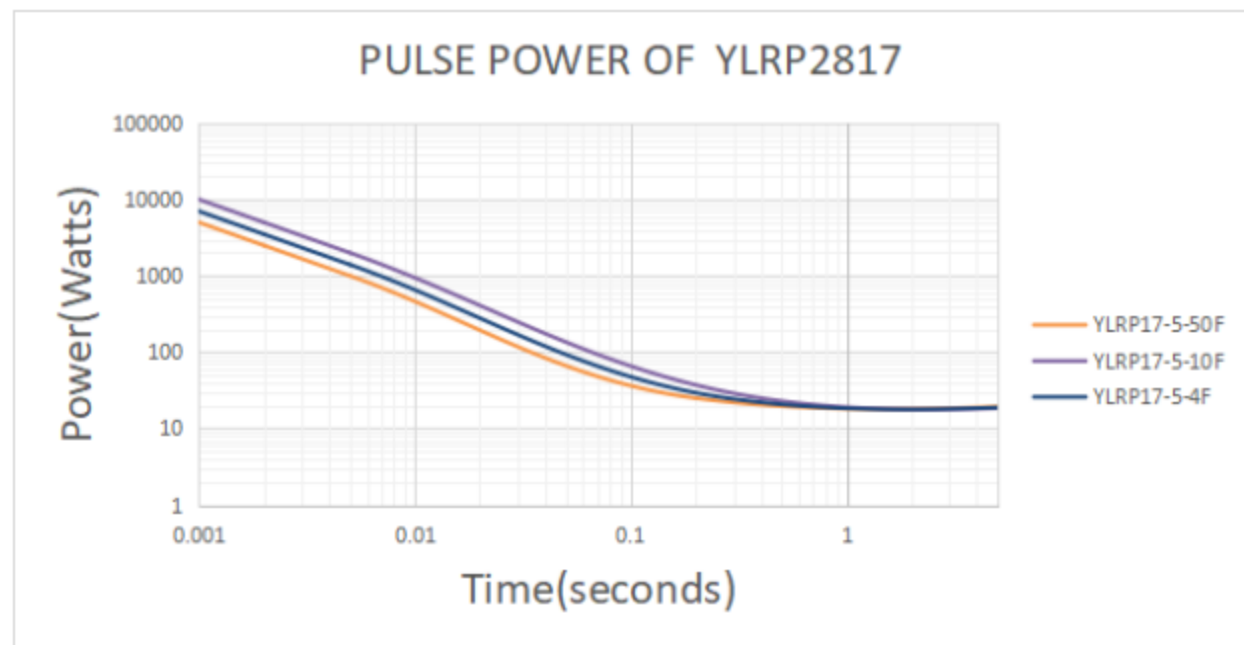
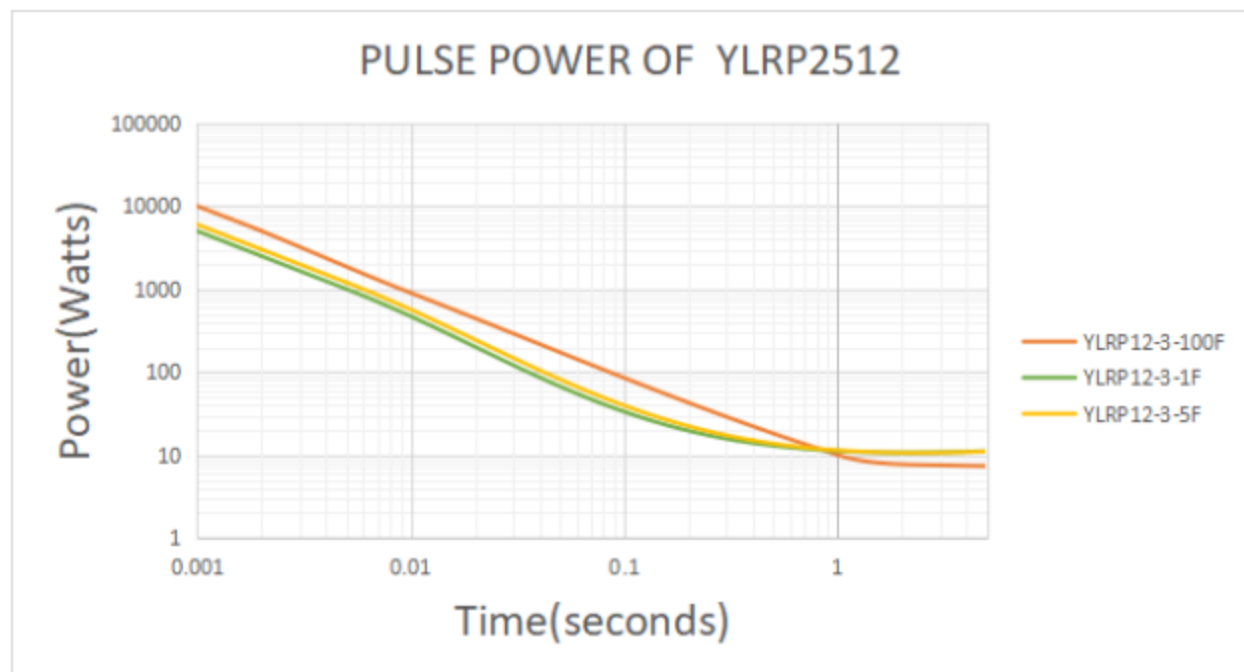


5. Power Derating Curve



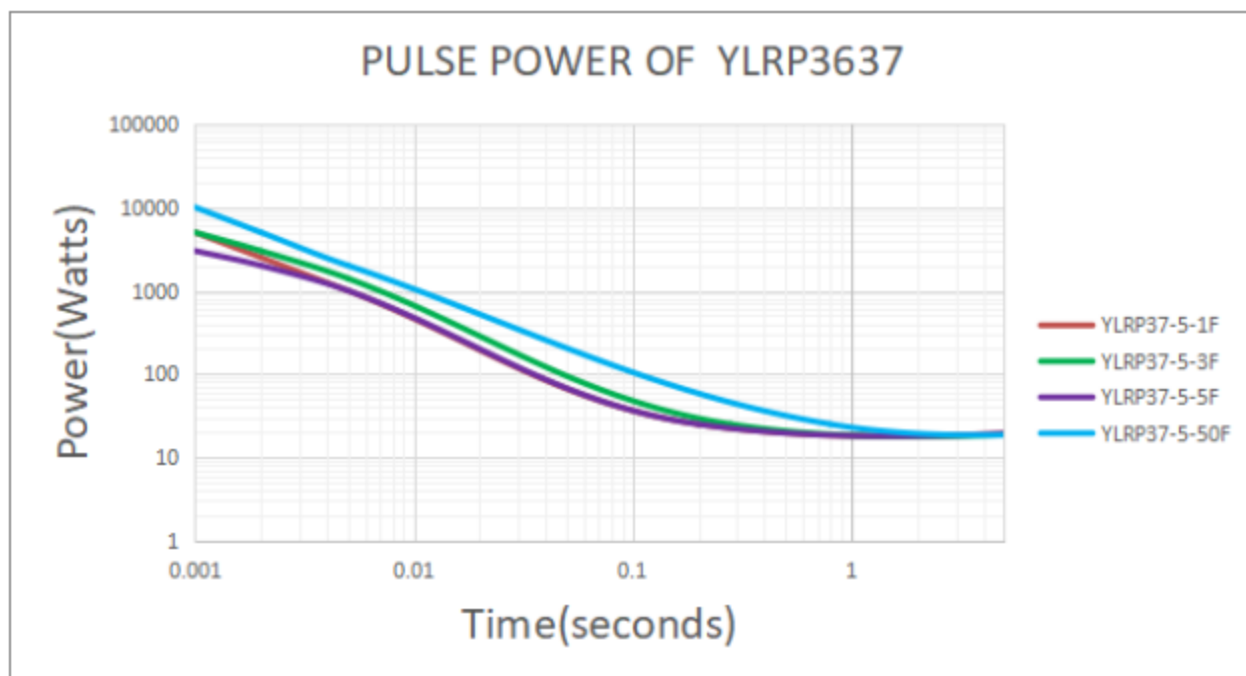
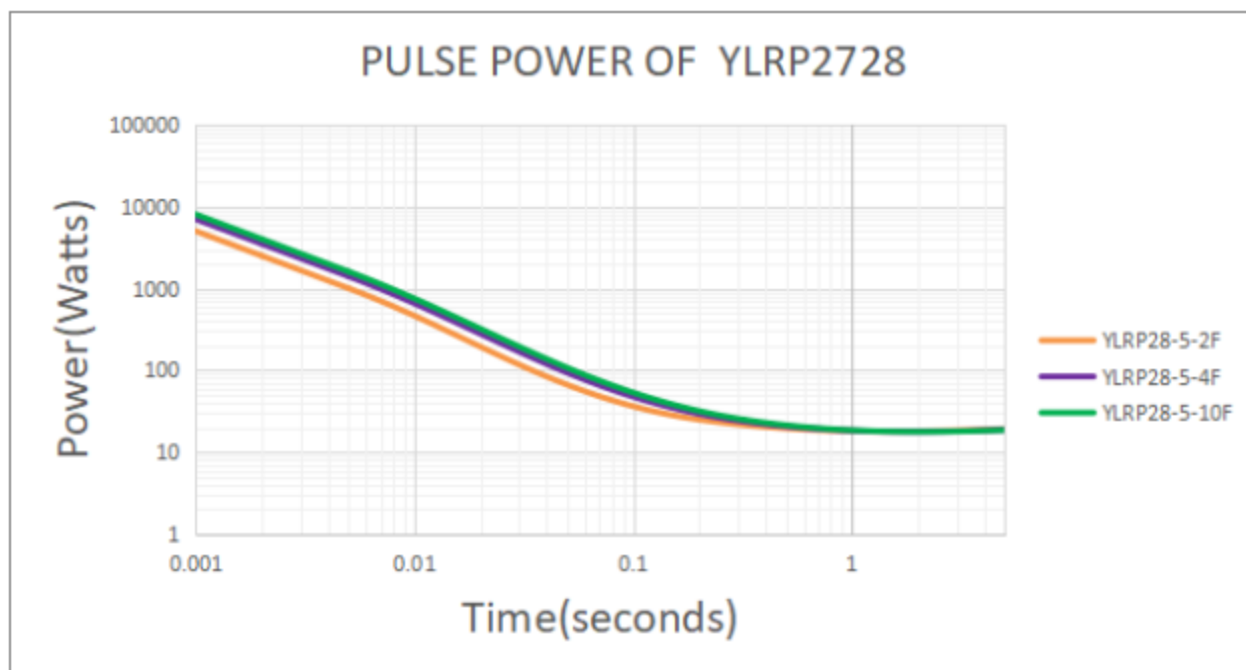


6. Pulse Capability Curve





7. Pulse Capability Curve



8. Marking

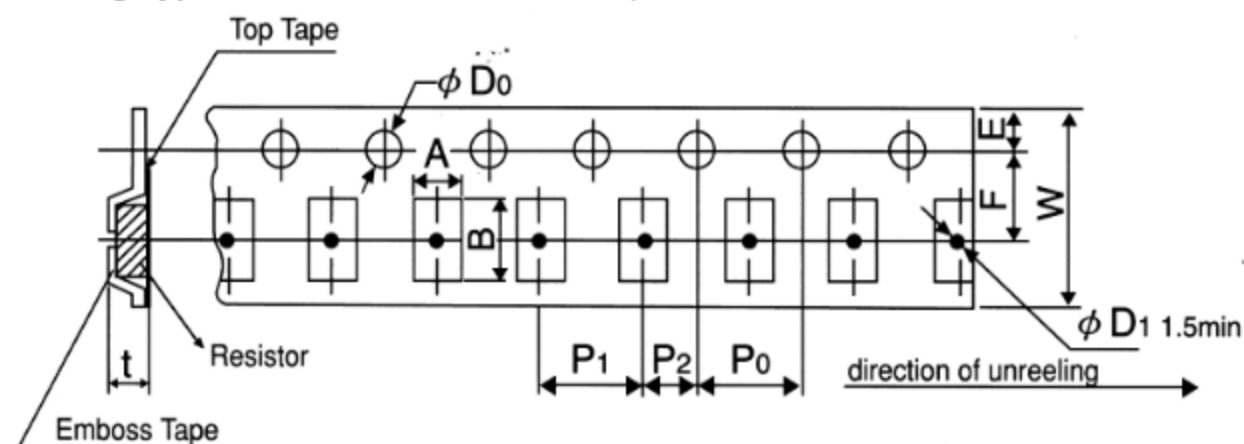
Laser Marking:

- All the products marking are 4 digits. 'R' designates the decimal location in ohms E.g.,
- $3\text{m}\Omega = \text{R003}$; $100\text{m}\Omega = \text{R100}$; $1.5\text{m}\Omega = 1\text{m}50$
- Laser marking is default. If need white printed marking, pls contact Yezhan sales team.

9. Packing

Storage Conditions: Temperature: $5^{\circ}\text{C} \sim 35^{\circ}\text{C}$, Humidity: $40\% \sim 75\%$

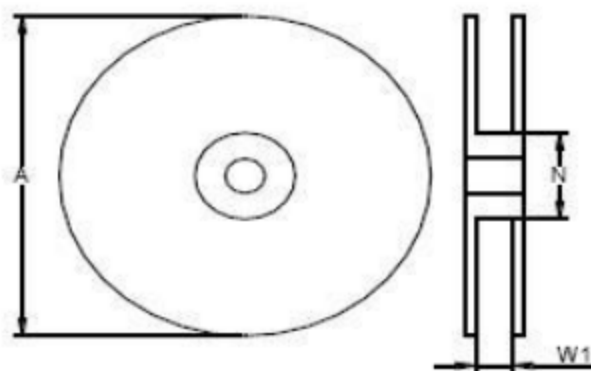
Packing Type: Bulk or Embossed Plastic Tape



Unit/mm

Type	A± 0.2	B± 0.2	W± 0.3	F± 0.1	E± 0.1	P1± 0.1	P2± 0.1	P0± 0.1	D0± 0.1	t± 0.2	Qty /reel
YLRP 12	3.4 5	6.6 5	12	5.5	1.75	4	2	4	Φ1.5	1.15	3000
YLRP 17	4.5	7.4	16	7.5	1.75	8	2	4	Φ1.5	1.00	1500
YLRP 37	9.8	9.5	16	7.5	1.75	16	2	4	Φ1.5	1.18	3000
YLRP 28	7.7	7.1	16	7.5	1.75	12	2	4	Φ1.5	1.30	1000

10. Reel & Tape Specifications



Unit/mm

Type	A $\pm$ 2	N $\pm$ 1	W1 $\pm$ 1
YLRP12	178	60	12
YLRP17			
YLRP28	330	100	24
YLRP37			

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