THUNDER PRECISION RESISTORS

APPROVAL SHEET

YLR SERIES

Low Resistance Metal Strip Chip Resistors

Version	Date	Description of amendment	Draft	Checked
A2.0	28-Mar-2024	First edition release	蒋林帆	王磊
A2.1	16-Apr-2024	Add the-Y suffix to represent white text	蒋林帆	王磊
A2.2	11-May-2024	Update tape size parameters	蒋林帆	王磊
A2.3	16-Aug-2024	Adjustment of Pulse Curve Diagram Clarity with Model Suffix Description	蒋林帆	王磊
A2.4	11-Nov-2024	Correction of resistance range for 1206 and 2010 package sizes	蒋林帆	王磊
A2.5	26-Mar-2025	Correction of English Writing of CuMn and Reflow Soldering Curve	余凤玲	王磊
A2.6	26-Nov-2025	YLR06 Carrier size modification: The width of A has been changed from 2.1±0.1mm to 1.9 ±0.1 mm, and the length of B has been changed from 3.6± 0.1mm to 3.4±0.1 mm.	鲁伟	程子鹏

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1.Product Description

Product name:YLR series

Description:YLR 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, Other,tolerance, size and resistance value.

Example: YLR12-3-10F

Type	Size	Power	Resistance	Tolerance	Other
YLR	06=1206 10=2010 12=2512 17=2817 28=2728 37=3637	3=3W	10=10mΩ	D=±0.5% F=±1% G=±2% J=±5%	Blank=Laser marking -Y=Printed marking

(1) **Type name:** YLR series

(2) **Size:**06=1206;12=2512

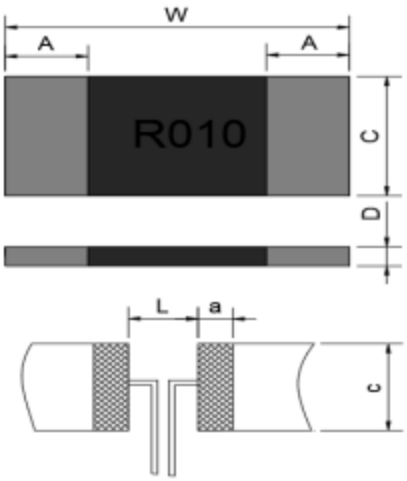
(3) **Power Rating:**1=1W;2=2W;3=3W

(4) **Resistance**：1=1mΩ;10=10mΩ；0=0mΩ

(5) **Tolerance**：D=±0.5%;F=±1%;G=±2%;J=±5%;Z=0mΩ

(6) **Other:**Blank=Laser marking;-Y=Printed marking

1.2 Products & Recommend Pad Dimension

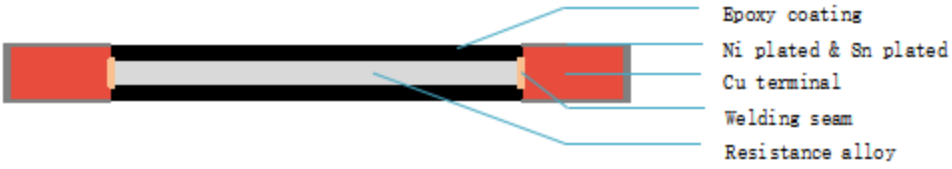


Unit/mm

Type	Resistance (mΩ)	W±0.2	C±0.2	A±0.2	D±0.1	L	a	c
YLR06	2~10	3.2	1.6	0.6	0.8	1.6	1.7	1.8
YLR10	2~30	5	2.5	0.6	0.8	3.6	1.5	3.5
YLR12	0.5~0.9	6.35	3.2	2.3	0.8	1.5	3.4	4
	1			0.9	1.0	4.1	2.1	
	2~50			0.9	0.8	4.1	2.1	
YLR17	1~50	7.1	4.3	1.2	0.8	3.5	2.7	5.2
YLR28	1	6.8	7.2	1.2	1.0	4.5	3.0	7.8
	2~50				0.8			
YLR37	1~50	9.14	9.4	2.2	0.8	4.5	3.0	9.9

1.3 Item Construction

- Electron-beam welded constructions



2. Standard Electrical Specifications

Type	Size	Rated Power (W) P70℃	Material	Resistance /mΩ	TCR ① (ppm/℃)	Resistance Tolerance (%)	Operating Temperature (℃)
YLR	1206	2	CuMnSn CuMn Karma	*2~10	±50	±0.5% ±1% ±2% ±5%	-65℃~170℃
		1		2~10			
	2010	2		2~30	±50		
	2512	3		0.5~0.9*	±75		
				1~50	±50		
		2		0.5~0.9*	±75		
				1~50	±50		
	2817	5		1~50	±50		
		3		1~50	±50		
	2728	5		1~50	±50		
		4		1~50	±50		
	3637	5		1~50	±50		
		3		1~50	±50		

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

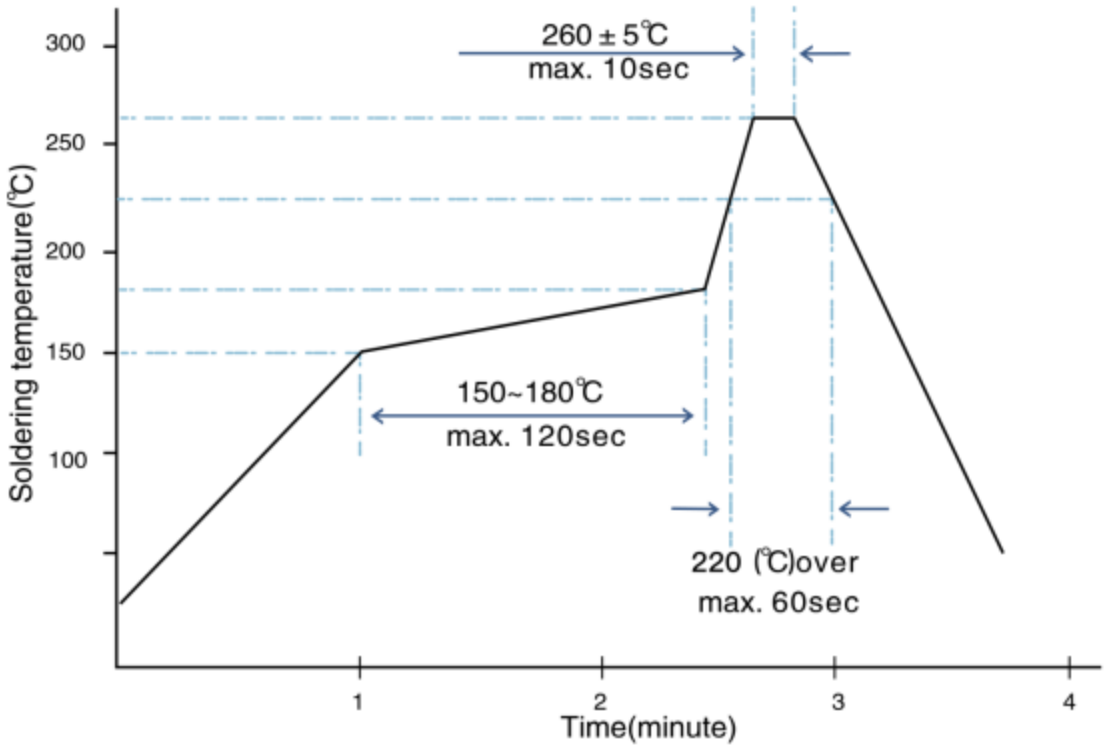
① TCR（ppm/℃）：Test was conducted from 20℃ to 120℃ while 20℃ worked as the reference.

3. Endurance Test

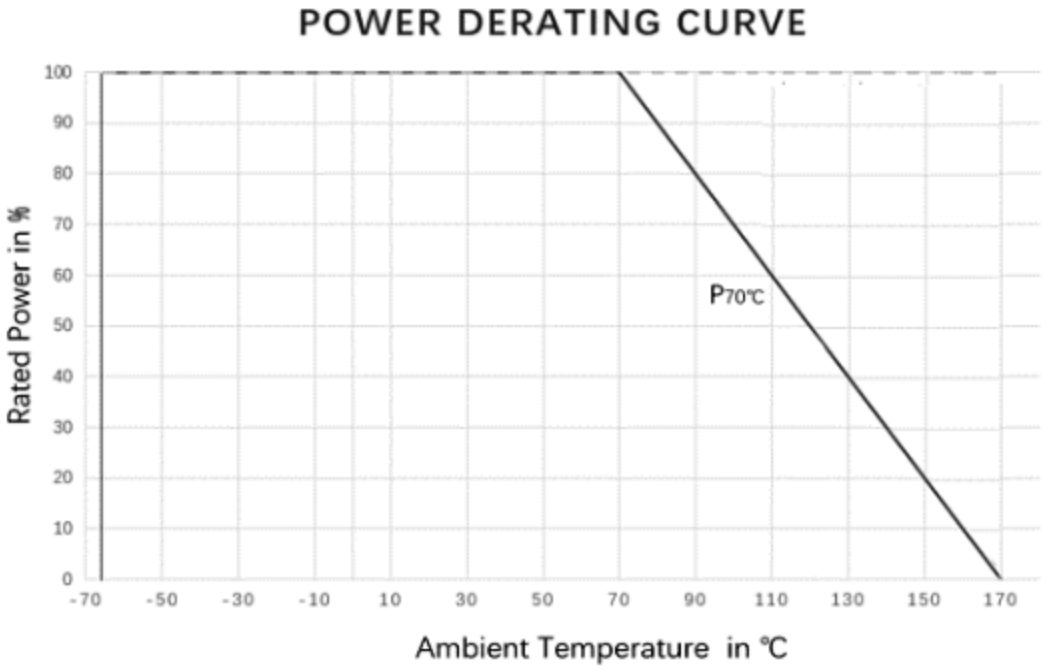
Items	Additional Requirements	Reference	Limits
Temperature Cycling	1000 Cycles (-55℃ to +150℃)	JESD22 Method JA-104	±0.5%
ESD Test	1) Direct Contact (DC): ±6kV; 2) Air Discharge (AD): ±12kV, ±16kV, ±25kV;	AEC-Q200 REV D June 1	±0.5%
High Temperature Exposure	1000hrs.@T=170℃.Unpowered.	MIL-STD-202 Method 108	±0.5%
Moisture Resistance	t=24hrs/cycle.Note: Steps 7a & 7b not required. Unpowered.	MIL-STD-202 Method 106	±0.5%
Biased Humidity	1000hrs 85℃/85%RH。 Note: Specified conditions:10% of operating power.	MIL-STD-202 Method 103	±0.5%
Operational Life	Condition D Steady State TA=125℃ at rated power.	MIL-STD-202 Method 108	±0.5%
Thermal Shock	1000X(-55°C to +150°C)	MIL-STD-202Method107G	±0.5%
Solderability	235℃±5℃,2s±0.5s	J-STD-202	95% Coverage Minimum
Resistance to Soldering Heat	260℃±5℃，10s±1s	MIL-STD-202 Method 21	±0.5%

Items	Additional Requirements	Reference	Limits
		0	
Short Time Overload	5×Rated power for 5 s	MIL-STD-202 Method 201	±0.5%
Shock	100g , 6ms , Orientation & Shock time: ±X, ±Y, ±Z; 3 times each orientation, total 18 times.	MIL-STD-202 Method 213	±0.5%
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	±0.5%

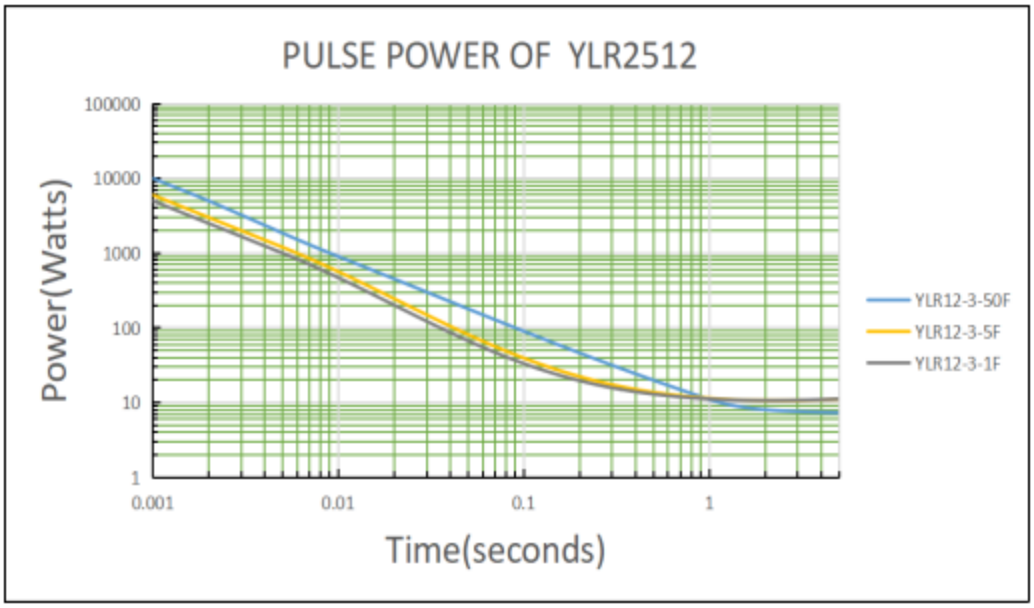
4.Solder Reflow Temperature Condition

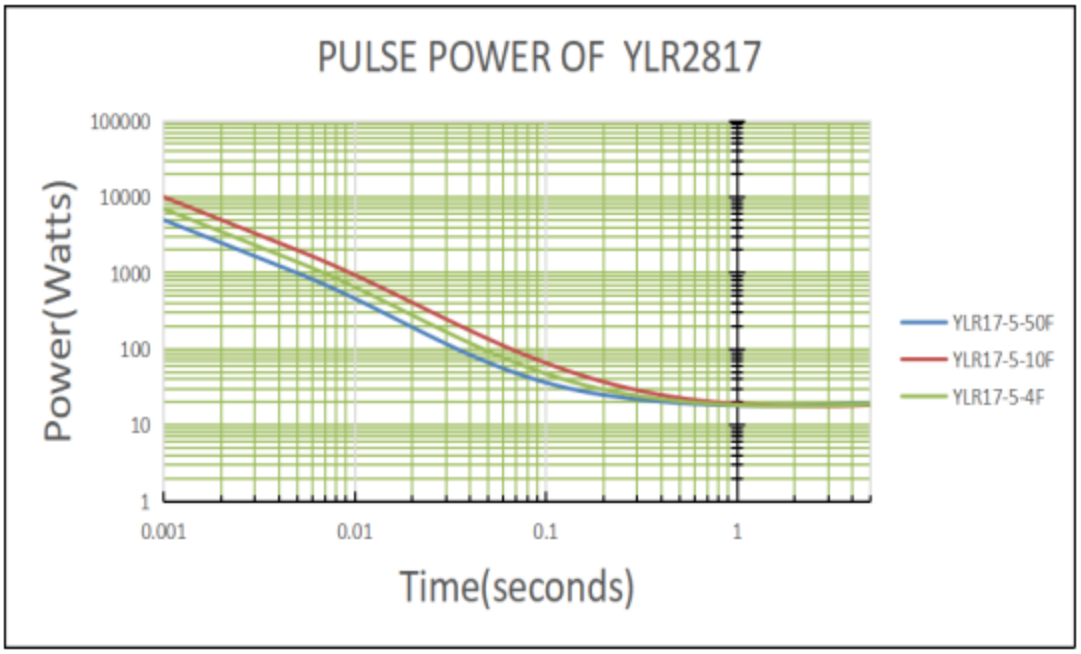


5.Power Derating Curve

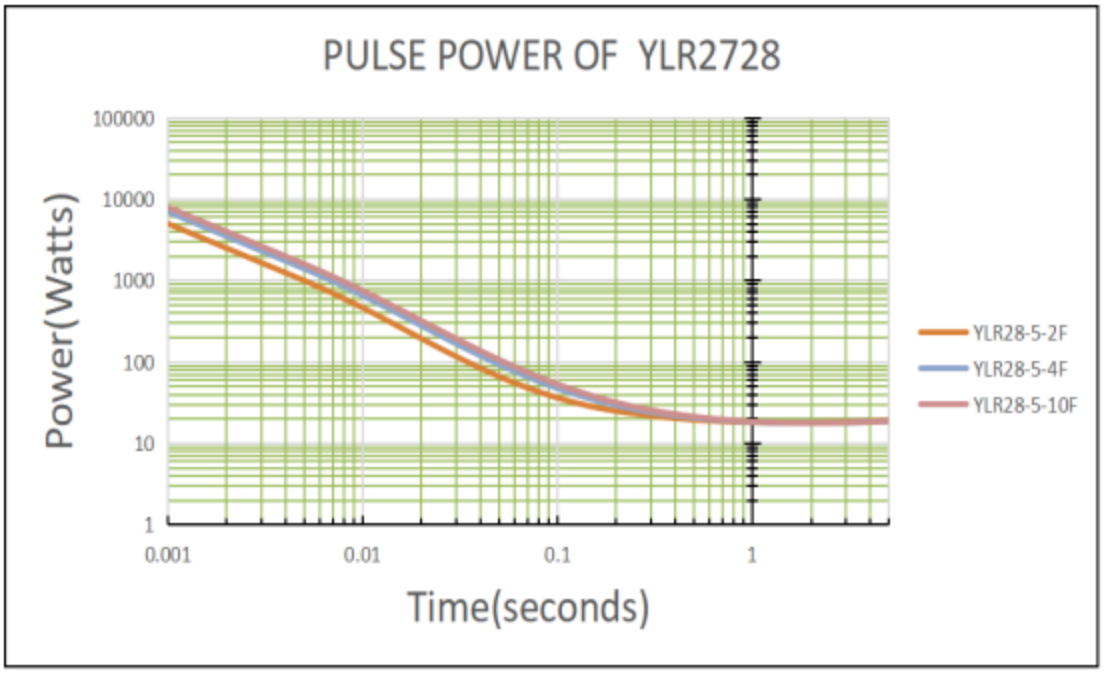


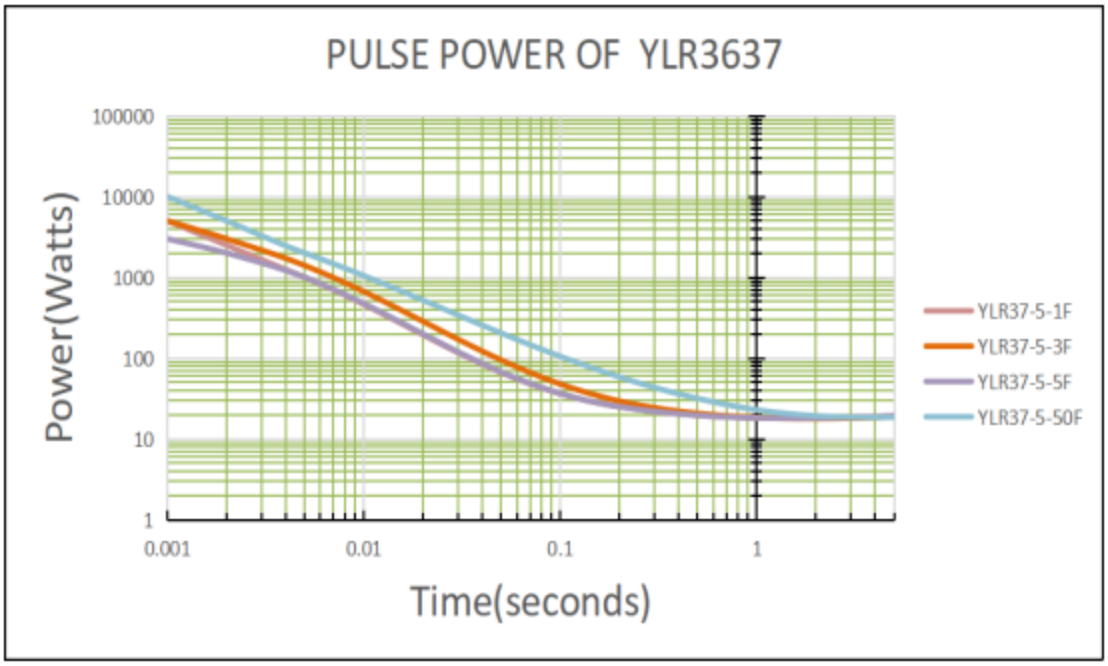
6.Pulse Capability Curve





7.Pulse Capability Curve





8.Marking

Laser Marking(No suffix) / White Printed Marking(With suffix "-Y"):

- All the products marking are 3 or 4 digits. 'R' designates the decimal location in ohms

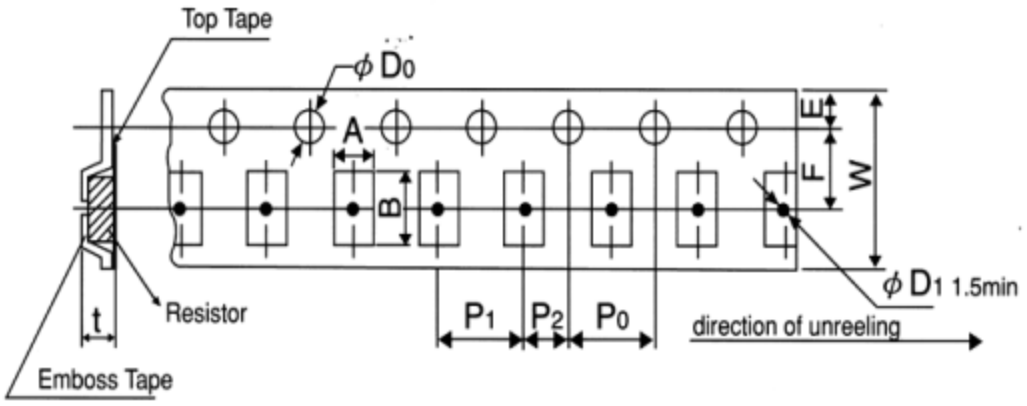
  E.g., :

- 3mΩ= R003; 50mΩ=R050； 1.5mΩ=1m50
- 1206 series：3mΩ= 003; 15mΩ=015； 1.5mΩ=1m5

9.Packing

Storage Conditions: Storage Conditions: Temperature:5℃~35℃, Humidity:40%~75%

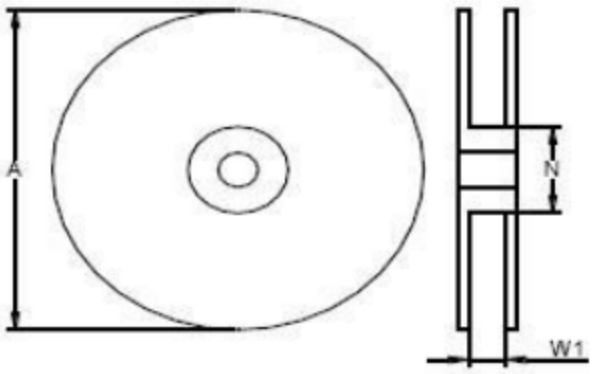
Packing Type: Embossed Plastic Tape



Unit/mm

Type	A±0.1	B±0.1	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
YLR06	1.9	3.4	8	3.5	1.75	4	2	4	Φ1.5	1.05	3000
YLR10	2.75	5.5	12	5.5	1.75	4	2	4	Φ1.5	0.82	3000
YLR12	3.45	6.65	12	5.5	1.75	4	2	4	Φ1.5	1.15	3000
YLR17	4.5	7.4	16	7.5	1.75	8	2	4	Φ1.5	1.00	1500
YLR28	7.7	7.1	16	7.5	1.75	12	2	4	Φ1.5	1.30	1000
YLR37	9.8	9.5	16	7.5	1.75	16	2	4	Φ1.5	1.18	3000

10.Reel & Tape Specifications



Unit/mm

Type	A±2	N±1	W1±1
YLR06	178	60	12
YLR10			
YLR12			
YLR17			
YLR28			
YLR37	330	100	24

This document is a product specification. Contents are subject to change without notice.