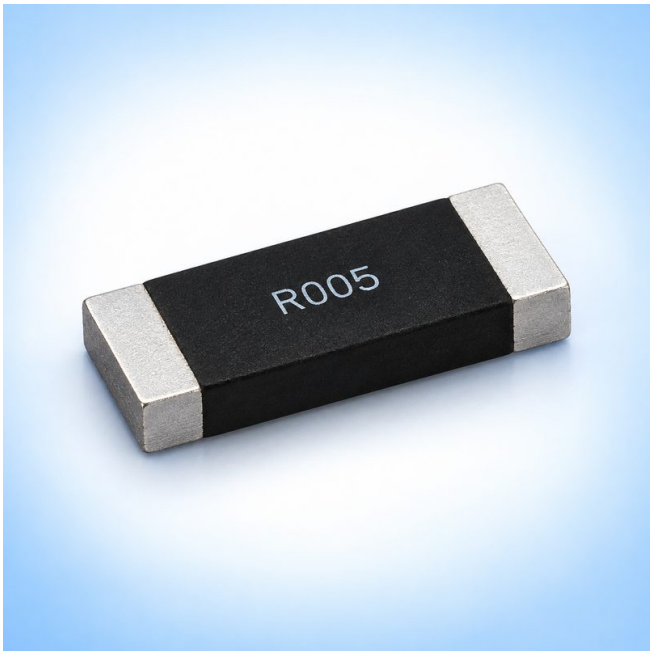
YLR Low-Resistance Metal-Strip Chip Resistors

Features

- Resistance: 0.5~200mΩ; power: 1~7W
- Tolerance: ±0.5%, ±1%, ±2%, ±5%
- TCR: ±50, ±75ppm/°C
- Manganin / Karma / CuMnSn; -65°C~170°C
- Inductance <5nH (1MHz)
- Insulation ≥220MΩ (DC500V, 1min)
- Withstand voltage 500V; RoHS; AEC-Q200

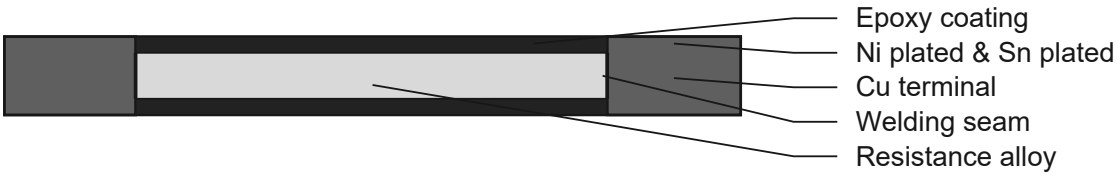


Applications

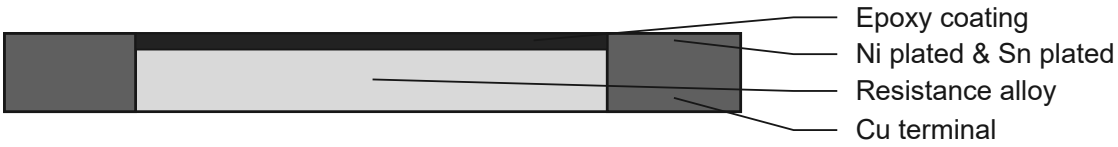
Current sensing; overcurrent protection; servo control; inverter power; electronic control; lithium-battery management.

Construction

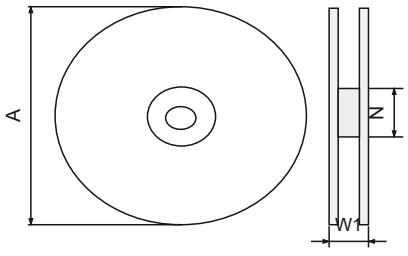
Electron-beam welded constructions



Composite alloy construction (YLR06 only, resistance 1~4mΩ)

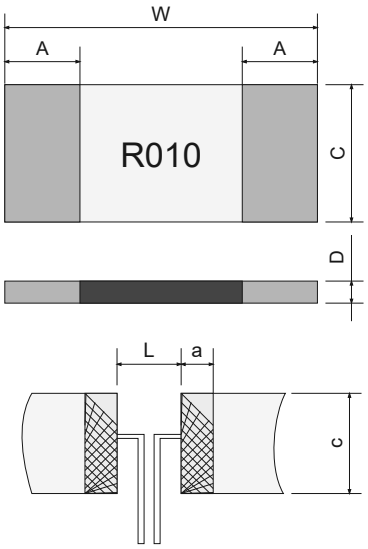


Reel Dimensions · mm



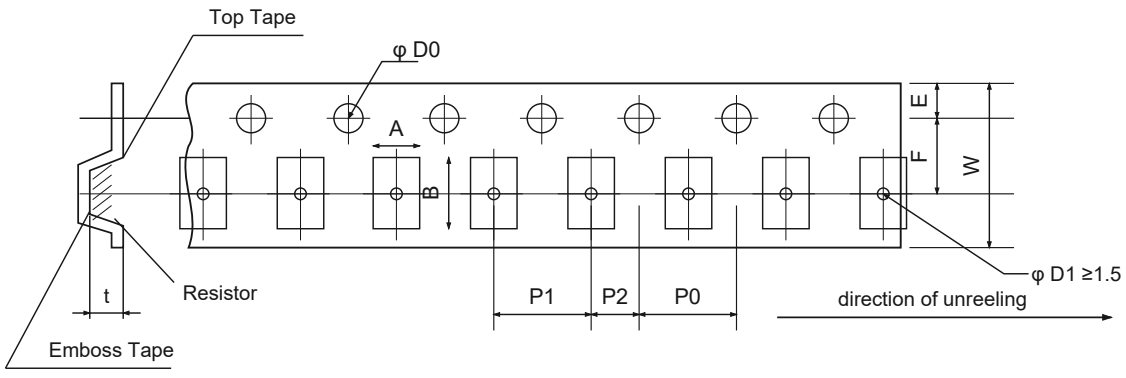
Type	A±2	N±1	W1±1
YLR06 / YLR10 / YLR12 / YLR17 / YLR28	178	60	12
YLR37 / YLR20 / YLR27	330	100	24

Product and Recommended Pad Dimensions · mm



Type	R (mΩ)	W±0.2	C±0.2	A±0.2	D±0.1	L	a	c
YLR06	1~4	3.2	1.65	0.6	0.75	1.6	1.7	1.8
YLR06	5~30	3.2	1.6	0.5	0.61	1.6	1.7	1.8
YLR10	0.5~0.9	5	2.5	1.3	0.8	2.1	2.1	3.5
YLR10	1~100	5	2.5	0.6	0.8	3.6	1.5	3.5
YLR12	0.5~0.9	6.35	3.2	2	0.8	2.1	3.1	4
YLR12	1	6.35	3.2	2	0.8	2.1	3.1	4
YLR12	1	6.35	3.2	0.9	1.0	4.1	2.1	4
YLR12	2~200	6.35	3.2	0.9	0.8	4.1	2.1	4
YLR17	1~4	7.1	4.3	1.2	0.8	3.5	2.7	5.2
YLR17	5~100	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
YLR28	2~100	6.8	7.2	1.2	0.8	4.5	3.0	7.8
YLR37	1~200	9.14	9.4	2.2	0.8	4.5	3.0	9.9
YLR20	5~100	11.0	5.0	2.36	0.8	5.4	3.9	5.6
YLR27	1~200	11.6	6.9	2	1.0	8.0	3.4	8.7

Tape Dimensions · mm



Standard Electrical Specifications

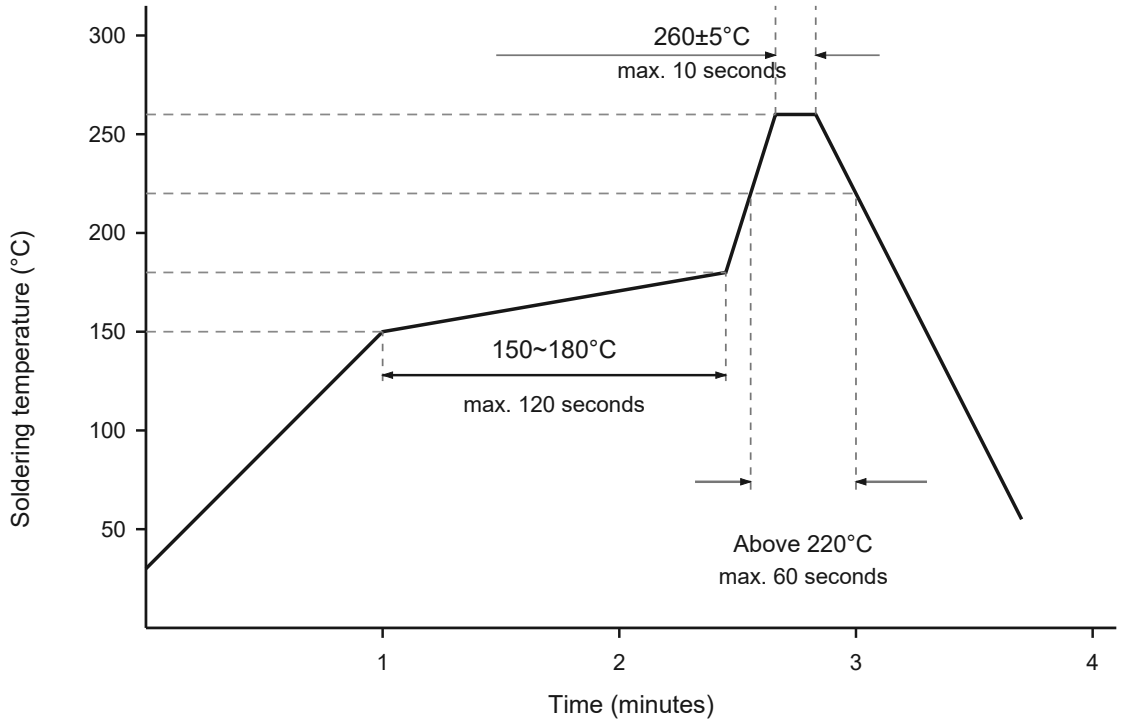
Type	Size	P70°C (W)	Alloy	R (mΩ)	TCR (ppm/°C)	Tolerance	Temp. (°C)
YLR	1206	1, 2	CuMnSn / Manganin / Karma	1~5 *5~30	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2010	1, 2	CuMnSn / Manganin / Karma	0.5~4	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2010	1, 2	CuMnSn / Manganin / Karma	5~50 *51~100	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2512	2, 3	CuMnSn / Manganin / Karma	0.5~4	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2512	2, 3	CuMnSn / Manganin / Karma	5~50 *51~200	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2817	4, 5	CuMnSn / Manganin / Karma	1~3	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2817	4, 5	CuMnSn / Manganin / Karma	4~50 *51~100	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2728	5	CuMnSn / Manganin / Karma	1~2	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	2728	5	CuMnSn / Manganin / Karma	3~50 *51~100	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	3637	3, 5	CuMnSn / Manganin / Karma	1~2	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	3637	3, 5	CuMnSn / Manganin / Karma	3~50 *51~200	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	4320	5, 6	CuMnSn / Manganin / Karma	5~50 *51~100	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	4527	5, 7	CuMnSn / Manganin / Karma	1~3	±75	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	4527	5, 7	CuMnSn / Manganin / Karma	4~50 *51~100	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C
YLR	4527	4	CuMnSn / Manganin / Karma	*101~200	±50	±0.5% / ±1% / ±2% / ±5%	-65°C~170°C

TCR test range: 20°C~120°C. For resistance ranges marked *, short-time overload is 2.5× rated power for 10s.

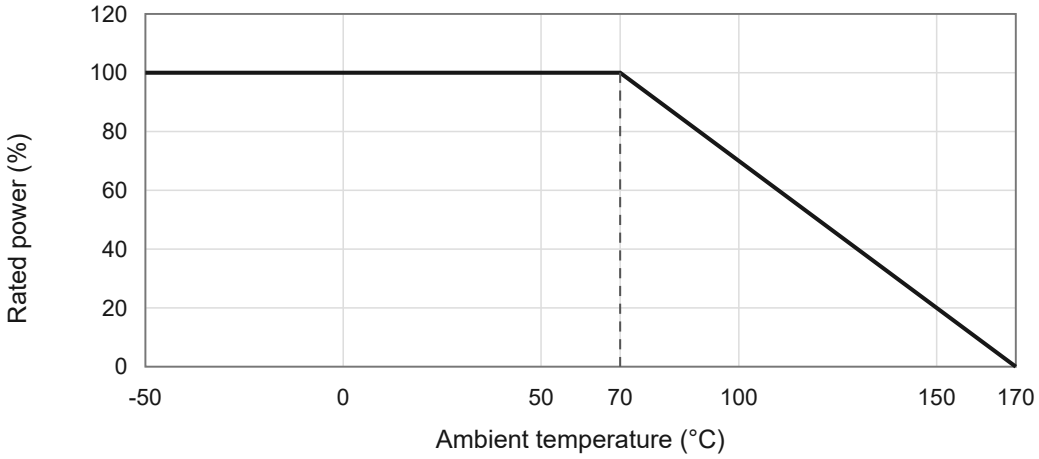
Endurance and Test Requirements

Test item	Test conditions	Reference	Limit
Temperature Cycling	1000 cycles (-55°C to +150°C)	JESD22 Method JA-104	±0.5%
ESD Test	Direct contact: ±6kV; air discharge: ±12kV, ±16kV, ±25kV	AEC-Q200 REV D June 1	±0.5%
High Temperature Exposure	100hrs at T=170°C, unpowered	MIL-STD-202 Method 108	±0.5%
Moisture Resistance	24hrs/cycle. Steps 7a and 7b are not required. Unpowered.	MIL-STD-202 Method 106	±0.5%
Biased Humidity	1000hrs, 85°C/85%RH; specified conditions: 10% of operating power	MIL-STD-202 Method 103	±0.5%
Operational Life	Condition D, steady state TA=125°C at rated power	MIL-STD-202 Method 108	±0.5%
Thermal Shock	1000 cycles (-55°C to +150°C)	MIL-STD-202 Method 107G	0.5%
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-202 Method 210	±0.5%
Short Time Overload	5× rated power for 5s; *2.5× rated power for 10s	MIL-STD-202 Method 201	±0.5%
Shock	100g, 6ms; ±X, ±Y, ±Z; 3 times per orientation, 18 times total	MIL-STD-202 Method 213	0.5%
Vibration	5g, 20min; 12 cycles in each of 3 orientations. Use 8×5 inch PCB, 0.031 inch thick; 7 secure points on one long side and 2 at corners on the opposite side. Parts within 2 inches of any secure point. 10~2000Hz.	MIL-STD-202 Method 204	0.5%

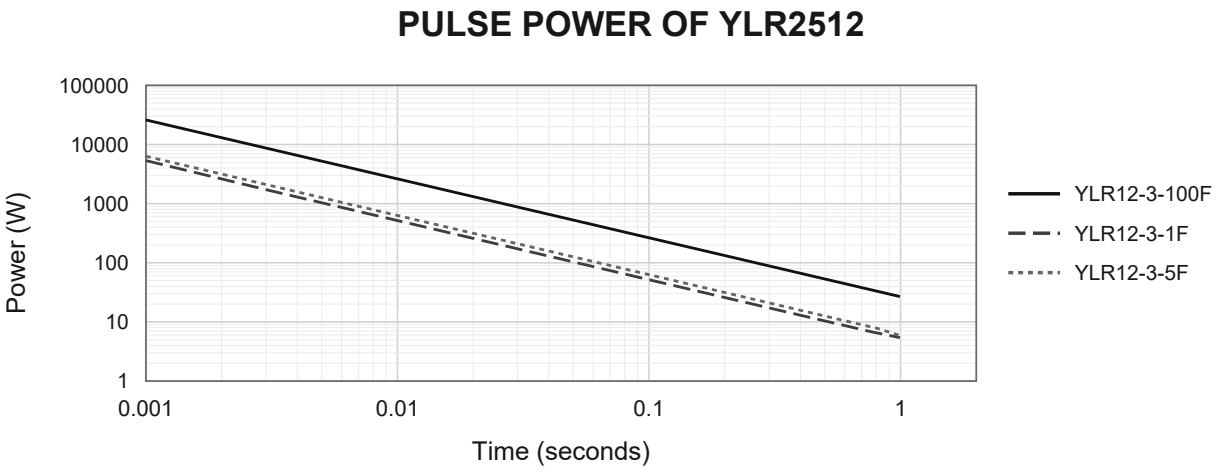
Solder Reflow Profile

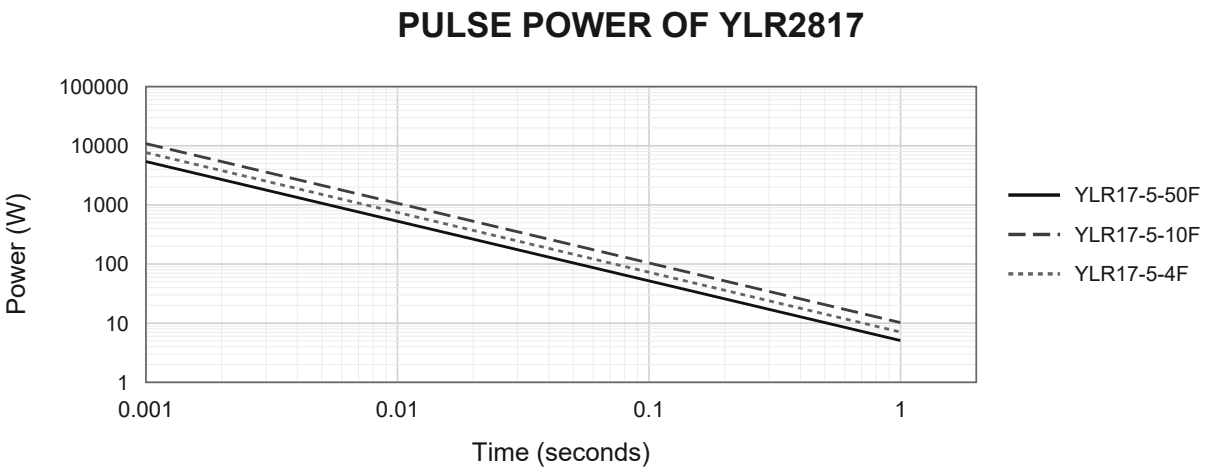


Power Derating



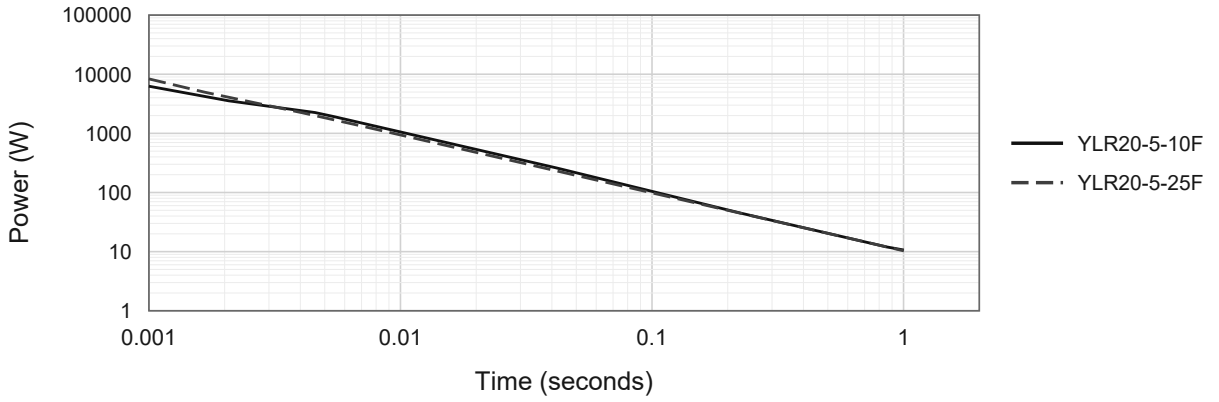
Pulse Capability Curves



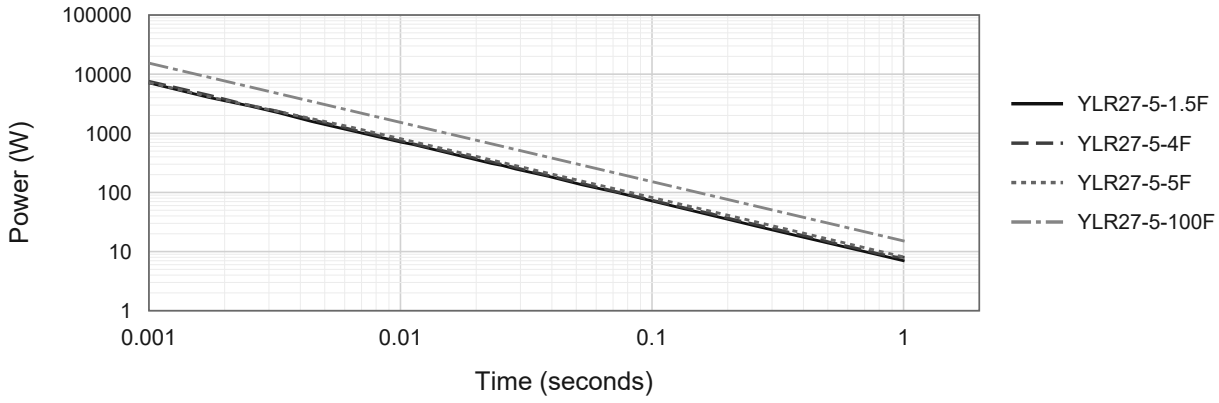


Pulse Capability Curves

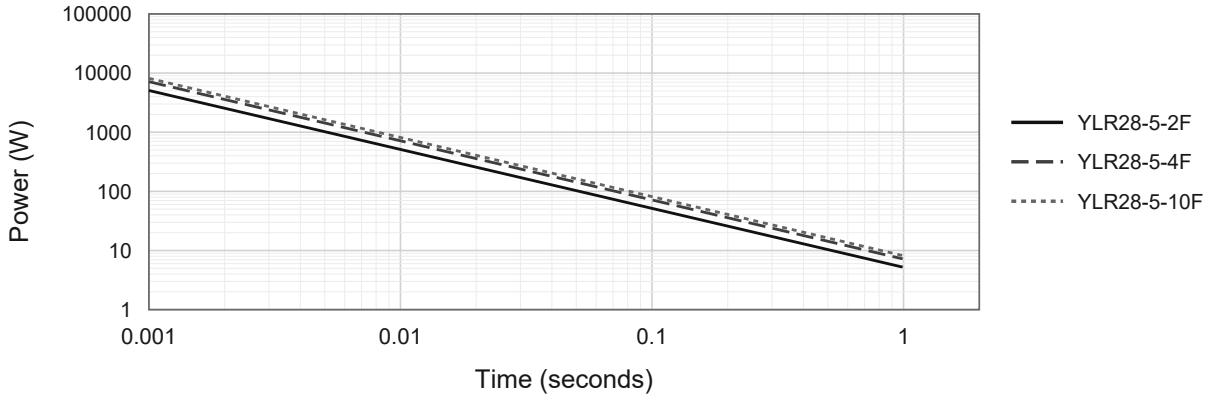
PULSE POWER OF YLR4320



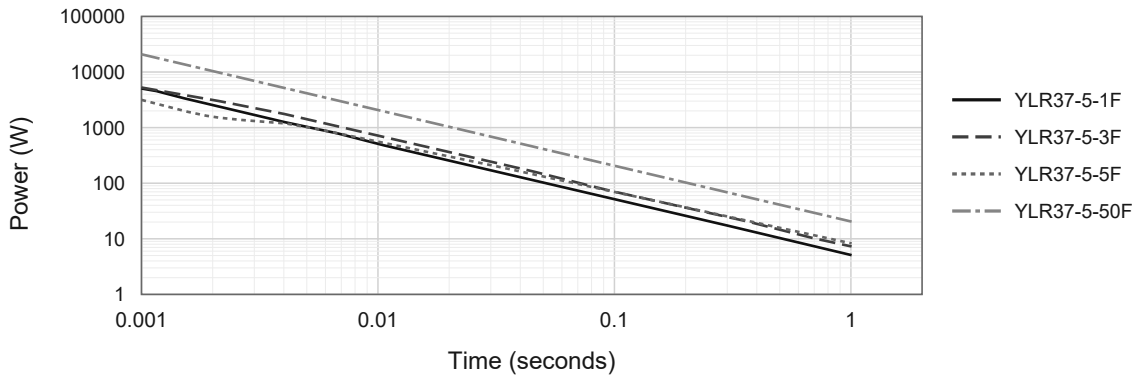
PULSE POWER OF YLR4527



PULSE POWER OF YLR2728



PULSE POWER OF YLR3637



Marking

Laser marking is standard; white screen printing is available by inquiry. Four-digit marking uses R as the decimal point in ohms: 3mΩ=R003; 100mΩ=R100; 1.5mΩ=1m50.

Packaging and Storage

Storage: 5°C~35°C, 40%~75%RH. Embossed plastic tape.

Type	A±2	B±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
YLR06	2.0	3.6	8	3.5	1.7	4	2.0	4.0	Φ1.5	0.84	3000
YLR10	2.75	5.5	12	5.5	1.75	4	2	4	Φ1.5	0.82	3000
YLR12	3.6	6.9	12	5.5	1.75	4	2.0	4.0	Φ1.5	1.2	3000
YLR17	4.8	7.2	16	7.5	1.75	6	2.0	4.0	Φ1.5	1.2	1500
YLR28	7.2	7.7	16	5.5	1.75	8	2.0	4.0	Φ1.5	1.2	1000
YLR37	9.8	9.6	24	11	1.75	12	2.0	4.0	Φ1.5	1.2	3000
YLR20	5.3	11.3	24	11.5	1.75	12	2.0	4.0	Φ1.5	1.2	3000
YLR27	7.4	11.8	24	11.5	1.75	12	2.0	4.0	Φ1.5	2.3	3000

Ordering Information

Field	Codes and description
Type	YLR
Size	06:1206; 10:2010; 12:2512; 17:2817; 28:2728; 37:3637; 20:4320; 27:4527
Power	3: 3W
Resistance	10: 10mΩ
Tolerance	J: ±5%; G: ±2%; F: ±1%; D: ±0.5%