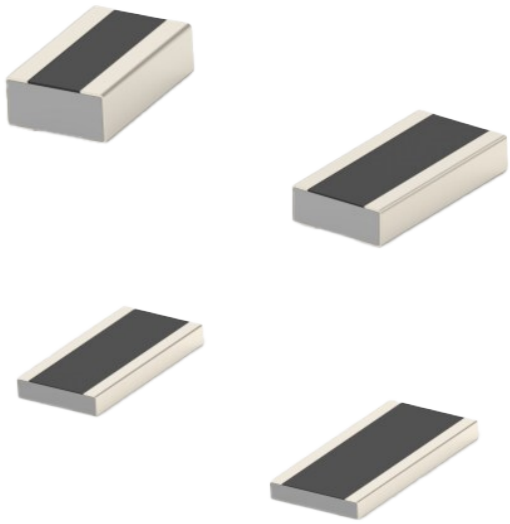
WIDE TERMINAL CURRENT SENSE RESISTOR

TYPE RLW73 SERIES

INTRODUCTION

TE Connectivity (TE) is pleased to introduce this wide terminal cousin of our successful RL73 series current sense resistor. With reliable multilayer electrode construction, and high purity alumina substrate for high power dissipation, along with long side terminations, we can offer up to 3W in 1225 configuration with resistance values from 10mΩ ~ 750mΩ



FEATURES

- Highly reliable multilayer electrode construction
- High power to size ratio
- High purity alumina substrate for high power dissipation
- Long side terminations with higher power rating
- Moisture sensitivity level - MSL1

APPLICATIONS

- Power management applications
- Over current protection in audio applications
- Voltage regulation module (VRM)

ELECTRICAL CHARACTERISTICS

Item / Type	Size code	Power rating @70°C (W)	Maximum operating current (A)	Resistance range (mΩ)		TCR (ppm/°C)
				1% E24/E96	5% E24	
RLW73	A2 0508	0.50	7.07	10-27(E24)		±600
				30- 510*		±200
RLW73	B2 0612	0.75	8.66	10-27(E24)		±600
				30- 510*		±200
RLW73	H2 1020	1.00	10	10-27(E24)		±600
				30- 750*		±200
RLW73	A3 1225	1.50	12.24	10-27(E24)		±600
				30- 750*		±200

*NB Values below 100mΩ only available in E24 series

WIDE TERMINAL CURRENT SENSE RESISTOR
TYPE RLW73 SERIES

HIGH POWER RATING ELECTRICAL SPECIFICATIONS

Item / Type	Size code	Power rating @70°C (W)	Maximum operating current (A)	Resistance range (mΩ)		TCR (ppm/°C)
				1% E24/E96	5% E24	
RLW73P	A2 0508	1.00	10	10 - 27(E24)		±600
				30 - 510*		±200
RLW73P	B2 0612	1.50	12.2	10 - 27(E24)		±600
				30 - 510*		±200
RLW73P	H2 1020	2.00	14.1	10 - 27(E24)		±600
				30 - 750*		±200
RLW73P	A3 1225	3.00	17.3	10 - 27(E24)		±600
				30 - 750*		±200

* NB Values below 100mΩ only available in E24 series.
Operating Voltage=√(P*R); Overload Voltage=2.5*√(P*R); Operating Current=√(P/R).
Operating Temperature Range: -55 ~ 155°C.
Storage Temperature: 15~28°C; Humidity < 80%RH.
Shelf Life: 2 years from production date.

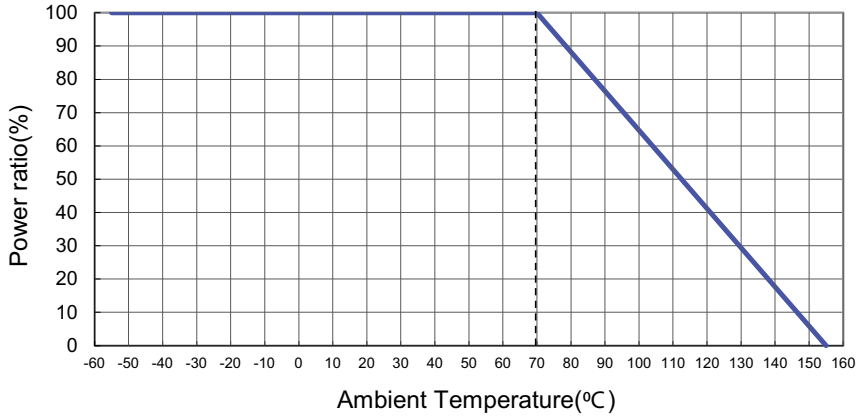
ENVIRONMENTAL CHARACTERISTICS

Item	Requirement	Test Methods
Temperature coefficient of resistance (T.C.R.)	As Spec.	**JIS C 5201-1 4.8** **IEC 60115-1 4.8** At 25°C/-55°C and 25°C/+125°C, 25°C is the reference temperature
Short time overload	±(2.0%+0.05Ω)	**JIS C 5201-1 4.13** **IEC 60115-1 4.13** RCWV*2 for 5 seconds
Insulation resistance	≥10G	**JIS C 5201-1 4.6** **IEC 60115-1 4.6** Max. Overload Voltage for 1 minute
Endurance	±(2.0%+0.05Ω)	**JIS-C-5201-1 4.25** **IEC-60115-1 4.25.1** 70°C ±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Damp heat with load	±(2.0%+0.05Ω)	**JIS-C-5201-1 4.24** **IEC-60115-1 4.24** 40°C ±2°C, 90-95% R.H., RCWV for 1000hrs with 1.5 hrs "ON" and 0.5 hr "OFF"
Dry heat	±(1.0%+0.05Ω)	**JIS-C-5201-1 4.23** **IEC-60115-1 4.23.2** at +155°C for 1000 hrs
Bending strength	±(1.0%+0.05Ω)	**JIS-C-5201-1 4.33** **IEC-60115-1 4.33** Bending once for 60 seconds with 3mm
Solderability	95% min. coverage	**JIS C 5201-1 4.17** **IEC 60115-1 4.17** 245°C ±5°C for 3 seconds

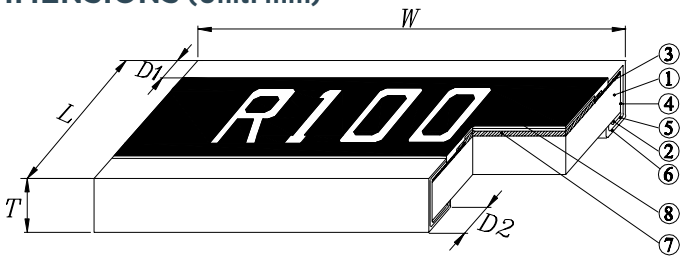
ENVIRONMENTAL CHARACTERISTICS

Item	Requirement	Test Methods
Resistance to soldering heat	±(1.0%+0.05Ω)	**JIS C 5201-1 4.18** **IEC 60115-1 4.18** 260°C ±5°C for 10 seconds
Voltage proof	No breakdown or flashover	**JIS C 5201-1 4.7** **IEC 60115-1 4.7** 1.42 times Max. Operating Voltage for 1-minute RL73WA2:300V RL73WB2/H2/A3:400V
Leaching	Individual leaching area ≤5% Total leaching area ≤10%	**JIS C 5201-1 4.18** **IEC 60068-2-58 8.2.1** 260°C ±5°C for 30 seconds
Rapid change of temperature	±(0.5%+0.05Ω)	**JIS-C-5201-1 4.19** **IEC-60115-1 4.19** -55°C (30 minutes) / +125°C (30 minutes) , 5 cycles

DERATING CURVE



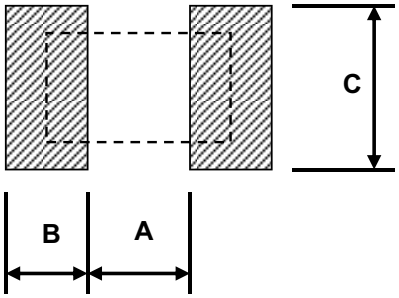
CONSTRUCTION AND DIMENSIONS (Unit: mm)



① Alumina Substrate
② Bottom Electrode
③ Top Electrode
④ Edge Electrode
⑤ Barrier Layer
⑥ External Electrode
⑦ Resistor Layer
⑧ Overcoat

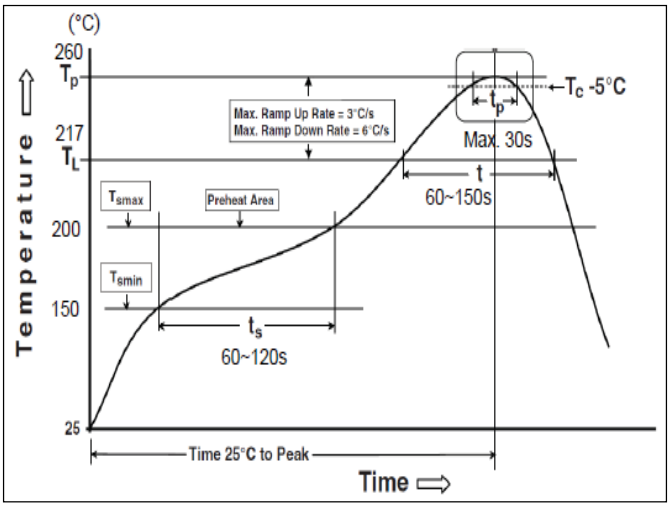
Type	Size	L (mm) ±0.15	W (mm) ±0.15	T (mm) ±0.10	D1 (mm) ±0.20	D2 (mm) ±0.15	Weight (g/1000)
RLW73A2	0508	1.25	2.00	0.60	0.30	0.35	6
RLW73B2	0612	1.60	3.20	0.60	0.30	0.45	12
RLW73H2	1020	2.50	5.00	0.60	0.40	0.75	35
RLW73A3	1225	3.10	6.30	0.60	0.45	0.75	48

RECOMMENDED LAND PATTERN



Type	A (mm)	B (mm)	C (mm)
RLW73A2	0.55	0.90	2.00
RLW73B2	0.70	0.80	3.20
RLW73H2	1.00	1.30	5.00
RLW73A3	1.60	1.20	6.40

SOLDERING CONDITION (Ref. IPC/JEDEC J-STD-020 & J-STD-002)



Reflow Profiles	
Profile Feature	**Pb-Free Assembly**
Preheat Minimum temperature (Tsmin) Maximum temperature (Tsmax) Preheating time (ts) from (Tsmin to Tsmax)	 150 °C 200 °C 60-120 seconds
Ramp-up rate (TL to Tp)	3 °C/second maximum
Liquidous temperature (TL) Time (tL) maintained above TL	217 °C 60-150 seconds
Minimum peak temperature (Tp min)	235°C
Maximum peak temperature (Tp max)	260°C
Time (tp) within 5 °C of the specified classification temperature (Tc)	30 seconds max.
Ramp-down rate (Tp to TL)	6 °C/second max.
Time 25 °C to peak temperature	8 minutes max.

MARKING

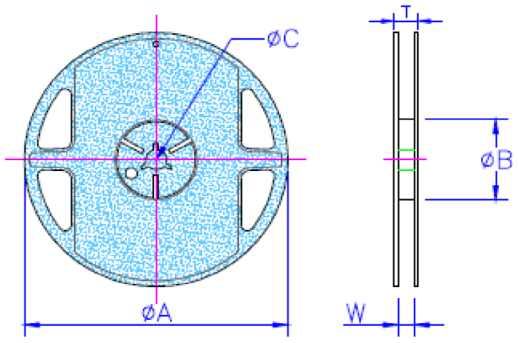
4 digits marking for all sizes.

Example:

Resistance	10mΩ	100mΩ
Marking	R010	R100

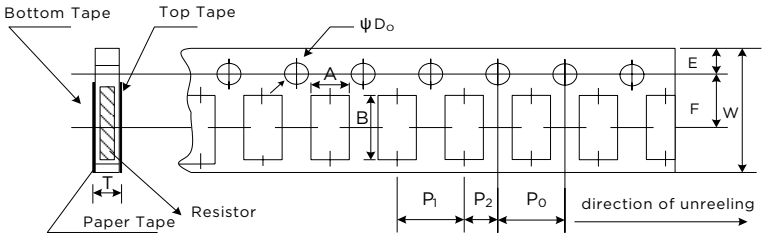
PACKAGING

Reel Quantity and Specification



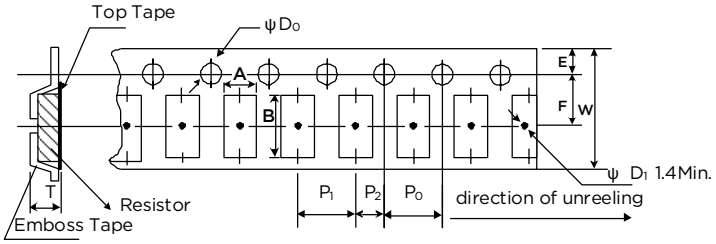
Size	ØA (mm) ±1.0	ØB (mm) ±1.0	ØC (mm) ±0.7	W (mm) ±1.0	T (mm) ±1.0	Paper Tape	Plastic Tape
0508	178.0	60.0	13.5	9.5	11.5	5000 / 1000	
0612	178.0	60.0	13.5	9.5	11.5	5000 / 1000	
1020	178.0	60.0	13.5	13.5	15.5		4000 / 1000
1225	178.0	60.0	13.5	13.5	15.5		4000 / 1000

Paper Tape Specifications



Size	A (mm) ±0.10	B (mm) ±0.20	W (mm) ±0.20	E (mm) ±0.10	F (mm) ±0.05	P_0 (mm) ±0.10	P_1 (mm) ±0.05	P_2 (mm) ±0.05	ØD_0 (mm) +0.1/-0	T (mm) ±0.10
0508	1.60	2.40	8.00	1.75	3.50	4.00	4.00	2.00	1.50	0.85
0612	1.90	3.50	8.00	1.75	3.50	4.00	4.00	2.00	1.50	0.85

Embossed Plastic Tape Specification



Size	A (mm) ±0.10	B (mm)	W (mm) ±0.30	E (mm) ±0.10	F (mm)	P_0 (mm)	P_1 (mm) ±0.10	P_2 (mm) ±0.05	ØD_0 (mm) ±0.10	T (mm) ±0.20
1020	2.80	5.40±0.20	12.0	1.75	5.5 ±0.05	4.00±0.05	4.00	2.00	1.50	1.00
1225	3.38	6.68±0.10	12.0	1.75	5.5 ±0.10	4.00±0.10	4.00	2.00	1.50	1.00

PRODUCT CODE STRUCTURE

Typical product code

RLW73 A2 F R047 TD

Common Part

RLW73	Wide Terminal Current Sense Resistor
RLW73P	High Power Wide Terminal Current Sense Resistor

Size Code

A2	0508
B2	0612
H2	1020
A3	1225

Resistance Tolerance

F	1%
J	5%

Resistance Value

10mΩ	R010
100mΩ	R100

Packaging

TD	Reel 5K (0508 & 0612)
TDF	Reel 1K
TE	Reel 4K (1020 & 1225)

te.com

08/24 1773269-2 ED