

## Type RL73 Series

### Key Features

- Up to 2 Watts at 70°C
- Values down to R10
- 8 chip sizes
- Ideal for current detection
- Value marked on resistor
- Sizes 0201 to 2512
- 0402, 0603, 0805, 1206, 2512 stocked in distribution
- New Higher Power Version now available

### Applications

- Audio
- Communications
- Automotive
- Low voltage power supplies
- Power management applications



TE Connectivity are pleased to offer this thick film chip resistor for current sensing positions. It has a special metal glaze resistive element and a nickel barrier layer beneath the solder to prolong terminal life. Following the developments by semiconductor manufacturers in the production of a range of IC's for battery charge management and low voltage power supplies, the RL73 Series satisfies the demand for a low ohmic shunt resistor to act as a current sensor.

### Characteristics - Electrical - Standard Power

Type	TCR	Power rating @ 70°C	Resistance Range	TDF	TD	TE	Tape
RL73X1H	1000PPM	0.05W	R10 - R13	1000	5000	--	Paper tape
RL73V1H	600PPM	0.05W	R15 - R47	1000	5000	--	Paper tape
RL73N1H	300PPM	0.05W	R51 - R91	1000	5000	--	Paper tape
RL73N1E	300PPM	0.0625W	R10 - R91	1000	5000	--	Paper tape
RL73N1J	300PPM	0.1W	R10 - R91	1000	5000	--	Paper tape
RL73H2A	100PPM	0.125W	R10 - R91	1000	5000	--	Paper tape
RL73K2A	200PPM	0.125W	R10 - R91	1000	5000	--	Paper tape
RL73H2B	100PPM	0.25W	R10 - R91	1000	5000	--	Paper tape
RL73K2B	200PPM	0.25W	R10 - R91	1000	5000	--	Paper tape
RL73H2E	100PPM	0.5W	R10 - R91	1000	5000	--	Paper tape
RL73K2E	200PPM	0.5W	R10 - R91	1000	5000	--	Paper tape
RL73H2H	100PPM	0.75W	R10 - R91	1000	--	4000	Embossed plastic tape
RL73K2H	200PPM	0.75W	R10 - R91	1000	--	4000	Embossed plastic tape
RL73H3A	100PPM	1W	R10 - R91	1000	--	4000	Embossed plastic tape
RL73K3A	200PPM	1W	R10 - R91	1000	--	4000	Embossed plastic tape

## Type RL73 Series

### Characteristics - Electrical - High power version

Type	TCR	Power rating @ 70°C	Resistance Range	TDF	TD	TE	Tape
RLP73M1E	400PPM	0.125W	R051 - R10	1000	5000	--	Paper
RLP73N1E	300PPM	0.125W	R110 - R47	1000	5000	--	Paper
RLP73K1E	200PPM	0.125W	R51 - 1R0	1000	5000	--	Paper
RLP73M1J	400PPM	0.125W	R051 - R10	1000	5000	--	Paper
RLP73N1J	300PPM	0.125W	R110 - R47	1000	5000	--	Paper
RLP73K1J	200PPM	0.125W	R51 - 1R0	1000	5000	--	Paper
RLP73M2A	400PPM	0.25W	R051 - R10	1000	5000	--	Paper
RLP73N2A	300PPM	0.25W	R110 - R47	1000	5000	--	Paper
RLP73K2A	200PPM	0.25W	R51 - 1R0	1000	5000	--	Paper
RLP73V2B	600PPM	0.5W	R010 - R020	1000	5000	--	Paper
RLP73M2B	400PPM	0.5W	R022 - R047	1000	5000	--	Paper
RLP73N2B	300PPM	0.5W	R051 - R091	1000	5000	--	Paper
RLP73K2B	200PPM	0.5W	R10 - 1R0	1000	5000	--	Paper
RLP73V3A	600PPM	2W	R010 - R020	1000	--	4000	Plastic
RLP73M3A	400PPM	2W	R022 - R047	1000	--	4000	Plastic
RLP73N3A	300PPM	2W	R051 - R091	1000	--	4000	Plastic
RLP73K3A	200PPM	2W	R10 - 1R0	1000	--	4000	Plastic

Operating Voltage= $\sqrt{P \cdot R}$  ; Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$  ; Operating Current= $\sqrt{P/R}$   
 Maximum operating temperature -55°C to +155°C

### Power Derating Curve



\* Recommended Circuit Board Design

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with this curve.

### Characteristics - Environmental

Item	Requirement	Test Method
Temperature Coefficient of Resistance (TCR):	As Specification	-55°C ~ +125°C, 25°C is the reference temperature
Short Time Overload:	$\pm(0.5\%+0.05\Omega)$ for higher Power rating: $\pm(1.0\% + 0.05\Omega)$	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance:	$\geq 10G$	Max. overload voltage for 1 minute
Endurance:	$\pm(1.0\%+0.05\Omega)$	70 $\pm 2^\circ\text{C}$ , Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load:	$\pm(0.5\%+0.05\Omega)$	40 $\pm 2^\circ\text{C}$ , 90-95% R.H. max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat:	$\pm(0.5\%+0.05\Omega)$	at +155°C for 1000 hrs
Bending Strength:	As Spec.	Bending once for 5 seconds 2010, 2512 sizes: 2mm Other sizes: 3mm
Solderability:	95% min. coverage	245 $\pm 5^\circ\text{C}$ for 3 seconds
Resistance to Soldering Heat:	$\pm(0.5\%+0.05\Omega)$	260 $\pm 5^\circ\text{C}$ for 10 seconds
Voltage Proof:	No breakdown or flashover	1.42 times RCWV (RMS) for 1 minute
Leaching:	Individual leaching area $\leq 5\%$ Total leaching area $\leq 10\%$	260 $\pm 5^\circ\text{C}$ for 30 seconds
Thermal Shock:	$\pm(0.5\%+0.05\Omega)$	-55°C to +155°C, 5 cycles

Reference Standards: IEC 60115-1, 60068-2-58; JIS-C 5201-1

Storage Temperature: 25 $\pm 3^\circ\text{C}$ ; Humidity < 80%RH

## Type RL73 Series

### Dimensions



- |                          |                            |                          |
|--------------------------|----------------------------|--------------------------|
| 1. Alumina Substrate     | 4. Edge Electrode (NiCr)   | 7. Resistor Layer (NiCr) |
| 2. Bottom Electrode (Ag) | 5. Barrier Layer (Ni)      | 8. Overcoat (Epoxy)      |
| 3. Top Electrode (Ag-Pd) | 6. External Electrode (Sn) | 9. Marking               |

Part Number	L	W	C	D	t
RL73 1H (0201)	0.58 ±0.05	0.29 ±0.05	0.15 ±0.05	0.12 ±0.05	0.23 ±0.05
RL(P)73 1E (0402)	1.00 ±0.05	0.50 ±0.05	0.20 ±0.10	0.25 ±0.10	0.32 ±0.10
RL(P)73 1J (0603)	1.60 ±0.10	0.80 ±0.10	0.30 ±0.20	0.30 ±0.20	0.45 ±0.10
RL(P)73 2A (0805)	2.00 ±0.15	1.25 ±0.15	0.40 ±0.25	0.30 ±0.20	0.55 ±0.10
RL(P)73 2B (1206)	3.10 ±0.10	1.55 ±0.15	0.40 ±0.25	0.50 ±0.30	0.55 ±0.10
RL(P)73 2E (1210)	3.10 ±0.10	2.50 ±0.15	0.50 ±0.25	0.50 ±0.30	0.55 ±0.10
RL(P)73 2H (2010)	5.00 ±0.20	2.50 ±0.15	0.50 ±0.25	0.60 ±0.30	0.60 ±0.15
RL73 3A (2512)	6.35 ±0.20	3.10 ±0.15	0.55 ±0.25	0.60 ±0.30	0.60 ±0.10
RLP73 3A (2512) <R10	6.35 ±0.20	3.15 ±0.15	0.55 ±0.25	0.60 ±0.30	0.74 ±0.10
RLP73 3A (2512) ≥R10	6.35 ±0.20	3.15 ±0.15	2.10 ±0.10	0.60 ±0.30	0.74 ±0.10

### Recommend Land Pattern



Type	A	B	C
RL73 1H (0201)	0.25	0.3	0.40 ±0.2
RL(P)73 1E (0402)	0.5	0.5	0.60 ±0.2
RL(P)73 1J (0603)	0.8	1.0	0.90 ±0.2
RL(P)73 2A (0805)	1.0	1.0	1.35 ±0.2
RL(P)73 2B (1206)	2.0	1.15	1.70 ±0.2
RL(P)73 2E (1210)	2.0	1.15	2.50 ±0.2
RL(P)73 2H (2010)	3.6	1.4	2.50 ±0.2
RL73 3A (2512)	4.9	1.6	3.10 ±0.2
RLP73 3A (2512) <R10	4.9	1.6	3.10 ±0.2
RLP73 3A (2512) ≥R10	1.0	3.55	3.10 ±0.2

## Type RL73 Series

### Packaging Quantity & Reel Specifications



Type	øA	øB	øC	W	T	Paper Tape	Embossed Plastic Tape
RL73 1H (0402)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 1E (0402)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 1J (0603)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 2A (0805)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 2B (1206)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 2E (1210)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	9.5 ±0.1	11.5 ±1.0	1000 / 5000	-
RL(P)73 2H (2010)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	13.5 ±1.0	15.5 ±1.0	-	1000 / 4000
RL(P)73 3A (2512)	178.0 ±1.0	60.0 +1.0	13.5 ±0.7	13.5 ±1.0	15.5 ±1.0	-	1000 / 4000

### Paper Tape Specification



Type	A	B	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	øD <sub>0</sub>	T
RL73 1H	0.38 ±0.05	0.68 ±0.05	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	2.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.42 ±0.20
RL(P)73 1E	0.65 ±0.10	1.15 ±0.10	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	2.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.45 ±0.10
RL(P)73 1J	1.10 ±0.10	1.90 ±0.10	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.70 ±0.10
RL(P)73 2A	1.60 ±0.10	2.40 ±0.20	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.85 ±0.10
RL(P)73 2B	1.90 ±0.10	3.50 ±0.20	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.85 ±0.10
RL(P)73 2E	2.90 ±0.10	3.50 ±0.20	8.0 ±0.20	1.75 ±0.10	3.50 ±0.05	4.00 ±0.10	4.00 ±0.05	2.00 ±0.05	1.50+0.1,-0	0.85 ±0.10

## Type RL73 Series

### Embossed Plastic Tape Specifications



Type	A	B	W	E	F	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	øD <sub>0</sub>	T
RL(P)73 2H	2.80±0.10	5.50±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20
RL73 3A	3.50±0.10	6.70±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20
RLP73 3A	3.38±0.10	6.68±0.10	12.0±0.30	1.75±0.10	5.5±0.01	4.00±0.10	4.00±0.10	2.00±0.05	1.50+0.05	1.45±0.20

### How to Order

RL73	H	2A	R10	F	TD
Common Part	TCR	Size	Resistor Value	Tolerance	Packaging
RL73 RLP73	X - 1000PPM V - 600PPM N - 300PPM H - 100PPM K - 200PPM M - 400PPM See above for applicability	1H -0201 1E -0402 1J -0603 2A -0805 2B -1206 2E -1210 2H -2010 3A -2512	0.1 Ohm (100milliOhm) R10  0.91 Ohm (910 milliOhm) R91	F - ±1%  J - ±5%	TDF -1000 REEL TD -5000 REEL TE -4000 REEL See above for applicability

TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks.  
Other logos, product and Company names mentioned herein may be trademarks of their respective owners.

While TE has made every reasonable effort to ensure the accuracy of the information in this datasheet, TE does not guarantee that it is error-free, nor does TE make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. TE reserves the right to make any adjustments to the information contained herein at any time without notice. TE expressly disclaims all implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose. The dimensions in this datasheet are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice. Consult TE for the latest dimensions and design specifications.