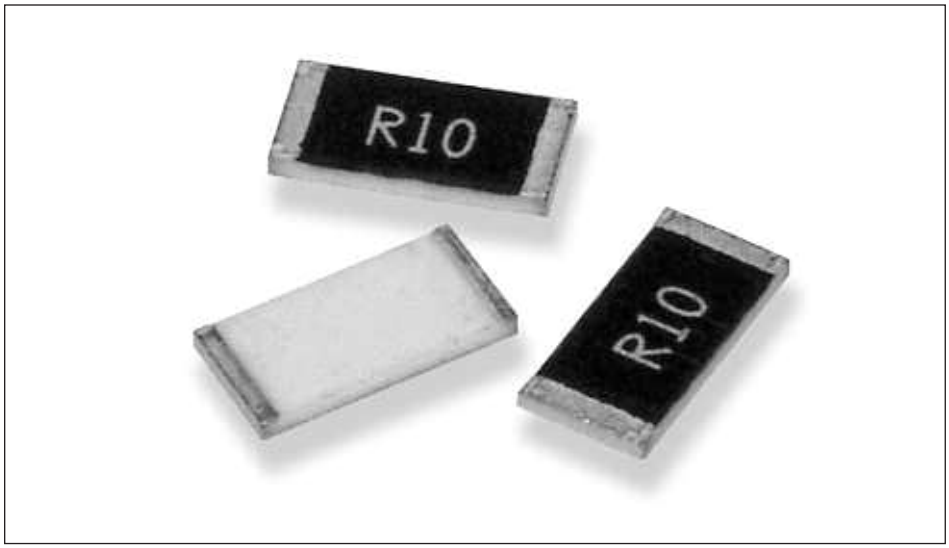
Type RL73 Series

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

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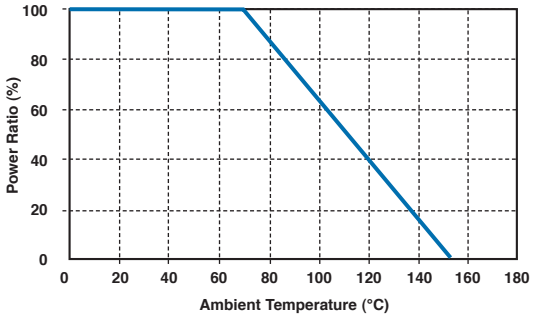
Type RL73 Series

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=√(P*R) ; Overload Voltage=2.5*√(P*R) ; Operating Current=√(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:	±(0.5%+0.05Ω) for higher Power rating: ±(1.0% + 0.05Ω)	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance:	≥10G	Max. overload voltage for 1 minute
Endurance:	±(1.0%+0.05Ω)	70 ±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load:	±(0.5%+0.05Ω)	40 ±2°C, 90-95% R.H. max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat:	±(0.5%+0.05Ω)	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 ±5°C for 3 seconds
Resistance to Soldering Heat:	±(0.5%+0.05Ω)	260 ±5°C for 10 seconds
Voltage Proof:	No breakdown or flashover	1.42 times RCWV (RMS) for 1 minute
Leaching:	Individual leaching area ≤5% Total leaching area ≤10%	260±5°C for 30 seconds
Thermal Shock:	±(0.5%+0.05Ω)	-55°C to +155°C, 5 cycles

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

Storage Temperature: 25±3°C; Humidity < 80%RH

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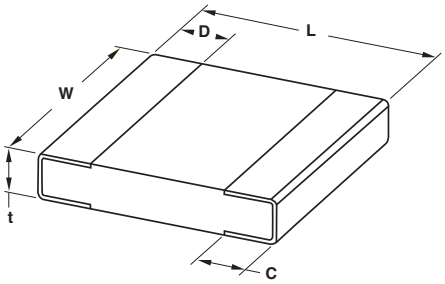
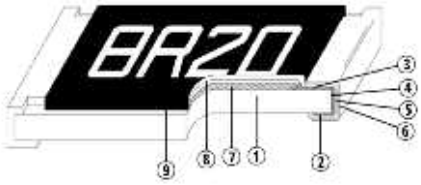
Type RL73 Series

Dimensions

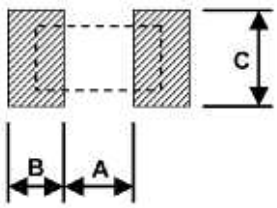




1. Alumina Substrate	4. Edge Electrode (NiCr)	7. Resistor Layer (NiCr)
2. Bottom Electrode (Ag)	5. Barrier Layer (Ni)	8. Overcoat (Epoxy)
3. Top Electrode (Ag-Pd)	6. External Electrode (Sn)	9. Marking

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

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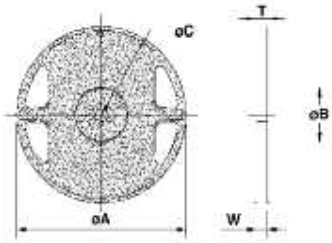
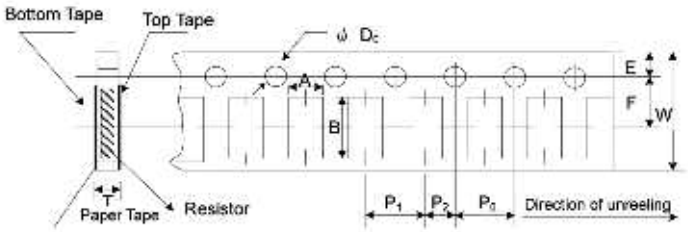
Type RL73 Series

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_0	P_1	P_2	$øD_0$	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

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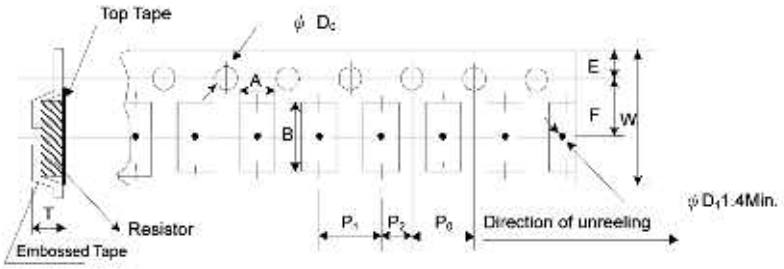
Embossed Plastic Tape Specifications



Type	A	B	W	E	F	P_0	P_1	P_2	$øD_0$	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

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