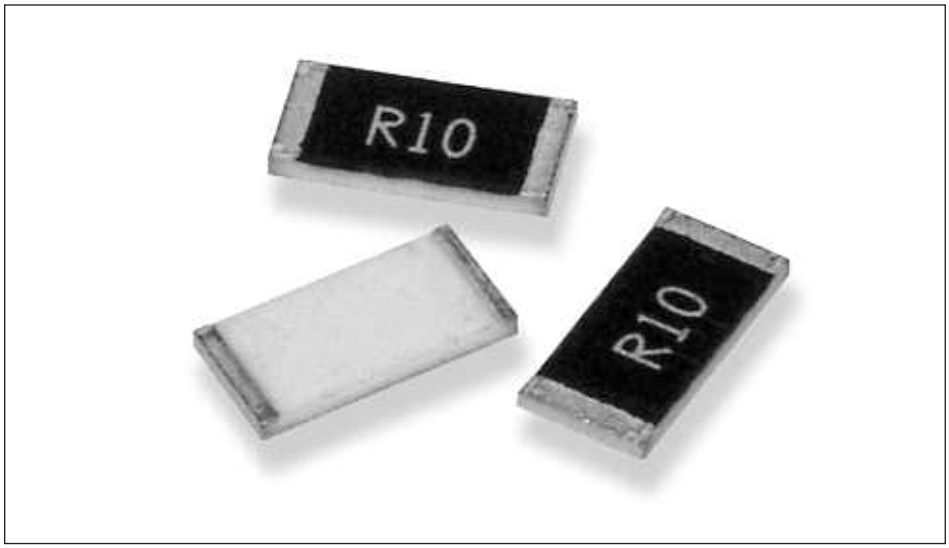
# Type RL73 Series

## 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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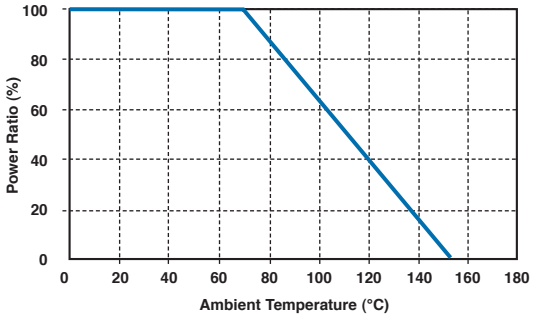
## Characteristics - Electrical - High power version

| 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)<br>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<br>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%<br>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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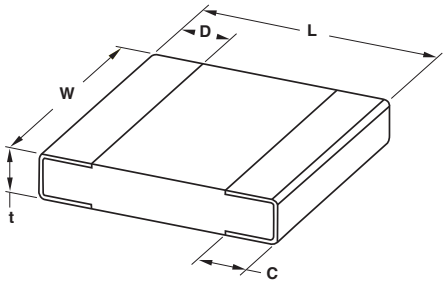
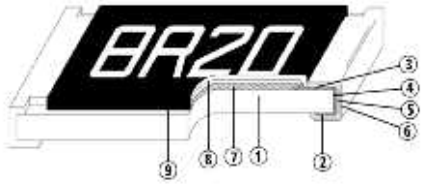
## Dimensions

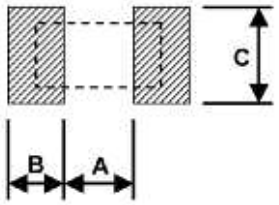



1. Alumina Substrate
2. Bottom Electrode (Ag)
3. Top Electrode (Ag-Pd)
4. Edge Electrode (NiCr)
5. Barrier Layer (Ni)
6. External Electrode (Sn)
7. Resistor Layer (NiCr)
8. Overcoat (Epoxy)
9. Marking

| 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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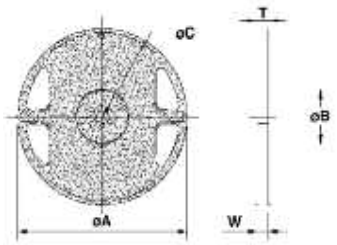
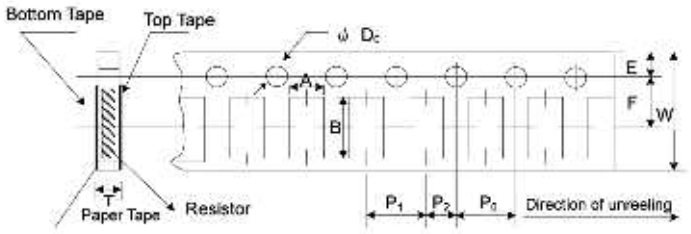
## Packaging Quantity & Reel Specifications




| 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 | $P_0$ | $P_1$ | $P_2$ | ø$D_0$ | 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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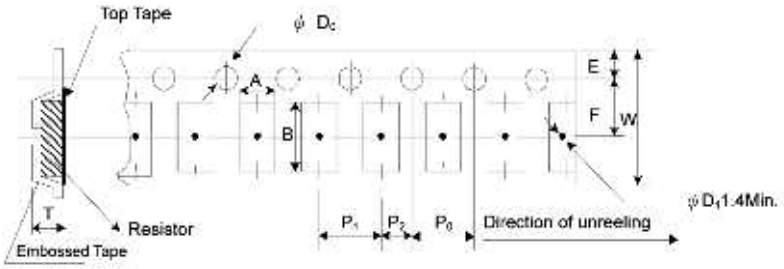
## Embossed Plastic Tape Specifications




| Type | A | B | W | E | F | $P_0$ | $P_1$ | $P_2$ | ø$D_0$ | 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<br>RLP73 | X -1000PPM<br>V - 600PPM<br>N - 300PPM<br>H - 100PPM<br>K - 200PPM<br>M - 400PPM<br>See above for applicability | 1H -0201<br>1E -0402<br>1J -0603<br>2A -0805<br>2B -1206<br>2E -1210<br>2H -2010<br>3A -2512 | 0.1 Ohm (100milliOhm) R10<br>0.91 Ohm (910 milliOhm) R91 | F - ±1%<br>J - ±5% | TDF -1000 REEL<br>TD -5000 REEL<br>TE -4000 REEL<br>See above for applicability |

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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

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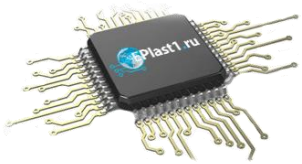
- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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