



# Low resistance chip resistors (long-side terminal)

## PRL / RL series

### Features

- Innovative structure that takes consideration of heat dissipation suppresses the surface temperature enabling the small sizes, reduction of the influence on surrounding components, excellent temperature cycle resistance, low ESL and low noise.

### Applications

- PC power sources, inverters, automotive electronics, adapters, industrial machines



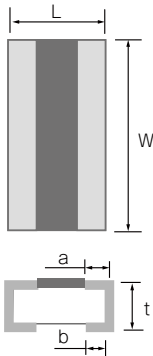
## ◆Part numbering system

| PRL 1220 - R010 - D - T5 |                                          |                          |                      |                                     | RL 3720W T - R10 - F |                        |                                       |                          |                      |
|--------------------------|------------------------------------------|--------------------------|----------------------|-------------------------------------|----------------------|------------------------|---------------------------------------|--------------------------|----------------------|
| Series code              | Size: PRL0816, PRL1220, PRL1632, PRL3264 | Nominal resistance value | Resistance tolerance | Packaging quantity:<br>T5(5,000pcs) | Series code          | Size: RL3720W, RL7520W | Temperature coefficient of resistance | Nominal resistance value | Resistance tolerance |
|                          |                                          |                          |                      |                                     |                      |                        |                                       |                          |                      |
|                          |                                          |                          |                      |                                     |                      |                        |                                       |                          |                      |

## ◆Electrical Specification

| Type    | Power ratings | Temperature coefficient of resistance | Resistance range(Ω) Resistance tolerance |             |         |         | Maximum voltage | Resistance value series       | Operating temperature | Packaging quantity |
|---------|---------------|---------------------------------------|------------------------------------------|-------------|---------|---------|-----------------|-------------------------------|-----------------------|--------------------|
|         |               | (ppm/°C)                              | ±0.5% (D)                                | ±1% (F)     | ±2% (G) | ±5% (J) |                 |                               |                       |                    |
| PRL0816 | 1/3W          | ±50                                   | 75m≤R≤100m                               |             | —       | —       | √(P · R)        | E-24                          | -40℃<br>~ 125℃        | T5                 |
|         |               | ±100                                  | 43m≤R≤68m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 33m≤R≤39m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 18m≤R≤27m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 10m≤R≤15m                                |             |         |         |                 |                               |                       |                    |
| PRL1220 | 2/3W          | ±50                                   | 56m≤R≤100m                               |             |         | —       |                 | E-24<br>1m step<br>(7m ~ 10m) |                       |                    |
|         |               | ±100                                  | 47m≤R≤51m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 20m≤R≤43m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 10m≤R≤18m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 7m≤R≤9m                                  |             |         |         |                 |                               |                       |                    |
| PRL1632 | 1W            | ±50                                   | 56m≤R≤100m                               |             |         | —       |                 | E-24<br>1m step<br>(5m ~ 10m) |                       |                    |
|         |               | ±100                                  | 20m≤R≤51m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 10m≤R≤18m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 5m≤R≤9m                                  |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 56m≤R≤100m                               |             |         |         |                 |                               |                       |                    |
| PRL3264 | 2W            | ±50                                   | 47m≤R≤51m                                |             |         | —       |                 | E-24<br>1m step<br>(3m ~ 10m) |                       |                    |
|         |               | ±100                                  | 20m≤R≤43m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 10m≤R≤18m                                |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 5m≤R≤9m                                  |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 3m≤R≤4m                                  |             |         |         |                 |                               |                       |                    |
| RL3720W | 1W            | ±50(Q)                                | —                                        | 100m≤R≤1    |         | —       |                 | E-24<br>1m step<br>(1m ~ 10m) |                       |                    |
|         |               | ±100(R)                               | —                                        |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 5m≤R≤91m                                 |             |         |         |                 |                               |                       |                    |
|         |               | —                                     | 1m≤R≤4m                                  |             |         |         |                 |                               |                       |                    |
| RL7520W | 2W            | ±50(Q)                                | —                                        | 100m≤R≤470m |         | —       |                 | E-24<br>1m step<br>(1m ~ 10m) |                       |                    |
|         |               | ±100(R)                               |                                          |             |         |         |                 |                               | 10m≤R≤91m             |                    |
|         |               | —                                     |                                          |             |         |         | 100m≤R≤470m     |                               |                       |                    |
|         |               | —                                     |                                          |             |         |         | 10m≤R≤91m       |                               |                       |                    |
|         |               | —                                     |                                          |             |         |         | 5m≤R≤9m         |                               |                       |                    |
|         |               | —                                     |                                          |             |         |         | 1m≤R≤4m         |                               |                       |                    |

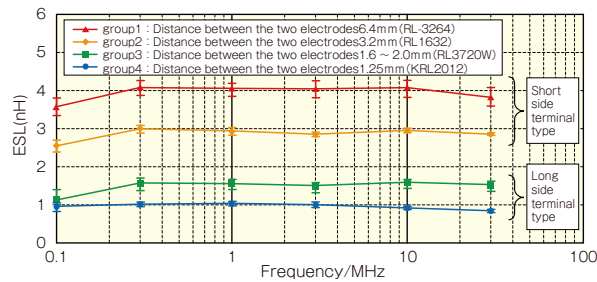
## ◆Dimensions



| Type    | Size (inch) | L         | W         | a         | b         | t         |
|---------|-------------|-----------|-----------|-----------|-----------|-----------|
| PRL0816 | 0603        | 0.80±0.20 | 1.60±0.20 | —         | 0.20±0.10 | 0.40±0.10 |
| PRL1220 | 0805        | 1.25±0.20 | 2.00±0.20 | —         | 0.35±0.15 | 0.50±0.10 |
| PRL1632 | 1206        | 1.60±0.20 | 3.20±0.20 | —         | 0.45±0.15 | 0.50±0.10 |
| PRL3264 | 2512        | 3.20±0.20 | 6.40±0.20 | —         | 0.90±0.15 | 0.50±0.10 |
| RL3720W | 1508        | 2.00±0.20 | 3.75±0.30 | 0.40±0.20 | 0.40±0.20 | 0.50±0.20 |
| RL7520W | 3008        | 2.00±0.20 | 7.50±0.30 | 0.40±0.20 | 0.40±0.20 | 0.50±0.20 |

(unit : mm)

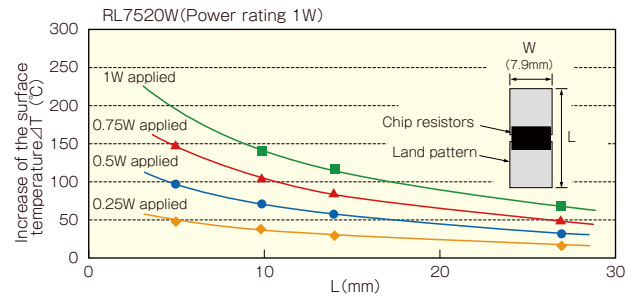
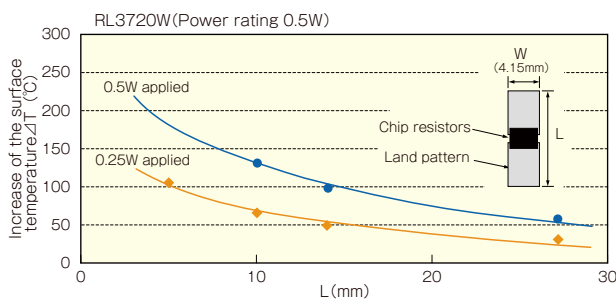
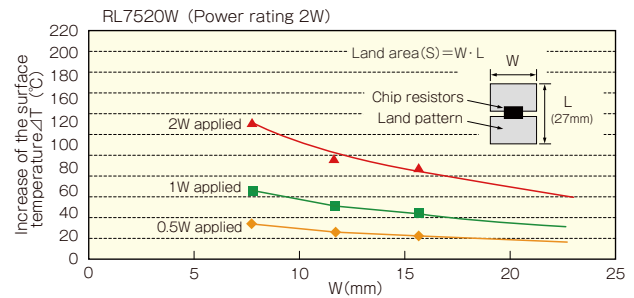
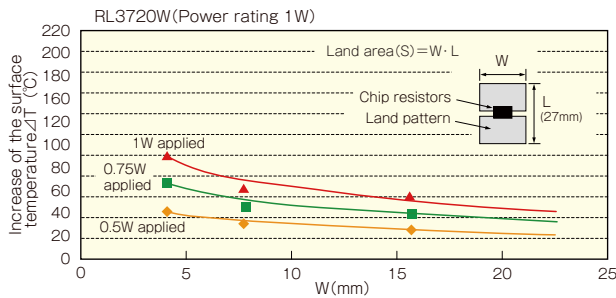
## ◆ESL (Equivalent series inductance)



## ◆Surface temperature data

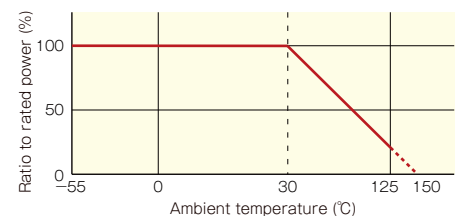
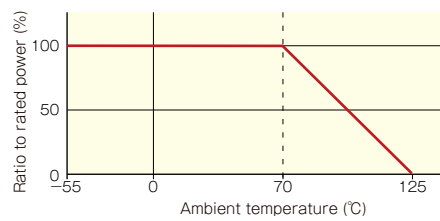
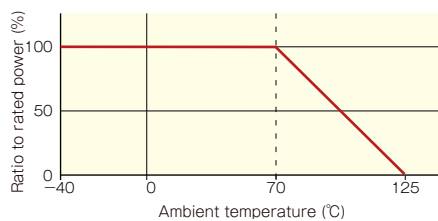
### ○ The high power type land pattern and surface temperature

These high-power low resistance chip resistors are designed to dissipate heat efficiently through the land patterns on circuit boards. The actual temperature of the surface of the resistor is dependent upon the dimensions and the shape of the land patterns.

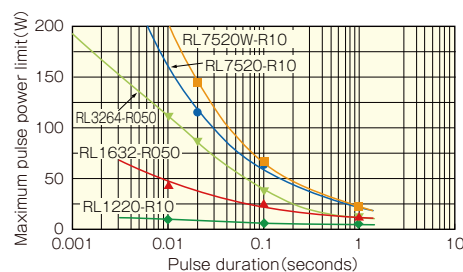


Current sensing surface mount resistors  
PRL / RL series

## ◆Derating Curve



## ◆Resistance to power pulse



### Test procedure

Voltage pulse is applied to the test samples mounted on the test board.

After each pulse, resistance drift is measured. Pulse voltage is increased until the drift exceeds  $\pm 0.5\%$ .

The power at that voltage is defined as the maximum pulse power.