



## Ultra Low Ohm (Metal Strip) Chip Resistor



### Features

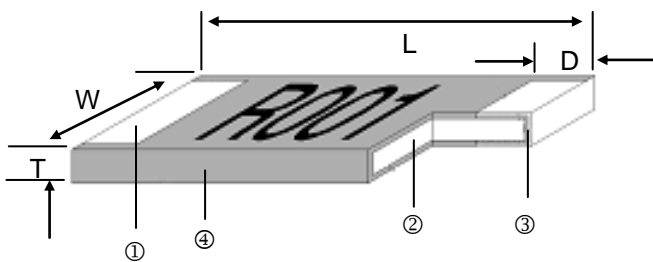
- High power rating up to 3 Watts
- Low TCR down to  $\pm 50$  PPM/ $^{\circ}$ C
- Resistance values from 0.5m to 10m ohm
- Customized resistance available
- Wide range package sizes 1206 / 2010 / 2512
- AEC-Q200 Compliance (only LR12 Black)

### Applications

- NB (for Power Management)
- MB (for Power Management)
- SWPS (DC-DC Converter, Charger, Adaptor)
- Monitor (for Power Management)

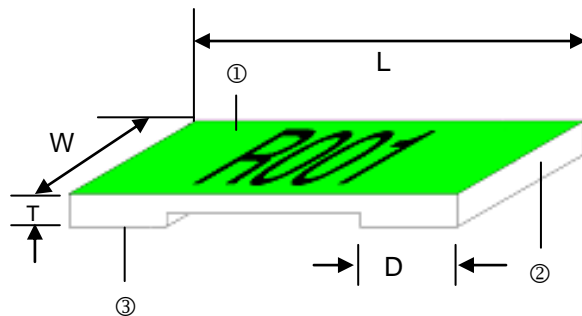
### Construction & Dimension

2512



Black – Wave or IR reflow soldering

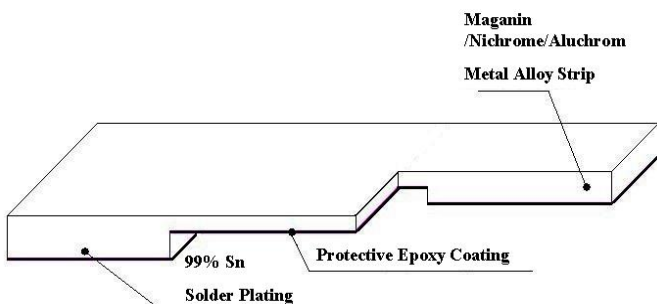
|                  |                 |
|------------------|-----------------|
| ① Solder Plating | ③ Barrier Layer |
| ② Alloy Plate    | ④ Overcoat      |



Green – IR reflow soldering only

|               |                  |
|---------------|------------------|
| ① Overcoat    | ③ Solder Plating |
| ② Alloy Plate |                  |

1206 & 2010



| Type       | Material                 |
|------------|--------------------------|
| 0M50~ R003 | Manganese, Copper        |
| 3M5 ~ R010 | Aluminum, Iron, Chromium |

# LR06, LR10, LR12



## Ultra Low Ohm (Metal Strip) Chip Resistor

### Dimensions

Unit: mm

| Part No.     | Resistance              | L         | W         | T         | D         | Weight (g) (1000pcs) |
|--------------|-------------------------|-----------|-----------|-----------|-----------|----------------------|
| LR06□TF0M50  | 0.5                     | 3.20±0.25 | 1.60±0.10 | 0.60±0.20 | 1.35±0.25 | 22.6                 |
| LR06□TD0M75  | 0.75                    | 3.20±0.25 | 1.60±0.10 | 0.60±0.20 | 1.23±0.25 | 22.6                 |
| LR06□T□□□□□  | 1.0, 3.5, 4.0, 5.0, 6.0 | 3.20±0.25 | 1.60±0.10 | 0.60±0.20 | 1.10±0.25 | 22.6                 |
| LR06□T□□□□□  | 2.0, 3.0, 10            | 3.20±0.25 | 1.60±0.10 | 0.60±0.20 | 0.60±0.25 | 22.6                 |
| LR06□T□□□□□  | 1.2, 1.5, 7.0, 8.0, 9.0 | 3.20±0.25 | 1.60±0.10 | 0.60±0.20 | 0.90±0.25 | 22.6                 |
| LR10□TEA0M50 | 0.5                     | 5.08±0.25 | 2.54±0.15 | 0.60±0.20 | 2.17±0.25 | 42.3                 |
| LR10□TDA0M75 | 0.75                    | 5.08±0.25 | 2.54±0.15 | 0.60±0.20 | 2.04±0.25 | 42.3                 |
| LR10□TDA□□□□ | 1.0, 1.5                | 5.08±0.25 | 2.54±0.15 | 0.60±0.20 | 1.84±0.25 | 42.3                 |
| LR10□TDA□□□□ | 2.0, 6.0, 7.0, 8.0      | 5.08±0.25 | 2.54±0.15 | 0.60±0.20 | 1.54±0.25 | 42.3                 |
| LR10□TDA□□□□ | 3.0, 3.5                | 5.08±0.25 | 2.54±0.15 | 0.60±0.20 | 1.04±0.25 | 42.3                 |

LR10□TDA□□□□ 4.0, 5.0, 5.5 5.08±0.25 TD[( )]TJ EMC/P <<MCID 158>> BDC 2.40002 0 TD5125±0.514.0

### Part Numbering

±0.2  
i0N @ 1. '8>> BDC 2.40002 0 TD8884

2 ±0.39T 0.030T EMC/P <<MCID 141>> BDC 12.36 0 TD3925  
FA0M79 Tf 0 Tcc EMC/P <<CID 158>> BDC 2.40002 0 TD5 EXE0470 TD6M/C @ 0.36Mc EMC/P <<CID 158>> BDC 2.40002 0 TD6325

EA0M0.606J 0.038 EMC/P <<MCID 234>> BDC 30.996 10 TD[( )]TJ EMC/P <<CID 158>> BDC 2.40002 0 TD3825  
5. ehuePT-µp 0 Revision: 23-Oct-2018

FA0M TD/NT J2071 rG/P <<MCID 234>> BDC 30.996 10 TD[( )]TJ EMC/P <<CID 158>> BDC 2.40002 0 TD8425



### Standard Electrical Specifications

| Item<br>Part No. | Power Rating<br>at 70°C | Operating Temp.<br>Range | Resistance Range     |     |     | TCR<br>(PPM/°C) |
|------------------|-------------------------|--------------------------|----------------------|-----|-----|-----------------|
|                  |                         |                          | ±1%                  | ±3% | ±5% |                 |
| LR06□TF0M50      | 1W                      | -55°C ~ +170°C           | 0.5                  |     |     | ±200            |
| LR06□TD□□□□      | 1W                      |                          | 0.75 - 10            |     |     | ±50             |
| LR12□TD□□□□      | 1W                      |                          | 0.5, 0.75, 1, 1.5, 2 |     |     | ±50             |
| LR12□TW□□□□      | 1W                      |                          | 6, 6.5, 7            |     |     | ±75             |
| LR12□TE□□□□      | 1W                      |                          | 4, 5, 10             |     |     | ±100            |
| LR12□TK□□□□      | 1W                      |                          | 2.5, 3               |     |     | ±150            |

### High Power Rating Electrical Specifications

| Item<br>Part No. | Power Rating<br>at 70°C | Operating Temp.<br>Range | Resistance Range       |     |     | TCR<br>(PPM/°C) |
|------------------|-------------------------|--------------------------|------------------------|-----|-----|-----------------|
|                  |                         |                          | ±1%                    | ±3% | ±5% |                 |
| LR10□TEA0M50     | 1.5W                    | -55°C ~ +170°C           | 0.5                    |     |     | ±100            |
| LR10□TDA□□□□     | 1.5W                    |                          | 0.75 - 10              |     |     | ±50             |
| LR12□TDS□□□□     | 2W                      |                          | 0.5, 0.75, 1, 1.5, 2   |     |     | ±50             |
| LR12□TWS□□□□     | 2W                      |                          | 6, 6.5, 7              |     |     | ±75             |
| LR12□TES□□□□     | 2W                      |                          | 4, 5, 10               |     |     | ±100            |
| LR12□TKS□□□□     | 2W                      |                          | 2.5, 3                 |     |     | ±150            |
| LR12□TDR□□□□     | 3W                      |                          | 0.5, 0.75, 1, 1.5, 2   |     |     | ±50             |
| LR12□TDS□□□□G    | 2W                      |                          | 6.5, 7, 8, 9, 10       |     |     | ±50             |
| LR12□TDB□□□□G    | 2.5W                    |                          | 4, 4.5, 5, 6           |     |     | ±50             |
| LR12□TDR□□□□G    | 3W                      |                          | 1, 1.5, 2, 2.5, 3, 3.5 |     |     | ±50             |
| LR12□TER□□□□G    | 3W                      |                          | 0.5, 0.75              |     |     | ±100            |

Operating Current =  $\sqrt{P/R}$ , Operating Voltage =  $\sqrt{P \cdot R}$

Viking has the ability of manufacture following options based on customer's requirement.

### Resistance codes example

#### Resistance (3Marking)

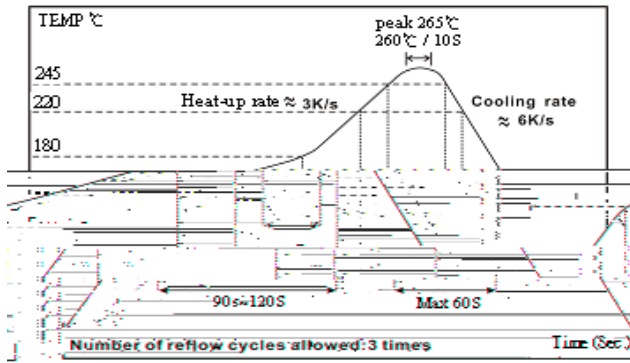
| Resistance | 0.5mΩ | 0.75mΩ |
|------------|-------|--------|
| Codes      | M50   | M75    |

#### Resistance (4Marking)

| Resistance | 1mΩ  | 2mΩ  | 7mΩ  | 10mΩ |
|------------|------|------|------|------|
| Codes      | R001 | R002 | R007 | R010 |



Reflow



Green coating can't be working with wave soldering bath

Environmental Characteristics

| Item   | Requirement       |               | Test Method   |
|--|-------------------|---------------|---|
|  | Black coating     | Green coating |   |
| Temperature Coefficient of Resistance (T.C.R.) | As Spec.          |               | MIL-STD-202 Method 304<br>+25°C ~125°C, 25°C is the reference temperature               |
| Short Time Overload                            | ±0.5%             | ±1%           | JIS-C-5201-1 5.5<br>5*rated power for 5 seconds   |
| Endurance                                      | ±1%               | ±1%           | MIL-STD-202 Method 108A<br>70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hr "OFF" |
| Dry Heat                                       | ±1%               | ±1%           | JIS-C-5201-1 7.2<br>at +170°C for 1000 hrs  |
| Solderability                                  | 95% min. coverage |               | MIL-STD-202 Method 208H<br>245±5°C for 3 seconds  |
| Resistance to Soldering Heat                   | ±0.5%             | ±1%           | MIL-STD-202 Method 210E<br>260±5°C for 10 seconds                                       |
| Thermal Shock                                  | ±0.5%             | ±1%           | MIL-STD-202 Method 107G<br>-55°C ~ 150°C, 100 cycles                                    |

\*\*Green coating can't be work with wave soldering bath.

RCWV(Rated Continuous Working Voltage)=  $\sqrt{P \cdot R}$  or Max. Operating Voltage whichever is lower

■Storage Temperature: 15~28°C; Humidity < 80%RH

Derating Curve

