

# THICK FILM HIGH OHMIC CHIP RESISTORS

## (RMH SERIES)

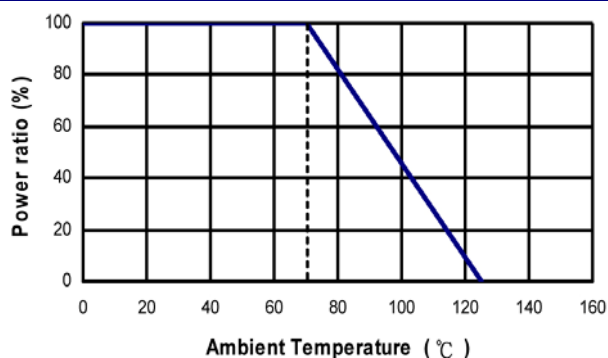
### Features

- Highly reliable multilayer electrode construction
- Higher component and equipment reliability
- Excellent performance at high voltage
- Reduced size of final equipment

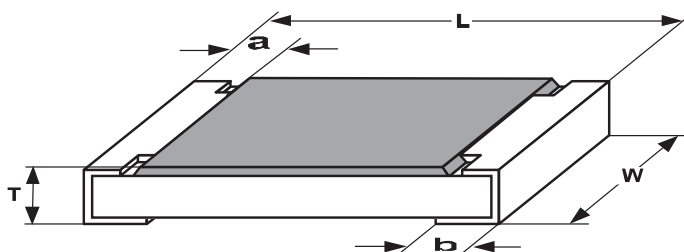
### Applications

- Inverter
- Outdoor Equipments
- Converter
- Automotive Industry
- High Pulse Equipment

### Derating Curve



### Dimensions



unit mm

| Style       | L         | W         | T         | a         | b         |
|-------------|-----------|-----------|-----------|-----------|-----------|
| RMH-10/0805 | 2.00±0.15 | 1.25±0.10 | 0.50±0.10 | 0.35±0.20 | 0.40±0.20 |
| RMH-18/1206 | 3.10±0.15 | 1.55±0.15 | 0.55±0.10 | 0.50±0.25 | 0.50±0.25 |

### Standard Electrical Specifications

| Type         | Item | Power Rating at 70°C | Operating Temp. Range | Max. Operating Voltage | Max. Overload Voltage | Resistance Range | TCR (PPM/°C) |
|--------------|------|----------------------|-----------------------|------------------------|-----------------------|------------------|--------------|
|              |      |                      |                       |                        |                       | ±5%              |              |
| RMH-10(0805) | 1/8W |                      | -55 ~ +125°C          | 150V                   | 300V                  | 110MΩ ~ 500MΩ    | ±500         |
|              |      |                      |                       |                        |                       | 510MΩ ~ 1GΩ      | ±1000        |
| RMH-18(1206) | 1/4W |                      |                       | 200V                   | 400V                  | 110MΩ ~ 500MΩ    | ±500         |
|              |      |                      |                       |                        |                       | 510MΩ ~ 1GΩ      | ±1000        |

Operating Voltage= $\sqrt{(P \cdot R)}$  or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{(P \cdot R)}$  or Max. overload voltage listed above, whichever is lower.



## Characteristics

| Item                                           | Rating                                                     | Test Method                                                                               |
|------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------|
|                                                | ±5%                                                        |                                                                                           |
| Temperature Coefficient of Resistance (T.C.R.) | As Spec.                                                   | -55°C~+125°C, 25°C is the reference temperature                                           |
| Short Time Overload                            | ±(2.0%+0.05Ω)                                              | RCWV*2.5 or Max. overload voltage for 5 seconds                                           |
| Insulation Resistance                          | ≥10G                                                       | Max. overload voltage for 1 minute                                                        |
| Endurance                                      | ±(3.0%+0.10Ω)                                              | 70±2°C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"             |
| Damp Heat with Load                            | ±(3.0%+0.10Ω)                                              | 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                                       | ±(1.5%+0.10Ω)                                              | at +125°C for 1000 hrs                                                                    |
| Bending Strength                               | ±(1.0%+0.05Ω)                                              | Bending once for 5 seconds<br>0805, 1206 sizes: 3mm                                       |
| Solderability                                  | 95% min. coverage                                          | 245±5°C for 3 seconds                                                                     |
| Resistance to Soldering Heat                   | ±(1.0%+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                                                                    |
| Rapid Change of Temperature                    | ±(1.0%+0.05Ω)                                              | -55°C to +125°C, 5 cycles                                                                 |

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

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

## Parts Number System

| RMH —                       | 10                   | 117        | J         | R                                                                                          |
|-----------------------------|----------------------|------------|-----------|--------------------------------------------------------------------------------------------|
| Type                        | Size and Wattages    | Resistance | Tolerance | Standard Packing                                                                           |
| High ohmic<br>Chip Resistor | 10: 0805<br>18: 1206 | 110M       | J = ±5%   | R=Paper tape reel<br>K=Embossed plastic tape reel<br>Please refer to packaging explanation |



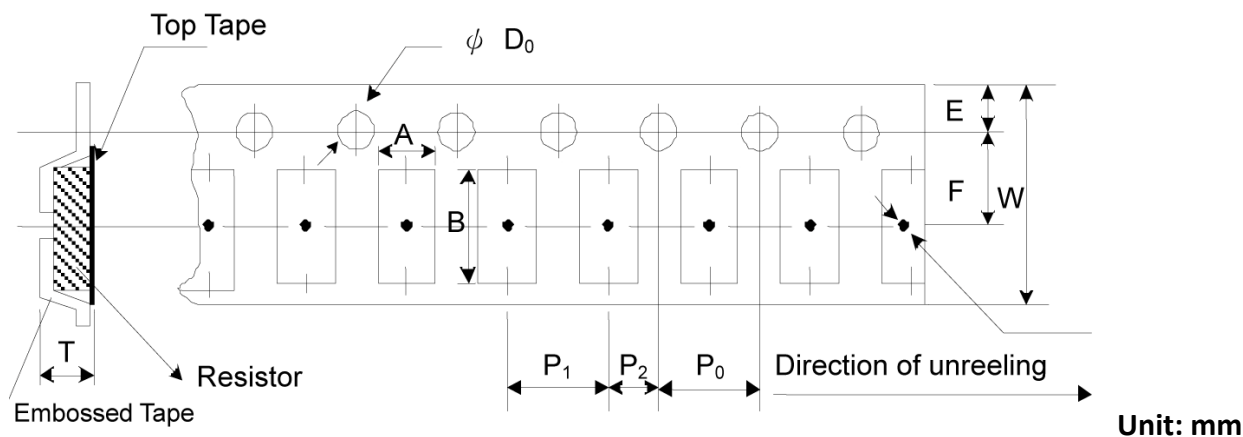
## Marking

5% for 0805/1206: 3 digits marking in E24

Example: 127=120MΩ 108=1GΩ (1<sup>st</sup> and 2<sup>nd</sup> are E24 code and 3<sup>rd</sup> code is multiplier)

| E24 code | 10 | 11 | 12 | 13 | 15 | 16 | 18 | 20 | 22 | 24 | 27 | 30 | 33 | 36 | 39 | 43 | 47 | 51 | 56 | 62 | 68 | 75 | 82 | 91 |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

## Tape Dimensions

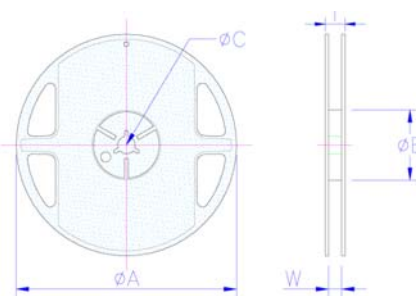


| Type   | A         | B         | W        | E         | F         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | ΦD <sub>0</sub> | T         |
|--------|-----------|-----------|----------|-----------|-----------|----------------|----------------|----------------|-----------------|-----------|
| RMH-10 | 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 |
| RMH-18 | 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 |

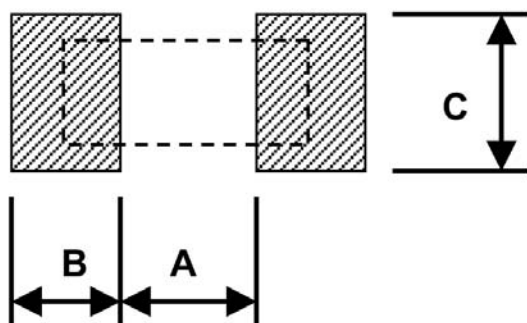
## Packaging

Unit: mm

| Type             | Packaging Quantity | Tape Width | Reel Diameter | ΦA        | ΦB                  | ΦC       | W       | T        |
|------------------|--------------------|------------|---------------|-----------|---------------------|----------|---------|----------|
| RMH-10<br>RMH-18 | Paper              | 5K         | 7 inch        | 178.5±1.5 | 60 <sup>+1/-0</sup> | 13.0±0.2 | 9.0±0.5 | 12.5±0.5 |
|                  |                    | 10K        | 10 inch       | 254±1.0   | 100±0.5             | 13.0±0.2 | 9.5±0.5 | 13.5±0.5 |
|                  |                    | 20K        | 13 inch       | 330±1.0   | 100±0.5             | 13.0±0.2 | 9.5±0.5 | 13.5±0.5 |

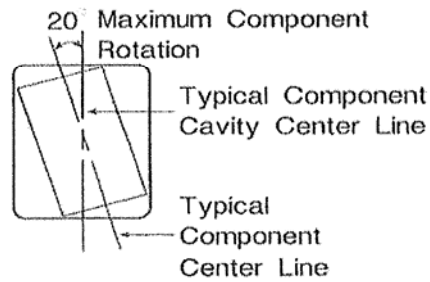
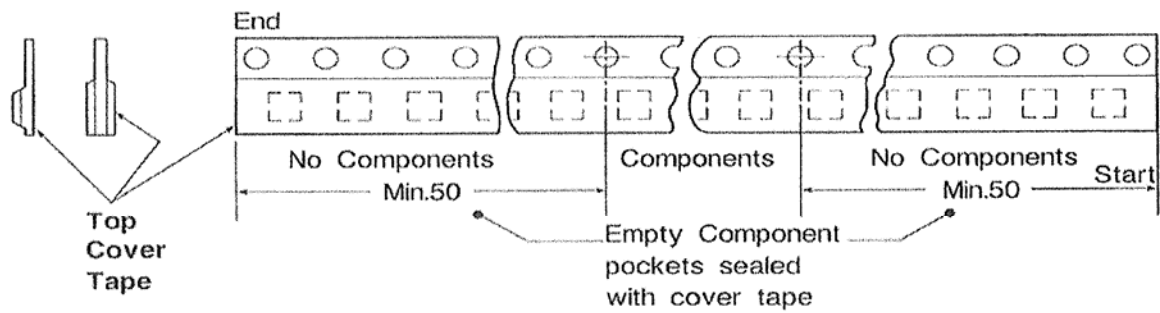


## Recommend Land Pattern

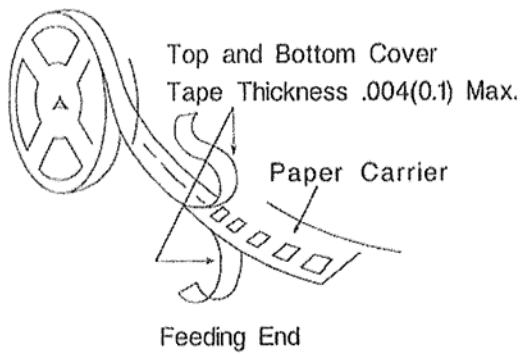


| Type   | A   | B   | C   |
|--------|-----|-----|-----|
| RMH-10 | 1.2 | 0.7 | 1.3 |
| RMH-18 | 2   | 0.9 | 1.6 |

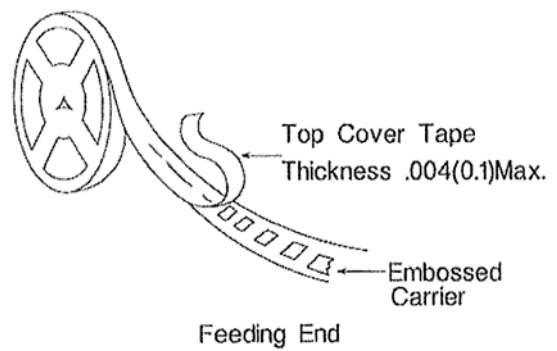




## Paper Carrier



## Embossed Plastic Carrier



## Reel Dimensions

| A<br>(MAX.) | Component/Reel      |
|-------------|---------------------|
|             | Paper<br>RMH- 10/18 |
| 7"(178mm)   | 5.000               |
| 10"(254mm)  | 10.000              |
| 13"(330mm)  | 20.000              |

