

# DATA SHEET

**CURRENT SENSOR - LOW TCR**

AUTOMOTIVE GRADE

PE\_L series

5%, 1%, 0.5%, 0.1%

sizes

0201/0402/ 0603/ 0805/ 1206/ 2010/ 2512

RoHS compliant & Halogen free



**SCOPE**

This specification describes PE series current sensor - low TCR with lead-free terminations made by metal film with ceramic substrate.

**APPLICATIONS**

- Consumer goods
- Computer
- Telecom / Datacom
- Industrial / Power supply
- Automotive
- Alternative Energy

**FEATURES**

- AEC-Q200 qualified
- Halogen-free Epoxy
- RoHS compliant
- Reduce environmentally hazardous wastes
- High component and equipment reliability
- None forbidden-materials used in products/production
- Low resistances applied to current sensing

**ORDERING INFORMATION - GLOBAL PART NUMBER**

Global part numbers are identified by the series, size, tolerance, packing type, temperature coefficient, taping reel and resistance value.

**GLOBAL PART NUMBER**

**PE** **XXXX** **X** **X** **X** **XX** **XXXX** **L**  
 (1) (2) (3) (4) (5) (6) (7)

**(1) SIZE**

0201/ 0402/ 0603/ 0805/ 1206/ 2010/ 2512

**(2) TOLERANCE**

- B = ±0.1% (only for 0805, > 50mΩ)
- D = ±0.5% (≥10mΩ)
- F = ±1%
- J = ±5%

**(3) PACKAGING TYPE**

- R = Paper/ PE taping reel
- K = Embossed taping reel

**(4) TEMPERATURE COEFFICIENT OF RESISTANCE**

- E = ±50 ppm/°C
- M = ±75 ppm/°C
- F = ±100 ppm/°C
- J = ±350 ppm/°C

**(5) TAPING REEL**

07 / 7W / 7T / 47 / 57= 7 inch dia. Reel and specific rated power.  
 Detailed power rating are shown in the Table 2.

**(6) RESISTANCE VALUE**

5 mΩ to 910 mΩ  
 There are 3~5 digits indicated the resistance value. Letter R is decimal point.  
 Detailed coding rules of resistance are shown in the table of "Resistance rule of global part number".

**(7) DEFAULT CODE**

Letter L is the system default code for ordering only. (Note)

| Resistance code rule | Example       |
|----------------------|---------------|
| 0RXXX                | 0R001 = 1 mΩ  |
| (1 to 910 mΩ)        | 0R1 = 100 mΩ  |
|                      | 0R91 = 910 mΩ |

**ORDERING EXAMPLE**

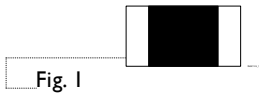
The ordering code of a PE2512 1W chip resistor, value 0.1 Ω with ±1% tolerance, supplied in 7-inch tape reel is: PE2512FKM070R1L

**NOTE**

- I. All our RSMD products are RoHS compliant. "LFP" of the internal 2D reel label mentions "Lead-Free Process"

**MARKING**

**PE0201 / PE0402**

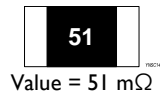
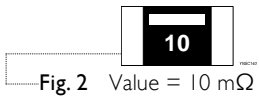


No marking

**PE0603**

$5\text{m}\Omega \leq R \leq 50\text{m}\Omega$

$51\text{m}\Omega \leq R \leq 910\text{m}\Omega$

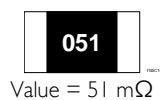
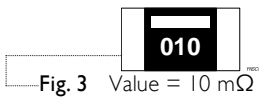


2 digits

**PE0805**

$5\text{m}\Omega \leq R \leq 50\text{m}\Omega$

$51\text{m}\Omega \leq R \leq 910\text{m}\Omega$

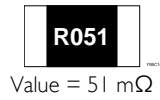
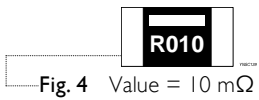


3 digits

**PE1206**

$5\text{m}\Omega \leq R \leq 50\text{m}\Omega$

$51\text{m}\Omega \leq R \leq 910\text{m}\Omega$



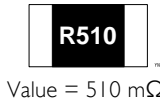
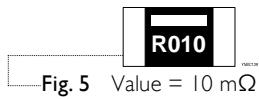
4 digits

The "R" is used as a decimal point; the other 3 digits are significant.

**PE2010 / PE2512**

$5\text{m}\Omega \leq R \leq 100\text{m}\Omega$

$100\text{m}\Omega < R \leq 910\text{m}\Omega$



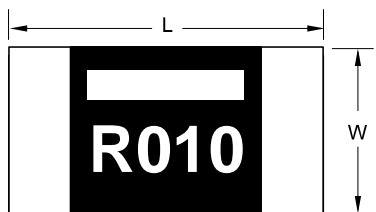
4 digits

The "R" is used as a decimal point; the other 3 digits are significant.

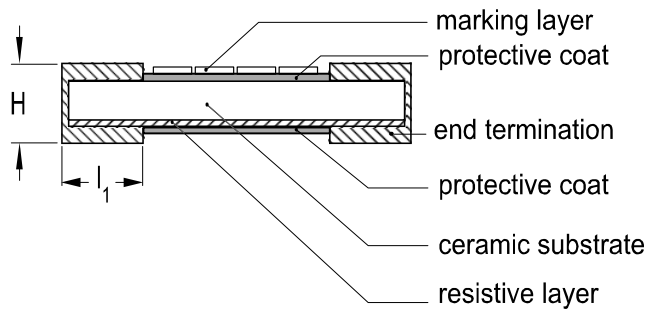
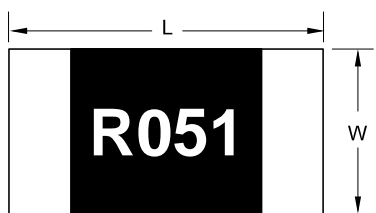
**Outlines**

For dimensions, please refer to Table 1

$5\text{m}\Omega \leq R \leq 50\text{m}\Omega$



$51\text{m}\Omega \leq R \leq 910\text{m}\Omega$



YNSC14E

Fig. 5 Chip resistor outlines

**DIMENSION**

Table I For outlines, please refer to Fig. 4

| TYPE   | RESISTANCE RANGE   | L (mm)          | W (mm)          | H (mm)    | l <sub>1</sub> (mm) |
|--------|--------------------|-----------------|-----------------|-----------|---------------------|
| PE0201 | 50 mΩ ≤ R ≤ 200 mΩ | 0.60±0.03       | 0.31±0.04       | 0.27±0.04 | 0.14±0.06           |
| PE0402 | 10 mΩ ≤ R ≤ 910 mΩ | 1.00+0.10/-0.15 | 0.50+0.10/-0.15 | 0.35±0.15 | 0.25±0.10           |
| PE0603 | 5 mΩ ≤ R ≤ 50 mΩ   | 1.60±0.20       | 0.76±0.25       | 0.35±0.25 | 0.38±0.25           |
|        | 51 mΩ ≤ R ≤ 910 mΩ | 1.52±0.25       | 0.76±0.25       | 0.45±0.10 | 0.38±0.25           |
| PE0805 | 5 mΩ ≤ R ≤ 50 mΩ   | 2.03±0.25       | 1.27±0.25       | 0.35±0.25 | 0.38±0.25           |
|        | 51 mΩ ≤ R ≤ 910 mΩ | 2.03±0.25       | 1.27±0.25       | 0.55±0.10 | 0.35±0.20           |
| PE1206 | 5 mΩ               | 3.20±0.25       | 1.60±0.25       | 0.64±0.25 | 0.64±0.25           |
|        | 6 mΩ ≤ R ≤ 910 mΩ  | 3.20±0.25       | 1.60±0.25       | 0.64±0.25 | 0.51±0.25           |
| PE2010 | 5 mΩ ≤ R ≤ 6 mΩ    | 5.08±0.25       | 2.54±0.25       | 0.64±0.25 | 1.47±0.25           |
|        | 7 mΩ ≤ R ≤ 910 mΩ  | 5.08±0.25       | 2.54±0.25       | 0.64±0.25 | 0.51±0.25           |
| PE2512 | 6 mΩ ≤ R ≤ 910 mΩ  | 6.35±0.25       | 3.18±0.25       | 0.64±0.25 | 0.76±0.25           |

**Note:**

1. For relevant physical dimensions, please refer to construction outlines.
2. Please contact with sales offices, distributors and representatives in your region before ordering.

**ELECTRICAL CHARACTERISTICS**

Table 2

| SERIESSIZE | POWER RATING (1) |       |      |      |      | TOLERANCE                    | RESISTANCE RANGE                   | TEMPERATURE COEFFICIENT OF RESISTANCE                     |
|------------|------------------|-------|------|------|------|------------------------------|------------------------------------|---|
|            | 07               | 7W    | 7T   | 47   | 57   |                              |                                    |   |
| 0201       | 1/20W            | 1/10W | ---  | ---  | ---  |                              | 50 mΩ ≤ R ≤ 200mΩ                  | 50mΩ ≤ R ≤ 70mΩ ±350ppm/°C<br>70mΩ < R ≤ 200mΩ ±100ppm/°C |
| 0402       | 1/16W            | 1/8W  | 1/6W | 1/4W | ---  |                              | 10 mΩ ≤ R ≤ 910 mΩ                 | ±100 ppm/°C   |
| 0603       | 1/10W            | 1/5W  | 1/3W | 2/5W | 1/2W | ±0.1% (only for 0805, >50mΩ) | 5 mΩ ≤ R ≤ 910 mΩ                  | ±75 ppm/°C  |
| PE 0805    | 1/8W             | 1/4W  | 1/3W | 1/2W | ---  | ±0.5%(≥10 mΩ)                |                                    | ±100 ppm/°C   |
| 1206       | 1/4W             | 1/2W  | ---  | 1W   | ---  | ±1%<br>±5%                   | 5mΩ ≤ R ≤ 19mΩ<br>20mΩ ≤ R ≤ 910mΩ | ±75ppm/°C, ±100ppm/°C<br>±50ppm/°C, ±75ppm/°C, ±100ppm/°C |
| 2010       | 1/2W             | 1W    | ---  | ---  | ---  |                              | 5mΩ ≤ R ≤ 910mΩ                    | ±50 ppm/°C<br>±75 ppm/°C                                  |
| 2512       | 1W               | 2W    | ---  | ---  | ---  |                              | 6mΩ ≤ R ≤ 910mΩ                    | ±100 ppm/°C   |

Note: 1. Global part number (code 10 - 11)

2. Please contact with sales offices, distributors and representatives in your region before ordering.

**FUNCTIONAL DESCRIPTION**

**OPERATING TEMPERATURE RANGE**

PE0201 to PE0402 Range: -55°C to +125°C (Fig. 6-1)

PE0603 to PE2512 Range: -55°C to +170°C (Fig. 6-2)

**POWER RATING**

Standard rated power at 70°C:

PE0201 = 1/20W

PE0402 = 1/16W

PE0603 = 1/10W

PE0805 = 1/8W

PE1206 = 1/4W

PE2010 = 1/2W

PE2512 = 1W

For detail power value, please refer to Table 2.

**RATED VOLTAGE**

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

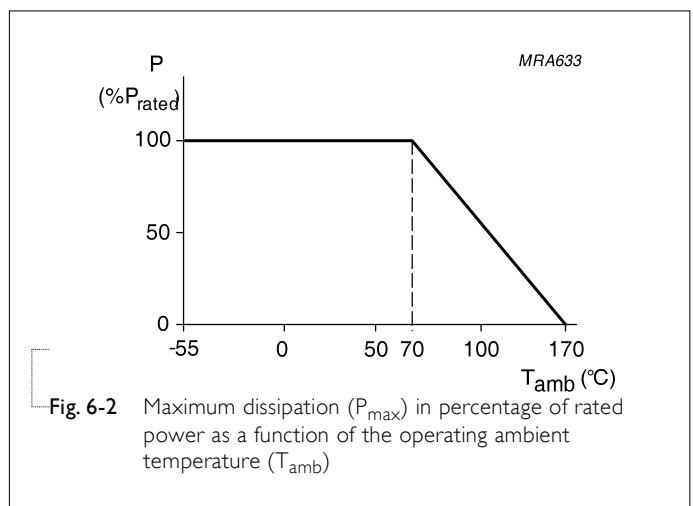
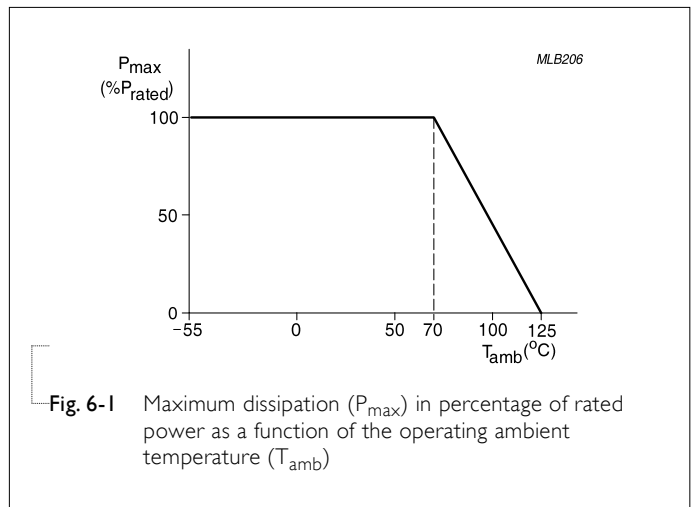
$$V = \sqrt{(P \times R)}$$

Where

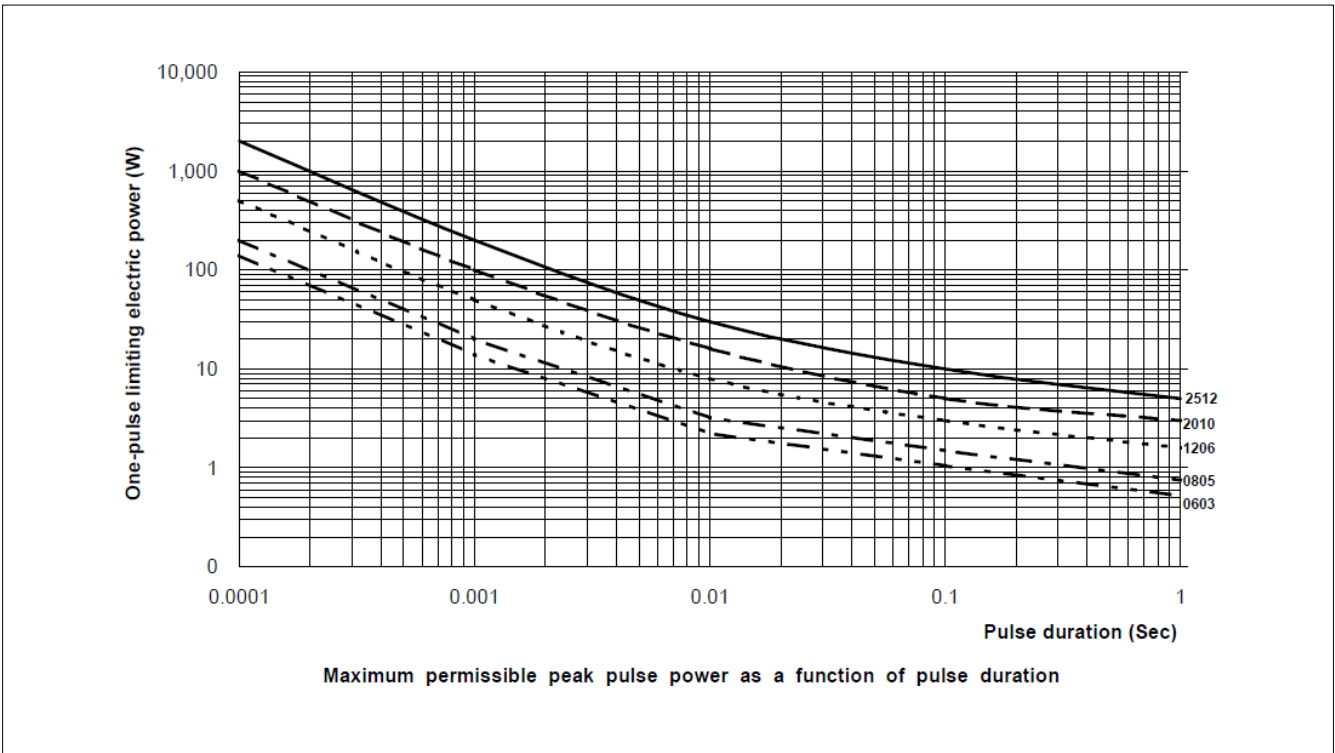
V = Continuous rated DC or AC (rms) working voltage (V)

P = Rated power (W)

R = Resistance value (Ω)



**PULSE LOAD BEHAVIOR**



**PACKING STYLE AND PACKAGING QUANTITY**

Table 3 Packing style and packaging quantity

| PACKING STYLE            | REEL DIMENSION | PE0201 | PE0402 | PE0603 | PE0805 | PE1206 | PE2010 | PE2512 |
|--------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|
| Paper taping reel (R)    | 7" (178 mm)    | 10,000 | 10,000 | 5,000  | 5,000  | 4,000  | ---    | ---    |
| Embossed taping reel (K) | 7" (178 mm)    | ---    | ---    | ---    | ---    | ---    | 4,000  | 4,000  |

**PAPER TAPE**

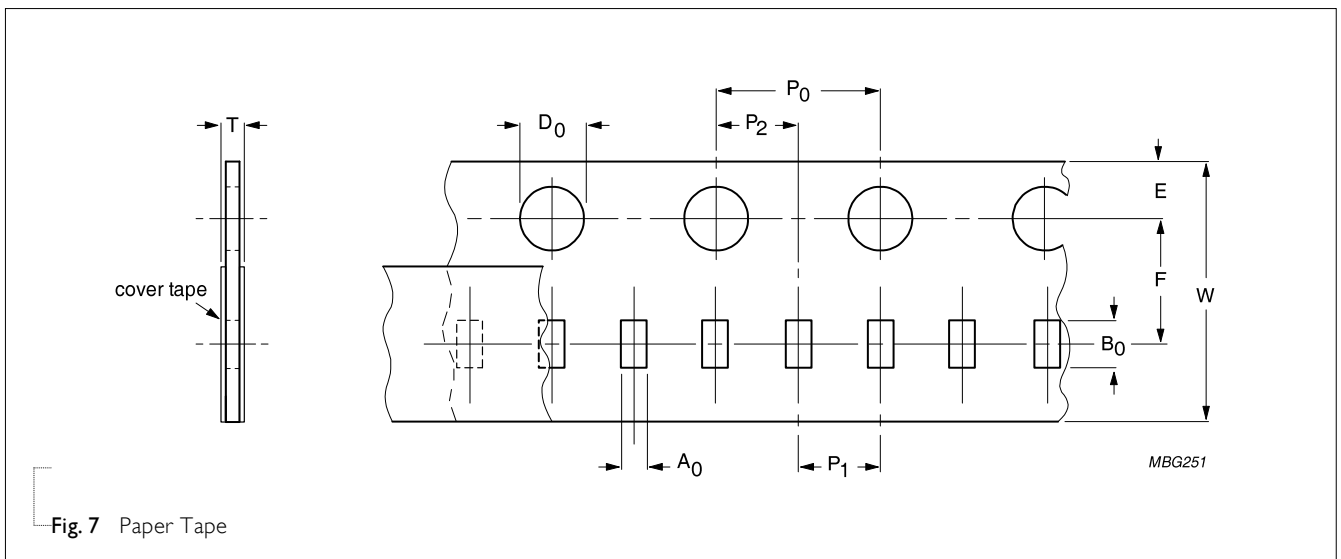


Table 4 Dimensions of paper tape for relevant chip resistors size

| SIZE   | SYMBOL         |                |           |           |           |                |                |                |                 |           | Unit: mm |
|--------|----------------|----------------|-----------|-----------|-----------|----------------|----------------|----------------|-----------------|-----------|----------|
|        | A <sub>0</sub> | B <sub>0</sub> | W         | E         | F         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | ØD <sub>0</sub> | T         |          |
| PE0201 | 0.35±0.10      | 1.65±0.10      | 8.00±0.30 | 1.75±0.10 | 3.50±0.10 | 4.00±0.10      | 2.00±0.05      | 2.00±0.05      | 1.50±0.10       | 0.53±0.10 |          |
| PE0402 | 0.65±0.10      | 1.15±0.10      | 8.00±0.30 | 1.75±0.10 | 3.50±0.10 | 4.00±0.10      | 2.00±0.05      | 2.00±0.05      | 1.50±0.10       | 0.53±0.10 |          |
| PE0603 | 1.20±0.15      | 1.90±0.15      | 8.00±0.30 | 1.75±0.10 | 3.50±0.10 | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 1.50±0.10       | 0.55±0.15 |          |
| PE0805 | 1.60±0.15      | 2.30±0.15      | 8.00±0.30 | 1.75±0.10 | 3.50±0.10 | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 1.50±0.10       | 0.85±0.15 |          |
| PE1206 | 1.90±0.10      | 3.50±0.10      | 8.00±0.30 | 1.75±0.10 | 3.50±0.10 | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 1.50±0.10       | 1.50±0.10 |          |

**EMBOSSED TAPE**

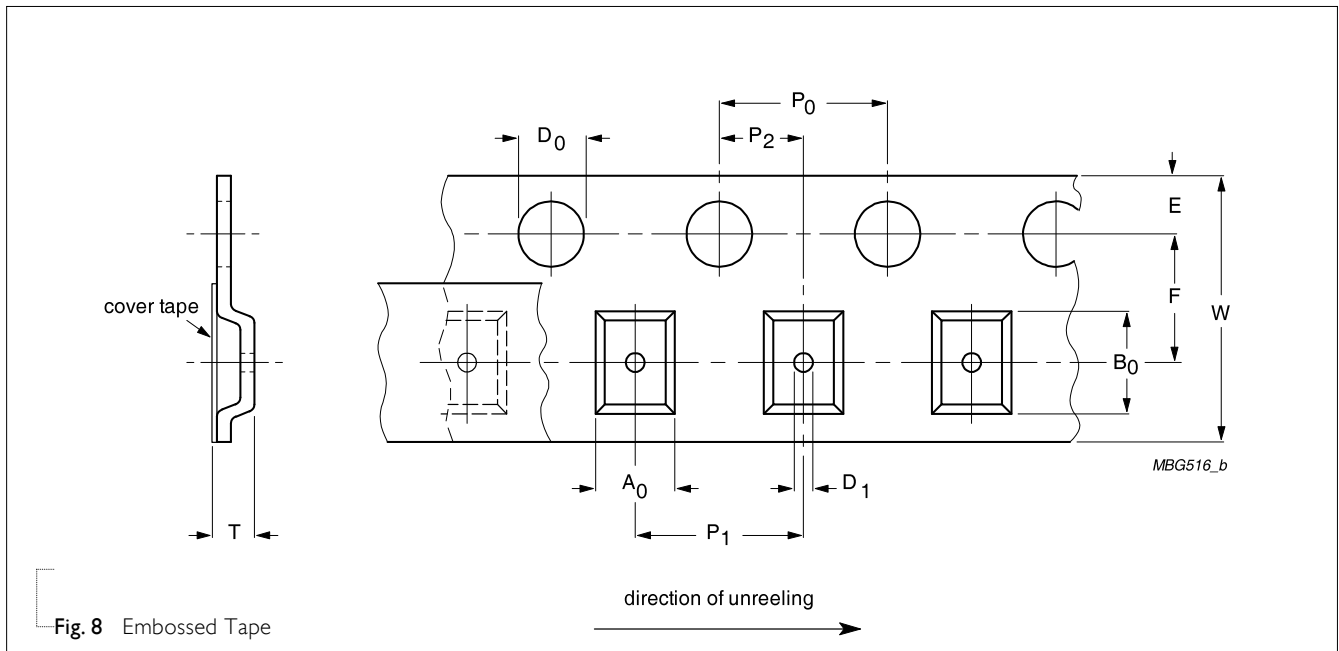
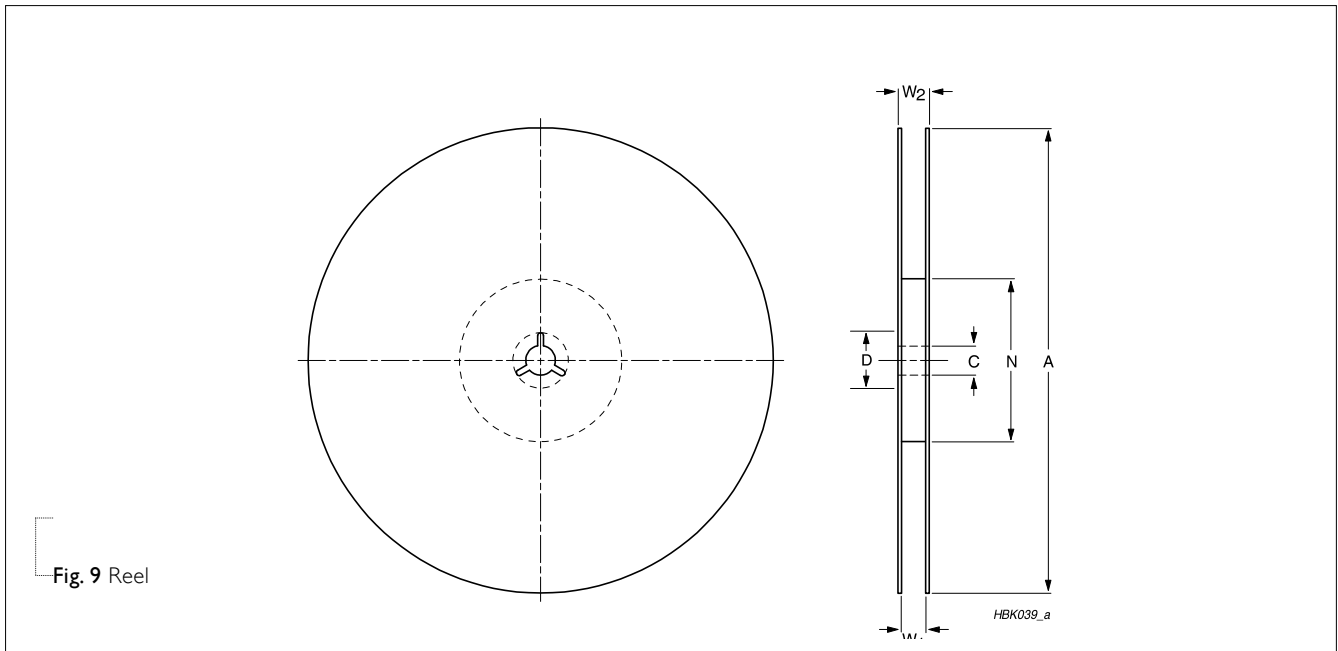


Fig. 8 Embossed Tape

Table 5 Dimensions of embossed tape for relevant chip resistors size

| SIZE   | SYMBOL         |                |            |           |           |                |                |                |                 |                 | Unit: mm  |
|--------|----------------|----------------|------------|-----------|-----------|----------------|----------------|----------------|-----------------|-----------------|-----------|
|        | A <sub>0</sub> | B <sub>0</sub> | W          | E         | F         | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub> | ØD <sub>0</sub> | ØD <sub>1</sub> | T         |
| PE2010 | 3.00±0.15      | 5.60±0.15      | 12.10±0.30 | 1.75±0.10 | 5.50±0.10 | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 1.50±0.10       | 1.50±0.10       | 0.80±0.15 |
| PE2512 | 3.40±0.15      | 6.70±0.15      | 12.10±0.30 | 1.75±0.10 | 5.50±0.10 | 4.00±0.10      | 4.00±0.10      | 2.00±0.10      | 1.50±0.10       | 1.50±0.10       | 0.80±0.15 |

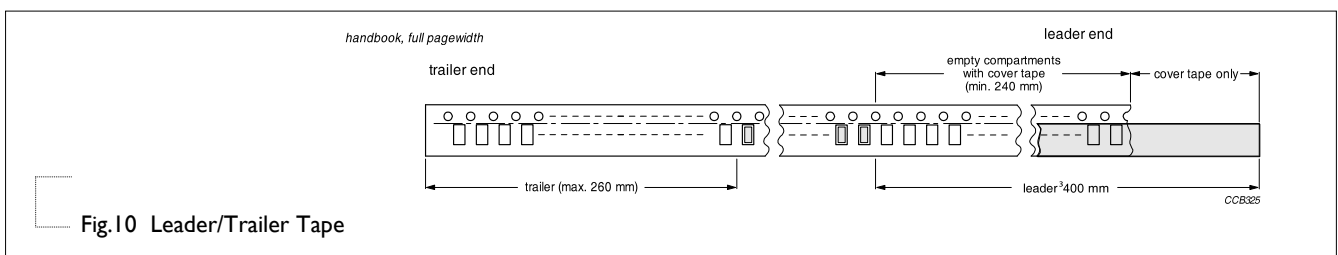
**REEL SPECIFICATION**



**Table 6** Dimensions of reel specification for relevant chip resistors size

| SIZE   | QUANTITY PER REEL | REEL SIZE      |                 |                 | SYMBOL     |           |          |          |                |                     | Unit: mm |
|--------|-------------------|----------------|-----------------|-----------------|------------|-----------|----------|----------|----------------|---------------------|----------|
|        |                   | 8 mm TAPE WIDE | 12 mm TAPE WIDE | 24 mm TAPE WIDE | A          | N         | C        | D        | W <sub>1</sub> | W <sub>2</sub> MAX. |          |
| PE0201 | 10,000            | 7" (Ø178 mm)   | ---             | ---             | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 9.0±0.30       | 12.4                |          |
| PE0402 | 10,000            | 7" (Ø178 mm)   | ---             | ---             | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 9.0±0.30       | 12.4                |          |
| PE0603 | 5000              | 7" (Ø178 mm)   | --              | --              | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 8.4 +1/-0      | 12.4                |          |
| PE0805 | 5000              | 7" (Ø178 mm)   | --              | --              | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 8.4 +1/-0      | 12.4                |          |
| PE1206 | 4000              | 7" (Ø178 mm)   | --              | --              | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 8.4 +1/-0      | 12.4                |          |
| PE2010 | 4000              | -- (Ø178 mm)   | 7"              | --              | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 12.3 +1/-0     | 18.4                |          |
| PE2512 | 4000              | -- (Ø178 mm)   | 7"              | --              | 180.0+0/-3 | 60.0+1/-0 | 13.0±0.2 | 21.0±0.8 | 12.3 +1/-0     | 18.4                |          |

**LEADER/TRAILER TAPE SPECIFICATION**





**FOOTPRINT AND SOLDERING PROFILES**

For recommended soldering profiles, please refer to data sheet “Chip resistors mounting”.

**FOOTPRINT**

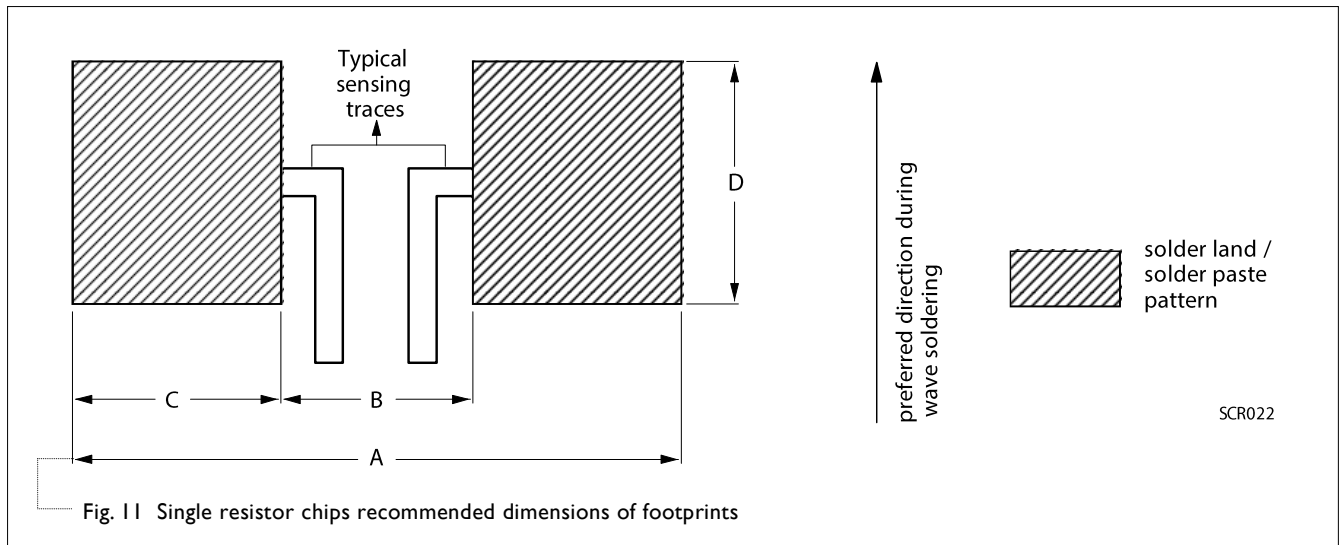


Table 7 Footprint dimensions

| SIZE   | RESISTANCE RANGE   | Unit: mm |      |      |      |
|--------|--------------------|----------|------|------|------|
|        |                    | A        | B    | C    | D    |
| PE0201 | 50 mΩ ≤ R ≤ 200 mΩ | 1.00     | 0.30 | 0.35 | 0.40 |
| PE0402 | 10 mΩ ≤ R ≤ 910 mΩ | 1.45     | 0.35 | 0.55 | 0.55 |
| PE0603 | 5 mΩ ≤ R ≤ 910 mΩ  | 2.52     | 0.50 | 1.01 | 1.01 |
| PE0805 | 5 mΩ ≤ R ≤ 910 mΩ  | 2.54     | 0.50 | 1.02 | 1.27 |
| PE1206 | 5 mΩ ≤ R ≤ 910 mΩ  | 3.90     | 0.76 | 1.57 | 1.78 |
| PE2010 | 5 mΩ ≤ R ≤ 6 mΩ    | 6.12     | 1.40 | 2.36 | 3.05 |
|        | 7 mΩ ≤ R ≤ 910 mΩ  | 6.10     | 3.30 | 1.40 | 3.05 |
| PE2512 | 6 mΩ               | 7.40     | 3.18 | 2.11 | 3.68 |
|        | 7 mΩ ≤ R ≤ 910 mΩ  | 7.36     | 4.06 | 1.65 | 3.68 |

**TESTS AND REQUIREMENTS**

Table 8 Test condition, procedure and requirements

| TEST  | TEST METHOD                                   | PROCEDURE  | REQUIREMENTS                                      |
|---|---|--|---|
| Life/<br>Operational Life/<br>Endurance   | MIL-STD-202G-method 108<br>IEC 60115-1 4.25.1 | 1,000 hours at 70±2 °C applied RCWV<br>1.5 hours on, 0.5 hour off, still air required  | ±(1%+0.0005 Ω)                                    |
| High<br>Temperature<br>Exposure/<br>Endurance at<br>Upper Category<br>Temperature | MIL-STD-202G-method 108<br>IEC 60115-1 4.25.3 | 1,000 hours at maximum operating temperature<br>depending on specification, unpowered<br>No direct impingement of forced air to the parts<br>Tolerances:<br>0201/0402 125±3°C<br>0603 and above 170±3°C  | ±(1%+0.0005 Ω)                                    |
| Moisture<br>Resistance  | MIL-STD-202G-method 106                       | Each temperature / humidity cycle is defined at 8<br>hours (method 106F), 3 cycles / 24 hours for 10d<br>with 25 °C / 65 °C 95% R.H, without steps 7a &<br>7b, unpowered<br>Parts mounted on test-boards, without<br>condensation on parts<br>Measurement at 24±2 hours after<br>test conclusion | 0201: ±(5%+0.0005 Ω)<br>Others: ±(0.5%+0.0005 Ω)  |
| Thermal Shock   | MIL-STD-202G-method 107                       | -55/+125 °C<br>Note: Number of cycles required is 300.<br>Devices mounted<br>Maximum transfer time is 20 seconds.<br>Dwell time is 15 minutes. Air – Air   | ±(1%+0.0005 Ω)                                    |
| Short Time<br>Overload  | IEC60115-1 4.13                               | 5 times of rated power for 5 seconds at room<br>temperature  | ±(1%+0.0005 Ω)<br>No visible damage               |
| Board Flex/<br>Bending  | IEC60115-1 4.33                               | Device mounted on PCB test board as described,<br>only 1 board bending required<br>Bending for<br>0201: 3mm<br>0402 and above: 2mm<br>Holding time: minimum 60 seconds   | ±(1%+0.0005 Ω)<br>No visible damage               |
| Biased Humidity   | MIL-STD-202<br>Method 103                     | 1,000 hours at 85°C/85%R.H. 10% of operating<br>power, no condensation on the devices, circulating<br>air.   | 0201: ±(5%+0.0005 Ω)<br>Others : ±(1.0%+0.0005 Ω) |

| TEST                              | TEST METHOD                    | PROCEDURE  | REQUIREMENTS                       |
|-----------------------------------|--------------------------------|--|------------------------------------|
| Solderability<br>- Wetting        | IPC/JEDEC                      | Electrical Test not required   | Well tinned ( $\geq 95\%$ covered) |
|                                   | J-STD-002B test B              | Magnification 50X<br>SMD conditions:<br>1 <sup>st</sup> step: method B, aging 4 hours at 155 °C<br>dry heat<br>2 <sup>nd</sup> step: leadfree solder bath at 245 $\pm$ 3 °C<br>Dipping time: 3 $\pm$ 0.5 seconds | No visible damage                  |
| - Leaching                        | IPC/JEDEC<br>J-STD-002B test D | Leadfree solder, 260 °C,<br>30 seconds immersion time  | No visible damage                  |
| - Resistance to<br>Soldering Heat | MIL-STD-202G-method 210F       | Condition B, no pre-heat of samples  | $\pm(0.5\%+0.0005 \Omega)$         |
|                                   | IEC 60115-1 4.18               | Leadfree solder, 260 °C,<br>10 seconds immersion time<br>Procedure 2 for SMD: devices fluxed and<br>cleaned with isopropanol   | No visible damage                  |

**REVISION HISTORY**

| REVISION  | DATE          | CHANGE NOTIFICATION | DESCRIPTION  |
|-----------|---------------|---------------------|--|
| Version 7 | Jan. 21, 2019 | -                   | - Extended resistor value for PE2010 and 2512  |
| Version 6 | Oct. 22, 2018 | -                   | - Extend resistor value for PE0603 and 0805, and 0.1% tol for 0805 > 50mΩ<br>- Add in pulse load behavior            |
| Version 5 | Nov 23, 2016  | -                   | - Extend resistor value for 0.5%   |
| Version 4 | Dec. 21, 2015 | -                   | - Update resistance value  |
| Version 3 | Aug. 06, 2015 | -                   | - Update 0603 to 1206 TCR  |
| Version 2 | Apr. 20, 2015 | -                   | - Extend resistor value  |
| Version 1 | Mar. 04, 2015 | -                   | - Update TCR and operating temperature   |
| Version 0 | Feb. 10, 2015 | -                   | - New datasheet for current sensor - low TCR PE series sizes of 0201/0402/0603/0805/1206/2010/2512, 0.5%, 1%, and 5% |

“Yageo reserves all the rights for revising the content of this datasheet without further notification, as long as the products itself are unchanged. Any product change will be announced by PCN.”



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Yageo:

[PE0805FRF470R01L](#) [PE0805FRF470R05L](#) [PE0805FRM7W0R033L](#) [PE0603FRF070R015L](#) [PE0603FRF070R025L](#)  
[PE0603FRF070R02L](#) [PE0603FRF070R04L](#) [PE0603FRF070R05L](#) [PE0603FRF070R1L](#) [PE0603FRF470R1L](#)  
[PE0603FRF7W0R04L](#) [PE0603FRF7W0R1L](#) [PE0603FRM570R01L](#) [PE0805FRF070R015L](#) [PE0805FRF070R01L](#)  
[PE0805FRF070R025L](#) [PE0805FRF070R02L](#) [PE0805FRF070R033L](#) [PE0805FRF070R03L](#) [PE0805FRF070R047L](#)  
[PE0805FRF070R04L](#) [PE0805FRF070R05L](#) [PE0805FRF070R15L](#) [PE0805FRF070R1L](#) [PE0805FRF470R017L](#)  
[PE0805FRF470R025L](#) [PE0805FRF7W0R005L](#) [PE0805FRF7W0R01L](#) [PE0805FRF7W0R02L](#) [PE0805FRF7W0R033L](#)  
[PE0805FRF7W0R03L](#) [PE0805FRF7W0R04L](#) [PE0805FRF7W0R15L](#) [PE0805FRF7W0R1L](#) [PE0805FRF7W0R2L](#)  
[PE0805FRM470R02L](#) [PE1206FRF070R005L](#) [PE1206FRF070R006L](#) [PE1206FRF070R008L](#) [PE1206FRF070R012L](#)  
[PE1206FRF070R015L](#) [PE1206FRF070R01L](#) [PE1206FRF070R022L](#) [PE1206FRF070R025L](#) [PE1206FRF070R02L](#)  
[PE1206FRF070R033L](#) [PE1206FRF070R039L](#) [PE1206FRF070R03L](#) [PE1206FRF070R047L](#) [PE1206FRF070R04L](#)  
[PE1206FRF070R056L](#) [PE1206FRF070R05L](#) [PE1206FRF070R068L](#) [PE1206FRF070R06L](#) [PE1206FRF070R075L](#)  
[PE1206FRF070R15L](#) [PE1206FRF070R18L](#) [PE1206FRF470R005L](#) [PE1206FRF470R01L](#) [PE1206FRF470R022L](#)  
[PE1206FRF470R02L](#) [PE1206FRF470R033L](#) [PE1206FRF470R03L](#) [PE1206FRF470R05L](#) [PE1206FRF7W0R015L](#)  
[PE1206FRF7W0R01L](#) [PE1206FRF7W0R025L](#) [PE1206FRF7W0R02L](#) [PE1206FRF7W0R033L](#) [PE1206FRF7W0R03L](#)  
[PE1206FRF7W0R04L](#) [PE1206FRF7W0R05L](#) [PE1206FRF7W0R1L](#) [PE1206JRF070R039L](#) [PE2010FKF070R005L](#)  
[PE2010FKF070R006L](#) [PE2010FKF070R007L](#) [PE2010FKF070R008L](#) [PE2010FKF070R009L](#) [PE2010FKF070R012L](#)  
[PE2010FKF070R015L](#) [PE2010FKF070R018L](#) [PE2010FKF070R01L](#) [PE2010FKF070R022L](#) [PE2010FKF070R025L](#)  
[PE2010FKF070R02L](#) [PE2010FKF070R033L](#) [PE2010FKF070R039L](#) [PE2010FKF070R03L](#) [PE2010FKF070R047L](#)  
[PE2010FKF070R04L](#) [PE2010FKF070R056L](#) [PE2010FKF070R05L](#) [PE2010FKF070R06L](#) [PE2010FKF070R07L](#)  
[PE2010FKF070R08L](#) [PE2010FKF070R1L](#) [PE2010FKF7W0R005L](#) [PE2010FKF7W0R006L](#) [PE2010FKF7W0R012L](#)