
Innovative Service Around the Globe YAGEO

# Current Sensing Chip Resistors

www.yageo.com

YAGEO

# About Yageo

Founded in 1977, the Yageo Corporation has become a world-class provider of passive component services with capabilities on a global scale, including production and sales facilities in Asia, Europe and the Americas. The corporation provides one-stop-shopping, offering its complete product portfolio of resistors, capacitors, wireless components and circuit protection components in both commodity and specialty versions to meet the diverse requirements of customers.

Yageo currently ranks as the world No.1 in chip-resistors, No. 1 tantalum capacitor, No. 3 in MLCCs, with strong global presence-47 sales offices, 40 manufacturing sites, 20 R&D centers and 30,000 employees.

We support our customers with extensive literature including datasheets, brochures and application notes, which are also available for electronic files on our website at:
www.yageo.com

# Introduction

## Low Resistance, High Power for Current Sensing Applications

Reliable current measurement is critical for the protection, control, and monitoring circuits to keep it safe during operation in power and instrumentation systems. Engineers in power supply and battery circuit designs need to consider a give-and-take strategy between lower power losses and sufficient voltage supplies to avoid noises generated from the environments or in switch mode power supplies.

Yageo's current-sensing chip resistors are also fully compatible with today's high volume pick-and-place assembly systems. Therefore, we can offer cost-effective solutions to designers of low voltage power supplies and battery management systems.

The current-sensing chip resistors with comprehensive resistance range from 0.1 milli-ohms to 1 ohm (low-ohmic) and power rating from 0.032 to 15 watts are not only applicable to battery packs, power supplies and converters, but also suitable for use in diverse power control circuits of tablets, notebook computers and hard disks.

Yageo offers three types of surface-mount (SMT) current-sensing chip resistors based on thick film, metal foil, and metal plate technologies, with scalable product portfolios to meet the various demands of customers and their applications.

## Key Features of Yageo's Current Sensing Chip Resistors

- Low resistance value from 0.1mΩ to 20mΩ for minimizing power losses
- High power rating from 0.05 to 15 watts
- Tight tolerance within 0.5% to exhibit actual current via voltage reading
- Low TCR to avoid measurement distortions.TCR ranges from 50 to 350ppm/°C for metal and 75 to 2000ppm/°C for thick film current sensors
- Scalable off-the-shelf products in standard case sizes
- Wide termination and 4-termination are also available
- Compatibility with surface-mount assembly process
- RoHS/REACH-compliant & Halogen-free

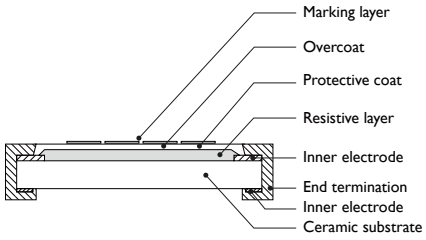
The low temperature coefficient of resistance (TCR) of Yageo's current sensing chip resistors minimizes the resistance change caused by self-heating and high ambiance temperature.

Thermal electromotive force (EMF) is also an important parameter of current sensing resistors.Thermal electromotive force (EMF) of an Mn-Cu alloy is optimal, which is lower than μ0.03 uV/oC.

# Product Portfolio

## Thick Film Current Sensing Chip Resistors (RL & PT Series)

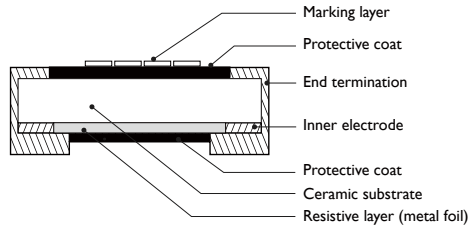
Based on thick film technology, these products exhibit far low parasitic inductance than wirewound and leaded counter parts. Yageo's thick film RL/PT low-ohmic current sensing chip resistors is low cost and capable of providing low TCR down to ±75ppm/°C, resistance value down to 10mΩ and power rating up to 2 watts.




**Cross section of RL / PT series**

## Metal Foil Current Sensing Chip Resistors (PE & PE wide termination Series)

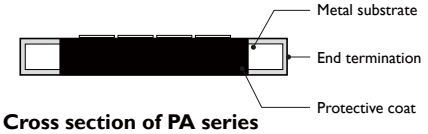
Metal foil current-sensing resistors are made by Mn-Cu alloy to provide a better thermal dissipation and with a wider resistance range up to 1Ω. In the metal foil type, TCR ranges are from 50 to 350ppm/°C, power rating is up to 7W, and resistance value is available as low as 5mΩ.
We also release wide termination current sensing chip resistors using the wider side as connection in the mounting plate, which can strengthen solder joints to achieve high power rating. With an ideal structure to suppress heat generation, wide termination type current sensors can save space and reduce resistor numbers in high- density circuit board designs.



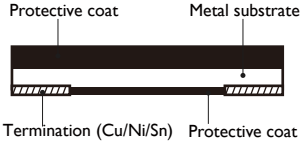

**Cross section of PE series**

## Metal Plate Current Sensing Chip Resistors (PA Series)

A relatively simple construction without multiple cuts, metal plate current sensing resistors provide low TCR down to ±50ppm/°C, high power rating up to 3W, high frequency performance and low resistance down to 1mΩ.



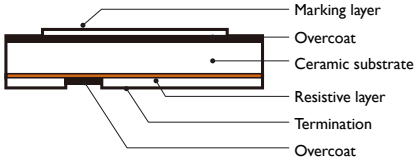

**Cross section of PA series**




**Cross section of PA series(Dicing)**

## Four-Termination, Current Sensing Chip Resistors (PS Series)

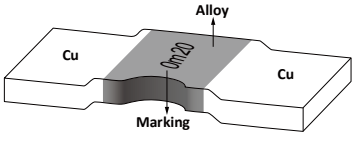
Design of accurate measurement circuitry, lower power consumption, and smaller space requirements are important features for electronic control units. Four termination current sensing resistors separating current-carry from voltage- sensing termination are able to improve voltage and current measurement accuracy from the ideal Kelvin configuration. We also improve interference and thermoelectric effects at higher applied power.




**Cross section of 4-termination series**

## Shunt, Current Sensing Chip Resistors (PU Series)

This series are used for current sensing under the high power application, and provide ultra low resistance value down to 0.2mΩ.
Its open air structure has better heat dissipation for high power rating up to 15W.




**Shunt structure**

# Product Selection Tables

**Electrical characteristics**

| Global part number | Series | Size | Power rating | Max. voltage | Operating Temp. range | Resistance range | Tol. | T. C. R. |
|---|---|---|---|---|---|---|---|---|
| RL0402xR-07xxxxL | RL | 0402 | 1/16W | (PxR)^1/2 | -55°C to 155°C | 50mΩ ≤ R < 1Ω | ±1%<br>±2%<br>±5% | Please refer to RL datasheet |
| RL0603xR-07xxxxL | | 0603 | 1/10W | | | 10mΩ ≤ R < 1Ω | | |
| RL0805xR-07xxxxL | | 0805 | 1/8W | | | | | |
| RL0805xR-7Wxxxxl | | | 1/4W | | -55°C to 125°C | | | |
| RL1206xR-07xxxxL | | 1206 | 1/4W | | -55°C to 155°C | | | |
| RL1206xR-7Wxxxxl | | | 1/2W | | -55°C to 125°C | | | |
| RL1210xR-07xxxxL | | 1210 | 1/2W | | -55°C to 155°C | | | |
| RL1218xK-07xxxxL | | 1218 | 1W | | | | | |
| RL2010xK-07xxxxL | | 2010 | 3/4W | | | | | |
| RL2512xK-07xxxxL | | 2512 | 1W | | | | | |
| PT0402xR-07xxxxL | PT | 0402 | 1/16W | (PxR)^1/2 | -55°C to 155°C | 50mΩ ≤ R < 1Ω | ±1%<br>±2%<br>±5% | Please refer to PT datasheet |
| PT0402xR-7Wxxxxl | | | 1/8W | | | | | |
| PT0603xR-07xxxxL | | 0603 | 1/10W | | | | | |
| PT0603xR-7Wxxxxl | | | 1/5W | | | | | |
| PT0603xR-7Txxxxl | | | 1/3W | | | 50mΩ ≤ R ≤ 68mΩ | | |
| PT0805xR-07xxxxL | | 0805 | 1/8W | | | 50mΩ ≤ R < 1Ω | | |
| PT0805xR-7Wxxxxl | | | 1/4W | | | | | |
| PT1206xR-07xxxxL | | 1206 | 1/4W | | | | | |
| PT1206xR-7Wxxxxl | | | 1/2W | | | | | |
| PT2010xK-07xxxxL | | 2010 | 3/4W | | | 100mΩ ≤ R < 1Ω | | |
| PT2010xK-7Wxxxxl | | | 1W | | | | | |
| PT2512xK-07xxxxL | | 2512 | 1W | | | 100mΩ ≤ R < 1Ω | | |
| PT2512xK-7Wxxxxl | | | 2W | | | | | |
| PE0100xRx07xxxxxL | PE | 01005 | 1/32W | (PxR)^1/2 | -55°C to 125°C | 100mΩ ≤ R ≤ 1Ω | ±1%<br>±5% | 100mΩ ≤ R ≤ 299mΩ (±300ppm/°C)<br>300mΩ ≤ R ≤ 1Ω (±200ppm/°C) |
| PE0100xRx7Wxxxxxl | | | 1/16W | | | | | |
| PE0201xRx07xxxxxL | | 0201 | 1/20W | | | 50mΩ ≤ R ≤ 910mΩ | ± 0.1%<br>(only for 0805 >50 mΩ)<br>±0.5%<br>(≥10mΩ)<br>±1%<br>±5% | 50mΩ ≤ R ≤ 70mΩ (±350ppm/°C)<br>70mΩ < R ≤ 910mΩ (±100ppm/°C) |
| PE0201xRx7Wxxxxxl | | | 1/10W | | | | | |
| PE0402xRx07xxxxxL | | 0402 | 1/16W | | | 10mΩ ≤ R ≤ 910mΩ | | ±100ppm/°C |
| PE0402xRx7Wxxxxxl | | | 1/8W | | | | | |
| PE0402xRx7Txxxxxl | | | 1/6W | | | | | |
| PE0402xRx47xxxxL | | | 1/4W | | | | | |
| PE0603xRx07xxxxxL | | 0603 | 1/10W | | -55°C to 170°C | 5mΩ ≤ R ≤ 910mΩ | | ±75ppm/°C<br>±100ppm/°C |
| PE0603xRx7Wxxxxxl | | | 1/5W | | | | | |
| PE0603xRx7Txxxxxl | | | 1/3W | | | | | |
| PE0603xRx47xxxxxL | | | 2/5W | | | | | |
| PE0603xRx57xxxxxL | | | 1/2W | | | | | |
| PE0805xRx07xxxxxL | | 0805 | 1/8W | | | | | |
| PE0805xRx7Wxxxxxl | | | 1/4W | | | | | |
| PE0805xRx7Txxxxxl | | | 1/3W | | | | | |
| PE0805xRx47xxxxxL | | | 1/2W | | | | | |
| PE1206xRx07xxxxxL | | 1206 | 1/4W | | | | | 5mΩ ≤ R ≤ 19mΩ<br>(±75ppm/°C, ±100ppm/°C)<br>20mΩ ≤ R ≤ 910mΩ<br>(±50ppm/°C, ±75ppm/°C, ±100ppm/°C) |
| PE1206xRx7Wxxxxxl | | | 1/2W | | | | | |
| PE1206xRx47xxxxxL | | | 1W | | | | | |

# Product Selection Tables

**Electrical characteristics**

| Global part number | Series | Size | Power rating | Max. voltage | Operating Temp. range | Resistance range | Tol. | T. C. R. |
|---|---|---|---|---|---|---|---|---|
| PE2010xKx07xxxxxL | PE | 2010 | 1/2W | (PxR)^1/2 | -55°C to 170°C | 5mΩ ≤ R ≤ 910mΩ | ±0.5% (≥10mΩ) ±1% ±5% | ±50 ppm/°C ±75 ppm/°C ±100 ppm/°C |
| PE2010xKx7Wxxxxx L | | | 1W | | | | | |
| PE2512xKx07xxxxxL | | 2512 | 1W | | | 6mΩ ≤ R ≤ 910mΩ | | |
| PE2512xKx7Wxxxxx L | | | 2W | | | | | |
| PE2512xKx7Txxxxx L | | | 3W | | | | | ±100 ppm/°C |
| PE2512xKx57xxxxx L | | | 5W | | | | | |
| PE2817xKx07xxxxxL | | 2817 | 7W | | | 20mΩ ≤ R ≤ 910mΩ | ±0.5% ±1% ±5% | |
| PE4527xKx07xxxxxL | | 4527 | 2W | | | 5mΩ ≤ R ≤ 120mΩ | | ±75 ppm/°C ±100 ppm/°C |
| PE4527xKx7Wxxxxx L | | | 3W | | | | | |

| Global part number | Series | Size | Power rating | Max. voltage | Operating Temp. range | Resistance range | Tol. | T. C. R. |
|---|---|---|---|---|---|---|---|---|
| PA0100xRx07xxxxxL | PA | 01005 | 1/32W | (PxR)^ 1/2 | –55°C to 125°C | 10mΩ ≤ R ≤ 20mΩ | ±1% ±5% | ±300ppm/°C |
| PA0100xRx7Wxxxxx L | | | 1/16W | | | | | |
| PA0201xRx07xxxxL | | 0201 | 1/20W | | | 5mΩ ≤ R ≤20mΩ | ±0.5% (20mΩ) ±1% ±5% | ±150ppm/°C |
| PA0201xRx7Wxxxxx L | | | 1/10W | | | | | |
| PA0201xRx7Txxxxx L | | | 3/20W | | | | | |
| PA0201xRx47xxxxL | | | 1/4W | | | | | |
| PA0402xRx07xxxxL | | 0402 | 1/16W | | | 2mΩ ≤ R ≤ 20mΩ | ±0.5% (15mΩ≤R≤20mΩ) ±1% ±5% | ±150ppm/°C |
| PA0402xRx7Wxxxxx L | | | 1/8W | | | | | |
| PA0402xRx7Txxxxx L | | | 1/6W | | | | | |
| PA0402xRx47xxxxL | | | 1/4W | | | | | |
| PA0402xRx57xxxxL | | | 1/3W | | | | | |
| PA0603xRx07xxxxL | | 0603 | 1/10W | | –55°C to 155°C | 1mΩ ≤R≤ 20mΩ | ±0.5% (10mΩ≤R≤20mΩ) ±1% ±5% | 1mΩ (±200 ppm/°C) 2/2.5mΩ (±150ppm/°C) 3mΩ ≤ R ≤ 20mΩ (±50ppm/°C , ±75 ppm/°C) |
| PA0603xRx7Wxxxxx L | | | 1/5W | | | | | |
| PA0603xRx7Txxxxx L | | | 1/3W | | | | | |
| PA0603xRx47xxxxL | | | 2/5W | | | | | |
| PA0603xRx57xxxxL | | | 1/2W | | | | | |
| PA0805xRx07xxxxL | | 0805 | 1/8W | | | | | 1/1.5mΩ (±150ppm/°C) 2mΩ ≤ R ≤ 20mΩ (±50ppm/°C) |
| PA0805xRx7Wxxxxx L | | | 1/4W | | | | | |
| PA0805xRx47xxxxL | | | 1/2W | | | | | |
| PA0805xRx87xxxxL | | | 1W | | | | | |
| PA1206xRx07xxxxZ | | 1206 | 1/4W | | –55°C to 170°C | | ±0.5% (5mΩ≤R≤20mΩ) ±1% ±5% | 1/2mΩ (±100ppm/°C) 3mΩ ≤ R ≤ 20mΩ (±50ppm/°C) |
| PA1206xRx7Wxxxxx Z | | | 1/2W | | | | | |
| PA1206xRx47xxxxZ | | | 1W | | | | | |
| PA2010xRx07xxxxZ | | 2010 | 1/2W | | | | ±0.5% (5mΩ≤R≤20mΩ ; 2W only for 5~10mΩ) ±1%, ±5% (2W only for 1~10mΩ) | ±50ppm/°C |
| PA2010xRx7Wxxxxx Z | | | 1W | | | | | |
| PA2010xKx7Txxxxx Z | | | 3/2W | | | | | |
| PA2010xKx47xxxxZ | | | 2W | | | | | |

| Global part number | Series | Size | Power rating | Max. voltage | Operating Temp. range | Resistance range | Tol. | T. C. R. |
|---|---|---|---|---|---|---|---|---|
| PE0508xRx07xxxxxL | PE (Wide) | 0508 | 1W | (PxR)^1/2 | –55°C to 155°C | 5mΩ ≤ R ≤ 1Ω | ±0.5% (By request) ±1% ±5% | 5mΩ ≤ R < 75mΩ (±100ppm°C)<br>75mΩ ≤ R ≤ 1Ω (±50ppm/°C) |
| PE0612xKx07xxxxxL | | 0612 | 1W | | | 1mΩ ≤ R ≤ 1Ω | | 1mΩ (±150ppm°C)<br>2mΩ (±100ppm°C)<br>3mΩ ≤ R ≤ 1Ω<br>(±50ppm/°C ±75 ppm/°C ±100ppm/°C) |
| PE0815xKx07xxxxxL | | 0815 | 1/2W | | | 1mΩ ≤ R ≤ 20mΩ | | ±75 ppm/°C<br>±100ppm/°C |
| PE0815xKx7Wxxxxx L | | | 1W | | | | | |
| PS0306xRx07xxxxxL | PS | 0306 | 1/4W | (PxR)^1/2 | -55°C to 125°C | 0.75/1mΩ<br>2mΩ ≤ R ≤ 100mΩ | ±1% ±5% | 0.75mΩ/1mΩ (±300 ppm/°C)<br>2mΩ ≤ R < 5mΩ (±150 ppm/°C)<br>5mΩ ≤ R ≤ 100mΩ<br>(±75 ppm/°C, ±100ppm/°C) |
| PS0306xRx7WxxxxxL | | | 1/3W | | 0.5mΩ ≤ R ≤10mΩ<br>-55°C to 155°C<br>12mΩ ≤ R ≤ 100mΩ<br>-55°C to 125°C | | | |
| PS0306xRx7TxxxxxL | | | 1/2W | | | | | |
| PS0612xKx07xxxxxL | | 0612 | 1W | | | 0.5/1mΩ<br>2mΩ ≤ R ≤ 100mΩ | ±0.5% (2,10, 20mΩ) ±1% ±5% | 0.5mΩ (±300ppm/°C)<br>1mΩ (±100ppm/°C, ±150ppm/°C)<br>2mΩ ≤ R ≤ 9mΩ (±100ppm/°C)<br>10mΩ ≤ R ≤ 13mΩ (±200ppm/°C)<br>14mΩ ≤ R ≤ 100mΩ (±100ppm/°C) |
| PU2521xKx13xxxxL | PU | 2512 | 4W | (PxR)^1/2 | -65°C to 170°C | 3/4/5mΩ | ±1% ±5% | 0.3/ 0.4/0.5mR (±200ppm/°C)<br>1mR (±175ppm/°C)<br>2/3/4/5mΩ (±75ppm/°C) |
| PU2521xKxP5xxxxL | | | 5W | | | 1/2mΩ | | |
| PU2521xKxP6xxxxL | | | 6W | | | 0.3/0.4/0.5mΩ | | |
| PU3921xKx13xxxxL | | 3921 | 3W | | | 0.2/0.25/0.3/0.4/ 0.5/0.7mΩ 1/2/3/4/5mΩ | | 0.2/0.25/0.3/0.4/0.5/0.7mΩ (±175ppm/°C)<br>1/2/3/4/5mΩ (±75ppm/°C) |
| PU3921xKxP5xxxxL | | | | | | | | |
| PU3921xKxP9xxxxL | | | 5W | | | | | 0.2mΩ (±325ppm/°C)<br>0.2/0.25/0.3/0.4/0.5/0.7mΩ (±175ppm/°C)<br>1/2/3/4/5mΩ (±75ppm/°C) |
| PU3921xKxPAxxxxL | | | 9W | | | 0.2/0.25/0.3/0.4/ 0.5/0.7/1mΩ | | |
| PU3921xKxPCxxxxL | | | 10W | | | 0.2/0.3/0.5mΩ | | 0.2mΩ (±225ppm/°C)<br>0.3/0.5mΩ (±175ppm/°C) |
| | | | 12W | | | | | |
| PU3921xKxT3xxxxL | | | 3W | | -65°C to 275°C | 0.5/1/2/3/4mΩ | | 0.5 mΩ (±175ppm/°C)<br>1/2/3/4mΩ (±75ppm/°C) |
| PU5931xKx13xxxxL | | 5931 | 5W | | -65°C to 170°C | 0.2/0.3/0.5/1/2/3/4mΩ | | 0.2mR (±225ppm/°C)<br>0.3/ 0.5mR (±175ppm/°C)<br>1/2/3/4mR (±75ppm/°C) |
| PU5931xKxP7xxxxL | | | 7W | | | | | 0.1mR (±300ppm/°C)<br>0.2mR (±225ppm/°C)<br>0.3/ 0.5mR (±175ppm/°C)<br>1/2/3/4mR (±75ppm/°C) |
| PU5931xKxPAxxxxL | | | 10W | | | 0.2/0.3/0.5mΩ | | |
| PU5931xKxPBxxxxL | | | 15W | | | 0.1mΩ | | |
| PU5931xKxT5xxxxL | | | 5W | | -65°C to 275°C | 0.3/ 0.5/1/2/3/4 mΩ | | 0.3/ 0.5mR (±175ppm/°C)<br>1/2/3/4mR (±75ppm/°C) |

| Jumper | | | | | |
|---|---|---|---|---|---|
| Global part number | Series | Size | Operating Temp. range | Max. Resistance | Rated Current |
| RL0402-R-070RL | RL | 0402 | -55°C to 155°C | 20mΩ | 1.5A |
| RL0603-R-070RL | | 0603 | | 20mΩ | 2A |
| RL0805-R-070RL | | 0805 | | 20mΩ | 2.5A |
| RL1206-R-070RL | | 1206 | | 20mΩ | 3.5A |
| PT0402-R-070RL | PT | 0402 | | 10mΩ | 3A |
| PT0603-R-070RL | | 0603 | | 8mΩ | 5A |
| PT0805-R-070RL | | 0805 | | 5mΩ | 6A |
| PT1206-R-070RL | | 1206 | | 5mΩ | 10A |
| PA0100-R-070RL | PA | 01005 | -55°C to 125°C | 2mΩ | 8A |
| PA0201-R-070RL | | 0201 | | 5mΩ | 4.5A |
| PA0402-R-070RL | | 0402 | | 0.2mΩ | 23A |
| PA0402-R-7W0RL | | | | 1mΩ | 11A |
| PA0603-R-070RL | | 0603 | -55°C to 155°C | 0.2mΩ | 50A |
| PA0805-R-470RL | | 0805 | | 0.5mΩ | 20A |
| PA1206-R-070RL | | 1206 | -55°C to 170°C | 0.2mΩ | 70.7A |
| PA2010-K-070RL | | 2010 | | 0.2mΩ | 100A |

## Explanation of ordering code

**P E 0 6 0 3 F R F 0 7 0 R 0 1 L**

**Series name (code 1-2)**
RL = Thick film low ohmic
PT = Thick film low ohmic low T. C. R.
PA = Metal plate
PE = Metal foil
PS = 4 termination, Current sensor
PU = Metal shunt resistor

**Size code (inch / metric) (code 3-6)**

| | |
|---|---|
| 0100 = 0.4 x 0.2 | 0815 = 2.0 x 3.7 |
| 0201 = 0.6 x 0.3 | 1206 = 3.2 x 1.6 |
| 0306 = 0.8 x 1.6 | 1210 = 3.2 x 2.6 |
| 0402 = 1.0 x 0.5 | 1218 = 3.2 x 4.5 |
| 0508 = 1.25 x 2.0 | 2010 = 5.0 x 2.5 |
| 0603 = 1.6 x 0.8 | 2512 = 6.35 x 3.2 |
| 0612 = 1.6 x 3.2 | 2817 = 7.1 x 4.2 |
| 0805 = 2.0 x 1.25 | 3921 = 10.0 x 5.2 |
| | 4527 = 11.75 x 7.2 |
| | 5931 = 15.0 x 7.75 |

**Tolerance (code 7)**
B = ±0.1%
D = ±0.5%
F = ±1%
G = ±2%
J = ±5%
"–" for Jumper ordering

**Packing style (code 8)**
R = Paper tape reel
K = Embossed plastic tape reel

**T.C.R (code 9)**

| | |
|---|---|
| E = ±50 ppm/°C | G = ±200 ppm/°C |
| M = ±75 ppm/°C | H = ±225 ppm/°C |
| F = ±100 ppm/°C | I = ±300 ppm/°C |
| L = ±150 ppm/°C | O = ±325 ppm/°C |
| N = ±175 ppm/°C | J = ±350 ppm/°C |

"–" Based on spec. (RL/PT only)

**Default Code (code 17)**
L / Z = Default code

**Resistance (code 12-16)**
There are 2~5 digits indicated the resistance value.
Ex:
0R = Jumper
0R1 = 0.1Ω
0R01 = 0.01Ω
0R001= 0.001Ω
0U2= 0.0002Ω

**Taping Reel (code 10-11)**
07 = standard power, 7 inch Dia. Reel
7W = 2x standard power, 7 inch Dia. Reel
7T = 3x standard power, 7 inch Dia. Reel
47 = 4x standard power, 7 inch Dia. Reel
57 = 5x standard power, 7 inch Dia. Reel
87 = 8x standard power, 7 inch Dia. Reel
10 = standard power, 10 inch Dia. Reel
13 = standard power, 13 inch Dia. Reel
P5 = 5W, 13 inch Dia. Reel
P6 = 6W, 13 inch Dia. Reel
P7 = 7W, 13 inch Dia. Reel
P9 = 9W, 13 inch Dia. Reel
T3 = 3W, High temperature 13 inch Dia. Reel
T5 = 5W, High temperature 13 inch Dia. Reel
PA = 10W, 13 inch Dia. Reel
PB = 15W, 13 inch Dia. Reel
PC = 12W, 13 inch Dia. Reel

# Market Applications

Yageo's current sensing chip resistors are optimized for current sensing control. The current sensor, available from 0.05 to 15 watts, are applicable to battery packs, power supplies, converters and diverse power control circuits. Featuring a comprehensive resistance range of 0.1 milli-ohms to 1 ohm and superior temperature coefficient (T.C.R.) performance is able to meet various customer demands and applications.

| Application | Segment | | | | |
|---|---|---|---|---|---|
| | Consumer | Automotive | Industrial | Telecom | Medical |
| Device & Computing | | | | | |
| Home Appliances | v | | | | |
| Air Conditioners | v | v | | | |
| Diagnostic Equipment | | | | | v |
| Infotainment System | v | v | v | | |
| Smart Meters | | | v | | |
| Smartphones & Tablets | v | | | v | |
| Notebooks | v | | | v | |
| Wearable Devices | v | | v | v | v |
| Networking | | | | v | |
| Batteries | | | | | |
| Battery Chargers | v | v | v | v | v |
| Battery Life Indicators | v | v | v | v | v |
| Battery Packs | v | v | v | v | v |
| Motors | | | | | |
| Motor Controls | v | v | v | | |
| Motor Drives | v | v | v | | |
| Power Supplies | | | | | |
| DC/DC Converters | v | | v | v | v |
| Switch Mode Power Supplies | v | v | v | v | v |
| LED Lighting | | | | | |
| LED Drivers | v | v | v | | v |
| Ballasts | v | v | v | | v |
| Storage & Cloud Computing | | | | | |
| Disk Drives (HDD & SSD) | v | | | | |
| Servers | v | | | | |

# YAGEO Group - Empower the Future


YAGEO HQ

Taipei, Taiwan
Tel. +886 2 6629 9999
www.yageo.com

KEMET Head Office

Fort Lauderdale, FL, USA
www.kemet.com

Pulse Head Office

San Diego, USA
www.pulseelectronics.com



For detail information please visit at

**www.yageo.com**
**www.kemet.com**
**www.pulseelectronics.com**

YAGEO
Group