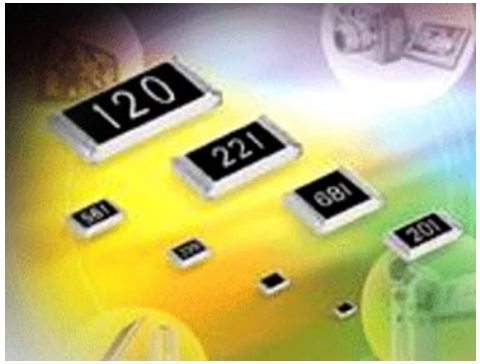
# Thick Film General Chip Resistors

- 1005(0402), 1608(0603), 2012(0805), 3216(1206),
  3225(1210), 5025(2010), 6432(2512)




## ■ Features

- Small, thin and lightweight
- High reliability
- Applicable Both flow and reflow soldering.
- Suitable size and package for surface mount assembly
- RoHS Compliant.

## ■ Part Number System

| RC |
|---|
| Type |

| | |
|---|---|
| RC | General purpose chip resistor |

| 1005 |
|---|
| Size : mm (inch) |

| | |
|---|---|
| 1005 | 1.0×0.5mm (0402) |
| 1608 | 1.6×0.8mm (0603) |
| 2012 | 2.0×1.2mm (0805) |
| 3216 | 3.2×1.6mm (1206) |
| 3225 | 3.2×2.5mm (1210) |
| 5025 | 5.0×2.5mm (2010) |
| 6432 | 6.4×3.2mm (2512) |

| F |
|---|
| Tolerance |

| | |
|---|---|
| F | ±1% |
| G | ±2% |
| J | ±5% |

* Jumper : 'J'

| 7320 |
|---|
| Resistance Value |

-3-digit coding System
(E-24 series)
-4-digit coding System
(E-96 series)
-Jumper : '000'

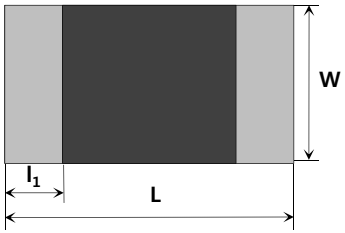
ex)7320 : 732Ω

| CS |
|---|
| Packing Type |

| | |
|---|---|
| CS | 7" reel |
| ES | 10" reel |
| AS | 13" reel |

## ■ Structure and Dimensions

< Top View >




< Side View >

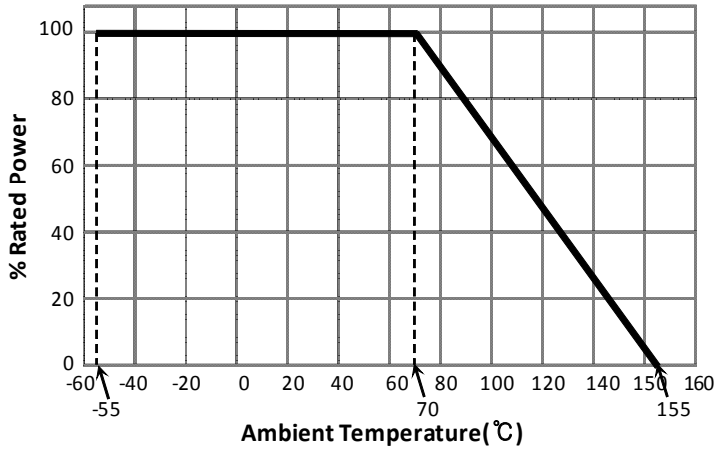
( Unit : mm )

| TYPE (Inch) | L | W | T | $l_1$ | $l_2$ | Unit Weight |
|---|---|---|---|---|---|---|
| 1005 (0402) | 1.00±0.05 | 0.50±0.05 | 0.35±0.05 | 0.20±0.10 | 0.25±0.10 | 0.6mg |
| 1608 (0603) | 1.60±0.10 | 0.80±0.10 | 0.45±0.10 | 0.30±0.20 | 0.35±0.10 | 2.1mg |
| 2012 (0805) | 2.00±0.15 | 1.25±0.15 | 0.50±0.10 | 0.40±0.20 | 0.35±0.20 | 4.9mg |
| 3216 (1206) | 3.20±0.15 | 1.60±0.15 | 0.55±0.10 | 0.45±0.20 | 0.40±0.20 | 9.5mg |
| 3225 (1210) | 3.20±0.20 | 2.55±0.20 | 0.55±0.10 | 0.45±0.20 | 0.40±0.20 | 16mg |
| 5025 (2010) | 5.00±0.20 | 2.50±0.20 | 0.55±0.10 | 0.60±0.20 | 0.60±0.20 | 26mg |
| 6432 (2512) | 6.30±0.20 | 3.20±0.20 | 0.55±0.10 | 0.60±0.20 | 0.60±0.20 | 41mg |

## ■ Applications and Ratings

| TYPE | Power Rating at 70℃ (W) | Max Working Voltage (V) | Max Overload Voltage (W) | Resistance Range (Ω) | T.C.R (ppm/℃) | Working Temperature (℃) |
|---|---|---|---|---|---|---|
| 1005 (0402) | 1/16 | 50 | 100 | 1 ~ 10M | 1~9.9Ω :+300,-200<br>10Ω ~ 1MΩ : ±100<br>1.1MΩ~10MΩ : ±300 | -55 ~ 155 |
| 1608 (0603) | 1/10 | 50 | 100 | 1 ~ 10M | | -55 ~ 155 |
| 2012 (0805) | 1/8 | 150 | 300 | 1 ~ 10M | | -55 ~ 155 |
| 3216 (1206) | 1/4 | 200 | 400 | 1 ~ 10M | | -55 ~ 155 |
| 3225 (1210) | 1/3 | 200 | 400 | 1 ~ 10M | | -55 ~ 155 |
| 5025 (2010) | 2/3 | 200 | 400 | 1 ~ 10M | | -55 ~ 155 |
| 6432 (2512) | 1 | 200 | 400 | 1 ~ 10M | | -55 ~ 155 |

## ■ Power Derating Curve




## ■ Jumper Ratings

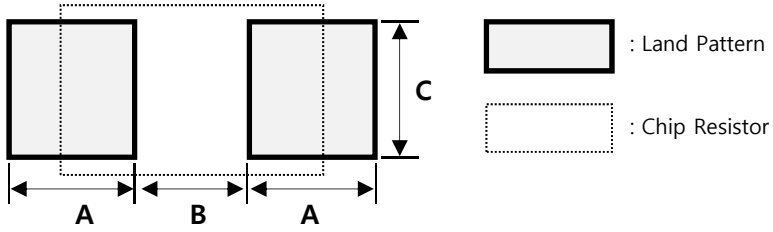
| Type | Rated Current (A) | Max Overload Current (A) |
|---|---|---|
| 1005, 1608 | 1 | 2 |
| 2012, 3216, 3225, 5025, 6432 | 2 | 4 |

## ■ Rated Voltage

$$\bullet E = \sqrt{P \times R}$$

E : Rated Voltage (V)
P : Rated Power (W)
R : Resistance Value (Ω)

## ■ Recommended land pattern




[ Unit : mm ]

| TYPE (Inch) | Reflow Soldering | | | | Flow Soldering | | | |
|---|---|---|---|---|---|---|---|---|
| Dimension | A | B | 2A + B | C | A | B | 2A + B | C |
| 1005 (0402) | 0.60 | 0.50 | 1.70 | 0.50 | 0.70 | 0.50 | 1.90 | 0.50 |
| 1608 (0603) | 0.80 | 0.80 | 2.40 | 0.80 | 0.90 | 0.80 | 2.60 | 0.80 |
| 2012 (0805) | 0.90 | 1.40 | 3.20 | 1.20 | 1.00 | 1.40 | 3.40 | 1.30 |
| 3216 (1206) | 1.30 | 1.80 | 4.40 | 1.50 | 1.40 | 1.80 | 4.60 | 1.60 |
| 3225 (1210) | 1.30 | 1.80 | 4.40 | 2.40 | 1.40 | 1.80 | 4.60 | 2.60 |
| 5025 (2010) | 1.40 | 3.30 | 6.10 | 2.40 | 1.50 | 3.30 | 6.30 | 2.50 |
| 6432 (2512) | 1.40 | 4.60 | 7.40 | 3.00 | 1.50 | 4.60 | 7.60 | 3.20 |

## ■ Performance Characteristics

| ITEM | Requirements Specification | Test Conditions (JIS C 5201-1) |
|---|---|---|
| **Resistance** | Within the specified tolerance | JIS C 5201-1 4.5 |
| **Temperature Characteristic** | Within the specified T.C.R | JIS C 5201-1 4.8<br>+20℃ → -55℃ / +20℃ → +125℃ |
| **Short time Overload** | ΔR < ±1%+0.1Ω | JIS C 5201-1 4.13<br>Rated Voltage×2.5, 5sec |
| **Solderability** | Immersed over 95% | JIS C 5201-1 4.17<br>Rosin Ethanol (25%WT)<br>245+5/-0℃, 2±0.5 sec |
| **Resistance to Solder Heat** | ΔR < ±1%+0.05Ω | JIS C 5201-1 4.18<br>260±5℃, 10±1 sec |
| **Temperature Cycle** | ΔR < ±1%+0.1Ω | JIS C 5201-1 4.19<br>-55℃ ↔ +155℃, 100 cycle |
| **Moisture Resistance** | ΔR < ±3%+0.1Ω | JIS C 5201-1 4.24<br>40±2℃, 90~95%RH, 1,000$^{+48}$hours |
| **Load Life** | ΔR < ±3%+0.1Ω | JIS C 5201-1 4.25<br>Rated Voltage, 70±2℃, 1,000$^{+48}$hours<br>90mins ON, 30mins OFF |
| **High Temp. Exposure** | ΔR < ±3%+0.1Ω | JIS C 5201-1 4.25.3<br>155±2℃, 1,000$^{+48}$hours |

※ NOTICE :All specifications are subject to change without previous notice. Please contact with product representatives or engineers to check specifications.