

RC2012J103CS Datasheet



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| | |
|------------------------------|---|
| DiGi Electronics Part Number | RC2012J103CS-DG |
| Manufacturer | Samsung Electro-Mechanics |
| Manufacturer Product Number | RC2012J103CS |
| Description | RES SMD 10K OHM 5% 1/8W 0805 |
| Detailed Description | 10 kOhms \pm 5% 0.125W, 1/8W Chip Resistor 0805 (2012 Metric) Moisture Resistant Thick Film |

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Purchase and inquiry

Manufacturer Product Number:

RC2012J103CS

Series:

RC

Resistance:

10 kOhms

Power (Watts):

0.125W, 1/8W

Features:

Moisture Resistant

Operating Temperature:

-55°C ~ 155°C

Supplier Device Package:

0805

Height - Seated (Max):

0.026" (0.65mm)

Failure Rate:

-

Manufacturer:

Samsung Electro-Mechanics

Product Status:

Active

Tolerance:

±5%

Composition:

Thick Film

Temperature Coefficient:

±100ppm/°C

Package / Case:

0805 (2012 Metric)

Size / Dimension:

0.079" L x 0.049" W (2.00mm x 1.25mm)

Number of Terminations:

2

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8533.21.0030

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

Thick Film General Chip Resistors

- 0402(01005), 0603(0201), 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 (Series) | |
| RC | General purpose chip resistor |

| 0603 | |
|------------------|-------------------|
| Size : mm (inch) | |
| 0402 | 0.4×0.2mm (01005) |
| 0603 | 0.6×0.3mm (0201) |
| 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 | |
| D | ±0.5% |
| F | ±1.0% |
| G | ±2.0% |
| J | ±5.0% |

* Jumper : 'J'

| 2552 | |
|-------------------------------------|--|
| Resistance Value | |
| - 3-digit code System (E-24 series) | |
| - 4-digit code System (E-96 series) | |
| - Jumper : '000' | |
| - 2552 : 25.5KΩ | |

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

■ Structure and Dimensions



[Unit : mm]

| Size(mil) | L | W | T | A | B | Unit Weight |
|---------------|-----------|-----------|-----------|-----------|-----------|-------------|
| RC0402(01005) | 0.40±0.02 | 0.20±0.02 | 0.13±0.02 | 0.10±0.03 | 0.10±0.03 | 0.04mg |
| RC0603(0201) | 0.60±0.03 | 0.30±0.03 | 0.23±0.03 | 0.10±0.05 | 0.15±0.05 | 0.15mg |
| RC1005(0402) | 1.00±0.05 | 0.50±0.05 | 0.35±0.05 | 0.20±0.10 | 0.25±0.10 | 0.6mg |
| RC1608(0603) | 1.60±0.10 | 0.80±0.10 | 0.45±0.10 | 0.30±0.20 | 0.35±0.10 | 2.1mg |
| RC2012(0805) | 2.00±0.20 | 1.25±0.15 | 0.55±0.10 | 0.40±0.20 | 0.35±0.20 | 4.9mg |
| RC3216(1206) | 3.20±0.20 | 1.60±0.15 | 0.55±0.10 | 0.45±0.20 | 0.40±0.20 | 9.5mg |
| RC3225(1210) | 3.20±0.20 | 2.55±0.20 | 0.55±0.10 | 0.45±0.20 | 0.40±0.20 | 16mg |
| RC5025(2010) | 5.00±0.20 | 2.50±0.20 | 0.55±0.10 | 0.60±0.20 | 0.60±0.20 | 26mg |
| RC6432(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 | Size (mil) | Rated Power [W] | Rated Voltage [V] | Max Working Voltage [V] | Tolerance [%] | Resistance Range [Ω] | T.C.R [ppm/°C] | Working Temp. [°C] | Moisture Level |
|--------|------------|-----------------|--|-------------------------|----------------|---------------------------------|---------------------------------|--------------------|----------------|
| RC0402 | 01005 | 1/32 | $\sqrt{P \times R}$ P : Rated Power(W) R : Resistance(Ω) | 15 | ±1(F) ±5(J) | 1 ~ 1M | 1~9.9Ω : ± 300 10~1MΩ ± 250 | -55~125 | Level 1 |
| RC0603 | 0201 | 1/20 | | 25 | | 1 ~ 10M | 1~9.9Ω : ±300 10~10MΩ : ±250 | | |
| RC1005 | 0402 | 1/16 | | 50 | 1 ~ 10M | 1~9.9Ω : ±300 10~10MΩ : ±100 | -55 ~ 155 | | |
| RC1608 | 0603 | 1/10 | | 50 | | | | | |
| RC2012 | 0805 | 1/8 | | 150 | | | | | |
| RC3216 | 1206 | 1/4 | | 200 | | | | | |
| RC3225 | 1210 | 1/3 | | 200 | | | | | |
| RC5025 | 2010 | 2/3 | | 200 | | | | | |
| RC6432 | 2512 | 1 | | 200 | | | | | |

• Please contact our sales representatives or engineers for other specifications

Power Derating Curve



Jumper Ratings

| Type | Rated Current [A] | Max Overload Current [A] | Resistance [Ω] | Working Temp.[°C] |
|-----------------------|-------------------|--------------------------|----------------|-------------------|
| 0402, 0603 | 0.5 | 1 | 0.05max | -55 ~ 125 |
| 1005, 1608 | 1 | 2 | | -55 ~ 155 |
| 2012 and bigger sizes | 2 | 4 | | |

Rated Voltage

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

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

■ Standard Soldering Pad Dimensions



[Unit : mm]

| Size(mil) | Reflow Soldering | | | |
|---------------|------------------|------|--------|------|
| | A | B | 2A + B | C |
| RC0402(01005) | 017 | 0.20 | 0.54 | 0.18 |
| RC0603(0201) | 0.37 | 0.28 | 1.02 | 0.29 |
| RC1005(0402) | 0.60 | 0.50 | 1.70 | 0.50 |
| RC1608(0603) | 0.80 | 0.80 | 2.40 | 0.80 |
| RC2012(0805) | 0.90 | 1.40 | 3.20 | 1.20 |
| RC3216(1206) | 1.30 | 1.80 | 4.40 | 1.50 |
| RC3225(1210) | 1.30 | 1.80 | 4.40 | 2.40 |
| RC5025(2010) | 1.40 | 3.30 | 6.10 | 2.40 |
| RC6432(2512) | 1.40 | 4.60 | 7.40 | 3.00 |

■ 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 +20°C → -55°C / +20°C → +125°C |
| Short time Overload | $\Delta R < \pm 1\% + 0.1\Omega$ | JIS C 5201-1 4.13 Rated Voltage × 2.5, 5sec |
| Solderability | Immersed over 95% | JIS C 5201-1 4.17 Rosin Ethanol (25%WT) 245+5/-0°C, 2±0.5 sec |
| Resistance to Solder Heat | $\Delta R < \pm 1\% + 0.1\Omega$ | JIS C 5201-1 4.18 260±5°C, 10±1 sec |
| Temperature Cycle | $\Delta R < \pm 1\% + 0.1\Omega$ | JIS C 5201-1 4.19 -55°C ↔ +125°C, 100 cycle |
| Moisture Resistance | $\Delta R < \pm 3\% + 0.1\Omega$ | JIS C 5201-1 4.24 40±2°C, 90~95%RH, 1,000 ⁺⁴⁸ hours 90mins ON, 30mins OFF |
| Load Life | $\Delta R < \pm 3\% + 0.1\Omega$ | JIS C 5201-1 4.25 Rated Voltage, 70±2°C, 1,000 ⁺⁴⁸ hours 90mins ON, 30mins OFF |
| High Temp. Exposure | $\Delta R < \pm 3\% + 0.1\Omega$ | JIS C 5201-1 4.25.3 155±2°C, 1,000 ⁺⁴⁸ hours |

※ The reliability test condition can be replaced by the corresponding accelerated test condition.



Product specifications included in the specifications are effective as of March 01, 2015.

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