

SPECIFICATION

- Supplier : Samsung electro-mechanics
- Product : Thick - Film chip RESISTOR

- Samsung P/N: **RC0603J***CS**
- Description : **0603, ±5%, (1Ω~10MΩ), 1/20W**

A. Samsung Part Number

RC
0603
J

CS

①
②
③
④
⑤

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|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------|
| ① Code designation | Samsung Thick - Film Chip Resistor | | |
| ② Dimension | 0603 (mm code) | L : 0.6 ±0.03 mm | W : 0.3 ±0.03 mm T : 0.23 ±0.03 mm |
| ③ Resistancs tolerance | ±5 % | | |
| ④ Nominal resistance value | ※ 3digits · Left 2 digits : Resistance value, Right 1 digits : Exponential number of 10. ex) 101 : $10 \times 10^1 = 10 \times 10 = 100\Omega$ ※ 4digits · Left 3 digits : Resistance value, Right 1 digits : Exponential number of 10. ex) 4222 : $422 \times 10^2 = 422 \times 100 = 42.2k\Omega$ Read alphabet "R" as decimal point "000" : Jumper(0Ω) ex) 3R7 : 3.7 = 3.7Ω / 88R7 : 88.7 = 88.7Ω | | |
| ⑤ Packing code | 7" Reel packaging | | |

B. Samsung Reliability Test and Judgement condition

| | Judgement | | Test condition | |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| | Resistor | Jumper | Resistor | Jumper |
| Direct Current Resistance | Within the regulated resistance tolerance. | 50mΩ Max | Voltage apply Within 5 sec | |
| Short-time Overload | Less than ±(1%+0.1Ω)of the initial value No evidence of mechanical damage | 50mΩ Max | Apply 2.5 times rated voltage for 5sec | Max Surge Current |
| Intermittent Overload | Less than ±(3%+0.1Ω)of the initial value No evidence of mechanical damage | 50mΩ Max | 2.5 times of rated voltage. 1 sec On, 25 sec Off / 10,000cycles | Max Surge Current |
| Dielectric Withstanding Voltage | No evidence of mechanical damage | | Apply Voltage for 1minute | |
| Insulation Resistance | Over 1,000MΩ | | 0603:50v 1005,1608:100v Other: 500v | |
| Temperature Characteristic | ■ J-Grade $1\Omega \leq R < 10\Omega : +300/-200\text{ppm}/^\circ\text{C}$ $10\Omega \leq R \leq 1M\Omega : \pm 100\text{ppm}/^\circ\text{C}$ (0603±250ppm) $1M\Omega < R \leq 10M\Omega : \pm 300\text{ppm}/^\circ\text{C}$ ■ F-Grade $10\Omega \leq R \leq 1M\Omega : \pm 100\text{ppm}/^\circ\text{C}$ (0603±250ppm) | | Test Temperature(°C) 20°C → -55°C / 20°C → 125°C $T.C.R(\text{ppm}/^\circ\text{C}) = \frac{R - R_0}{R_0} \times \frac{1}{T - T_0} \times 10^6$ T ₀ : 20 ± 2°C, R ₀ : Resistance at T ₀ (Ω) T : Test temperature, R : Resistance at T (Ω) | |
| Solderability | Coverage: 95% ≤ each termination. | | Solder Temp : 245°C Dipping time : 3 sec | |

| | Judgement | | Test condition |
|-----------------------------------------|--------------------------------------------------------------------------------------------|------------------|-----------------------------------------------------------------------------------------------------|
| Bending test | Less than $\pm(0.5\%+0.05\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | 3mm of bending shall be applied for 5sec. |
| Adhesive strength of termination | No mechanical damage or sign of disconnection | | Test strength : 5N Test time: Applying pressure for 10seconds |
| Resistance to soldering heat | Less than $\pm(1\%+0.05\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | 260 \pm 5 $^{\circ}$ C , 10 sec |
| Anti-Vibration test | Less than $\pm(1\%+0.05\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | Test amplitude : 1.5mm Frequency 10Hz-55Hz-10Hz / 2hr in x,y,z direction. |
| Temperature cycle | Less than $\pm(1\%+0.1\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | 100cycles, -55 $^{\circ}$ C/30min \leftrightarrow 125 $^{\circ}$ C/30min sweep time:5min |
| Load life | Less than $\pm(3\%+0.1\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | Test voltage: rated voltage / 70 \pm 2 $^{\circ}$ C 1,000hours(90min:On , 30min:Off) |
| Low Temp. Exposure | Less than $\pm(3\%+0.1\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | Dwell in -55 $^{\circ}$ C chamber without loading for 1,000hours |
| High Temp Exposure | Less than $\pm(3\%+0.1\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | Dwell in 125 $^{\circ}$ C or 155 $^{\circ}$ C chamber without loading for 1,000hours |
| Moisture Resistance | Less than $\pm(3\%+0.1\Omega)$ of the initial value No evidence of mechanical damage | 50m Ω Max | Test voltage: rated voltage / 40 \pm 2 $^{\circ}$ C 1,000hours(90min:On,30min:Off) / 90~95% RH |

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 260+0/-5 $^{\circ}$ C, 10sec. Max)

* For the more detail Specification, Please refer to the samsung chip RESISTOR catalogue.