SAMSUNG ELECTRO-MECHANICS

SPECIFICATION

- **Supplier : Samsung electro-mechanics**
- **Product : Thick - Film chip RESISTOR**
- **Samsung P/N:** RC2012F***CS
- **Description :** 2012, ±1%, (1Ω~1MΩ), 1/8W

A. Samsung Part Number

RC	2012	F	***	CS
①	②	③	④	⑤

① **Code designation**	Samsung Thick - Film Chip Resistor	
② **Dimension**	2012 (mm code)	L : 2.0 ± 0.2 mm W : 1.25 ± 0.15 mm T : 0.5 ± 0.1 mm
③ **Resistancs tolerance**	±1 %	
④ **Nominal resistance value**	※3digits : Left 2 digits : Resistance value, Right 1 digits : Exponential number of 10. ex) 101 : 10×10^{1} = 10×10 = 100Ω ※4digits : Left 3 digits : Resistance value, Right 1 digits : Exponential number of 10. ex) 4222 : 422×10^{2} = 422×100 = 42.2kΩ 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 Reliablility 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 0603:50v 1005,1608:100v Other: 500v	
Insulation Resistance	Over 1,000MΩ			
Temperature Characteristic	■ J-Grade 1Ω≤R<10Ω:+300/-200ppm/℃ 10Ω≤R≤1MΩ:±100ppm/℃(0603±250ppm) 1MΩ<R≤10MΩ:±300ppm/℃ ■ F-Grade 10Ω≤R≤1MΩ:±100ppm/℃(0603±250ppm)		Test Temperature(℃) 20℃→-55℃/20℃→125℃ T.C.R(ppm/℃) = $\frac{R-R_0}{R_0}\times\frac{1}{T-T_0}\times10^{6}$ T0 : 20 ± 2℃, R0 : Resistance at T0 (Ω) T : Test temperature , R : Resistance at T (Ω)	
Solderability	Coverage: 95%≤ each termination.		Solder Temp : 245℃ Dipping time : 3 sec	

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

C. Recommended Soldering method :

Reflow (Reflow Peak Temperature : 260+0/-5℃, 10sec. Max)

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