

ROYALOHM

C O N F I D E N T I A L D O C U M E N T

SPECIFICATION FOR APPROVAL

LEGACY DISTRIBUTION LIMITED

Description : Metal Glaze Film Fixed Resistors

Royalohm Part no.:

RC06W4xxxxxBx0 (RC06 1/4W +/- 1%, +/- 5% & Jumper)

Approved by

Parts corresponding to RoHS Compliant: 2005-Apr.-1

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Approved	Checked	Prepared
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Issue Date: 2016/09/13

Customer: LEGACY DISTRIBUTION LIMITED

1. Scope:

This specification for approval relates to Metal Glaze Film Fixed Resistors manufactured by ROYALOHM 's specifications.

2. Type designation:

The type designation shall be in the following form:

Type	Power Rating	Resistance tolerance	Nominal Resistance
<u>Ex.</u> RC06	0.25W (1/4W)	F, J	10Ω

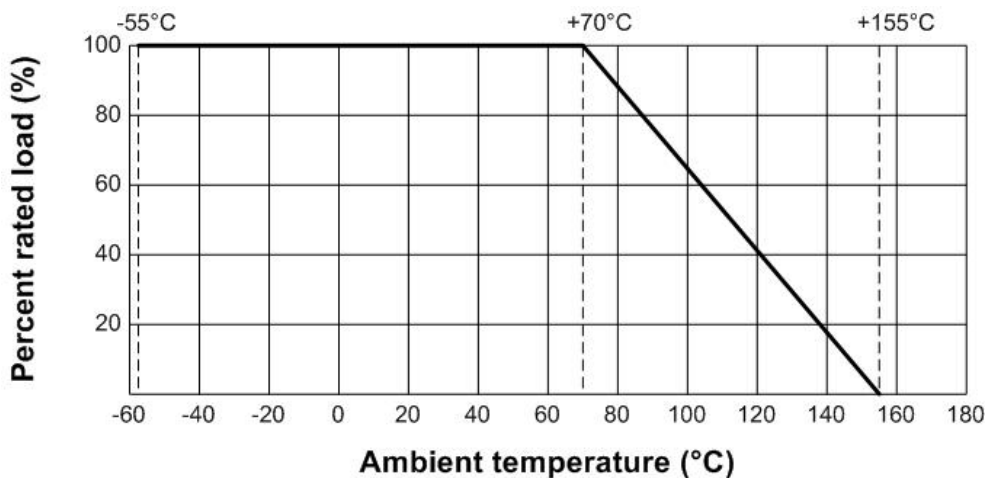
3. Ratings:

Type	RC06	
Power Rating	0.25W at 70°C	
Max. Working Voltage	200 V	
Max. Overload Voltage	400 V	
Dielectric Withstanding Voltage	500 V	
Temperature Range	-55°C ~ +155°C	
Ambient Temperature	70 °C	
Resistance tolerance	± 1%	± 5%
Resistance Range	10Ω ~ 1MΩ	0Ω/1Ω ~ 10MΩ

3.1 Power rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70 °C . For temperature in excess of 70 °C , The load shall be derate as shown in figure 1.

Figure 1

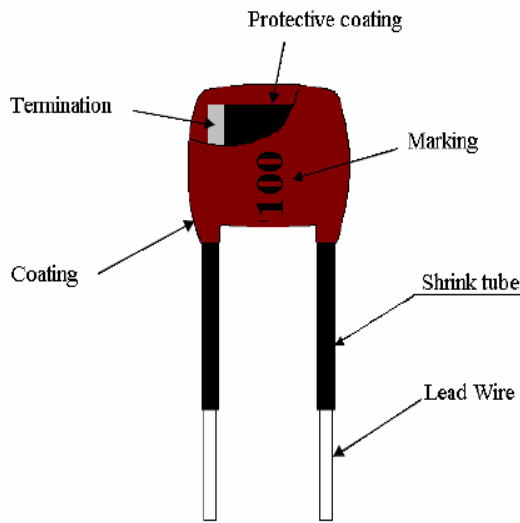


3.2 Nominal Resistance

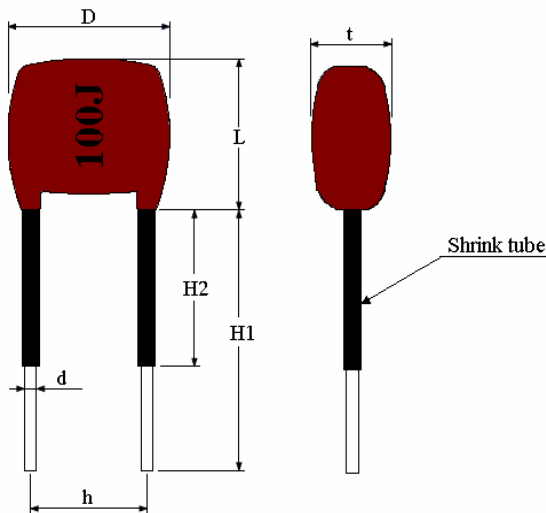
Effective figures of nominal resistance shall be in accordance with E-24 and E-96 series E-96 series for 1 % and E-24 series for 2 % and 5 %

Metal Glaze Film Fixed Resistors

4. Construction :



5. Power rating and dimensions



Dimension :

Type	Dimension (mm)						
	D±1	L±1	H1±1.5	H2±1	h±1	d±0.05	t±1
RC06	5.5	6	13.5	4.5	3.5	0.68	3.5

Power Rating :

Type	Power Rating at 70 °C	Tolerance %	Resistance Range	Standard Color	Standard Series
RC06	0.25W (1/4W)	± 1	10Ω ~ 1MΩ	Blue Green Brown	E-96
		± 5	0Ω/1Ω ~ 10MΩ	Gray Pink	E-24

Metal Glaze Film Fixed Resistors

6. Marking :

6.1 Resistors

A. Marking for E-96 series

*The first 3 digits are significant figures of resistance and the 4th digit denoted number of zeros.

Ex.

1003

 100K Ω

*For ohmic values below 100 Ω , letter "R" is for decimal point.

Ex.

1R80

 1.8 Ω

B. Marking for E-24 series

*The first 2 digits are significant figures of resistance and the 3th digit denoted number of zeros.

Ex.

104

 100K Ω

*For ohmic values below 100 Ω , letter "R" is for decimal point.

Ex.

1R8

 1.8 Ω

6.2 Labels

Label shall be marked with following items:

- (1) Type and style
- (2) Nominal resistance
- (3) Resistance tolerance
- (4) Quantity
- (5) Lot number
- (6) PPM

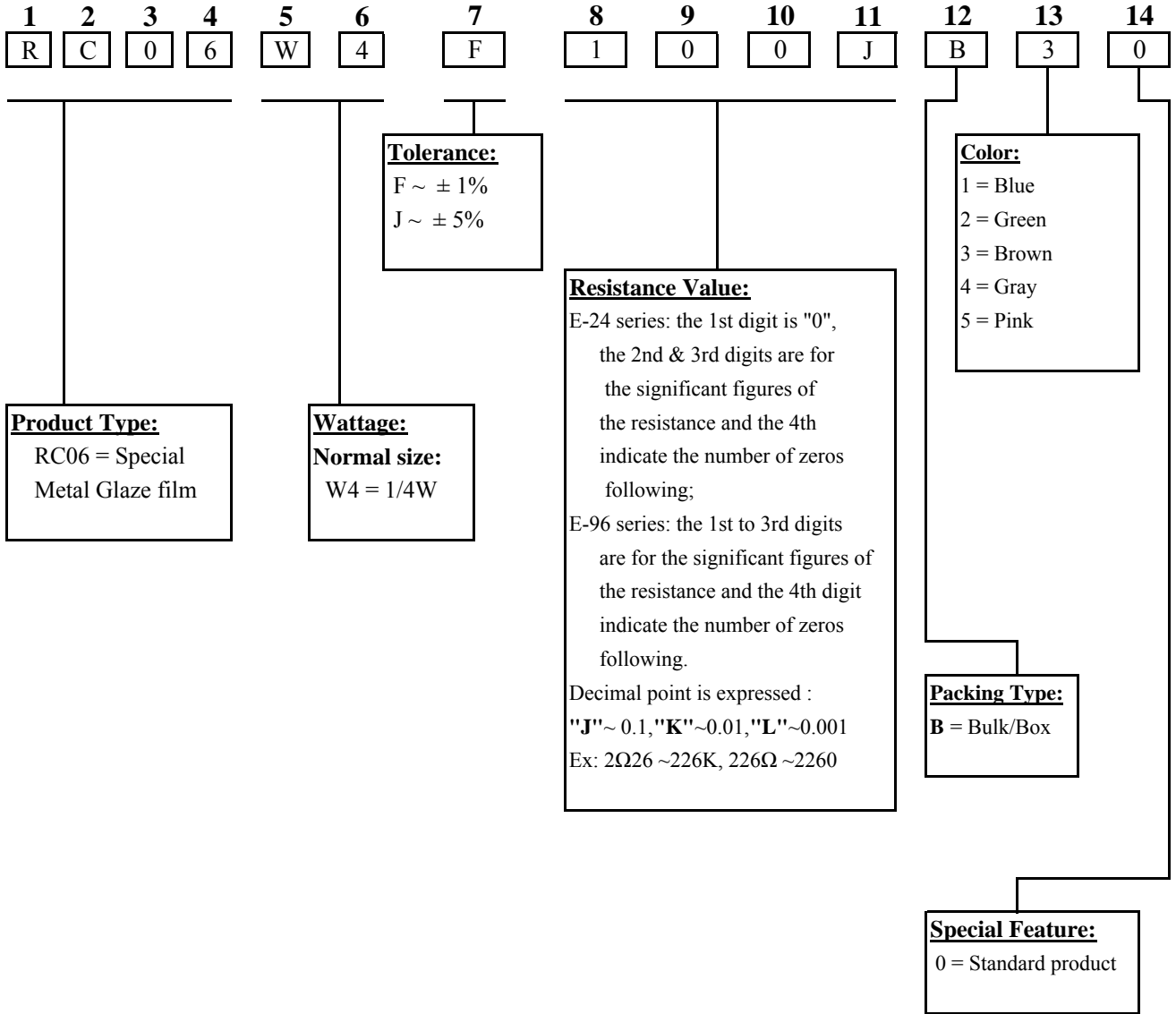
Ex.

Metal Glaze Film Fixed Resistors	
Watt : 1/4W	Val : 10 Ω
Q'TY : 500	Tol : 1%
Lot : 813478	PPM :
ROYALOHM	Pb Free

Metal Glaze Film Fixed Resistors		
7. Performance specification :		
Characteristics	Limits	Test Methods (JIS C 5201-1)
Insulation resistance	1,000 MΩ or more	Apply 500V DC between protective coating and termination for 1 min, then measure (Sub-clause 4.6)
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down	Apply 500V AC between protective coating and termination for 1 minute (Sub-clause 4.7)
Temperature coefficient	1Ω ~ 10Ω : ±400 PPM/°C 10.1Ω ~ 100Ω : ±200 PPM/°C >100Ω : ±100 PPM/°C	Natural resistance change per temp. degree centigrade. $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ R1: Resistance value at room temperature (t1) R2: Resistance value at room temp. plus 100 °C (t2) (Sub-clause 4.8)
Short time overload	Resistance change rate is ± 1% : ± (1.0% + 0.1Ω) Max. ± 5% : ± (2.0% + 0.1Ω) Max.	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds (Sub-clause 4.13)
Solderability	95 % coverage Min.	Test temperature of solder : 245 ± 3 °C Dwell time in solder : 2 ~ 3 seconds (Sub-clause 4.17)
Soldering Heat	Resistance change rate is: ± (1.0%+0.05Ω) Max.	Dip the resistor into a solder bath having a temperature of 260°C±3°C and hold it for 10±1 seconds. (Sub-clause 4.18)
Temperature cycling	Resistance change rate is ± 1% : ± (0.5% + 0.05Ω) Max. ± 5% : ± (1.0% + 0.05Ω) Max.	Resistance change after continuous 5 cycles for duty cycle specified below :
		Step Temperature Time
		1 -55°C ± 3°C 30 mins
		2 Room temp. 10~15 mins
		3 +155°C ± 2°C 30 mins
4 Room temp. 10~15 mins		
(Sub-clause 4.19)		
Load life in humidity	Resistance change rate is ± 1% : ± (1.0% + 0.1Ω) Max. ± 5% : ± (3.0% + 0.1Ω) Max.	Resistance change after 1,000 hours (1.5 hours "on", 0.5 hour "off") at RCWV in a humidity chamber controlled at 40°C ± 2°C and 90 to 95 % relative humidity (Sub-clause 4.24.2.1)
Load Life	Resistance change rate is ± 1% : ± (1.0% + 0.1Ω) Max. ± 5% : ± (3.0% + 0.1Ω) Max.	Permanent resistance change after 1,000 hours operating at RCWV, with duty cycle of (1.5 hours"on", 0.5 hour"off") at 70°C ± 2°C ambient (Sub-clause 4.25.1)

Part Number System

Explanation of Part Number System (Metal Glaze Film Fixed Resistors)



Sample : RC06 1/4W +/-1% 10Ω B/B → RC06W4F100JB30
 RC06 1/4W +/-5% 10Ω B/B → RC06W4J0100B30

Metal Glaze Film Fixed Resistors

Environment Related Substance

This product complies to EU RoHS directive, EU PAHs directive, EU PFOS directive and Halogen free.

Ozone layer depleting substances.

Ozone depleting substances are not used in our manufacturing process of this product.

This product is not manufactured using Chloro fluorocarbons (CFCs), Hydrochlorofluorocarbons (HCFCs), Hydrobromofluorocarbons (HBFCs) or other ozone depleting substances in any phase of the manufacturing process.

Storage Condition

The performance of these products, including the solderability, is guaranteed for a year from the date of arrival at your company, provided that they remain packed as they were when delivered and stored at a temperature of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and a relative humidity of $60\% \text{RH} \pm 10\% \text{RH}$

Even within the above guarantee periods, do not store these products in the following conditions. Otherwise, their electrical performance and/or solderability may be deteriorated, and the packaging materials (e.g. taping materials) may be deformed or deteriorated, resulting in mounting failures.

1. In salty air or in air with a high concentration of corrosive gas, such as Cl_2 , H_2S , NH_3 , SO_2 , or NO_2
2. In direct sunlight