

DATA SHEET

Thick Film Chip Resistor

RC 01005

(RoHS Compliant & Halogen Free)

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SCOPE

This specification describes size of RC01005 series chip resistors with lead-free terminations made by thick film process.

FEATURES

- Products with lead free terminations meet RoHS requirements.
- Small size and lightweight
- Saving of PCB space
- Halogen Free Epoxy

ORDERING INFORMATION

Part number is identified by the series name, size code, tolerance, packing style, temperature coefficient of resistance, taping reel and resistance value.

YAGEO ORDERING CODE

GLOBAL PART NUMBER (PREFERRED)

RC 0100 X R — 07 XXXX L

(1) (2) (3) (4) (5) (6) (7)

(1) Size Code

0100= size 01005

(2) TOLERANCE

F = $\pm 1\%$

J = $\pm 5\%$

(3) PACKING STYLE

R = Press Pocket Paper

(4) TEMPERATURE COEFFICIENT OF RESISTANCE

— = base on spec.

(5) TAPING REEL

07 = 7 inch dia. Reel

(6) RESISTANCE VALUE

10R to 1M

(7) Default code

Letter L is system default code for order only (NOTE)

MARKING

RC01005



Fig.1

No marking

CONSTRUCTION

The resistors are constructed on top of a high-grade ceramic body. Internal metal electrodes are added at each end and connected by the resistive glaze. The resistive glaze is covered by a leadfree glass. The composition of the glaze is adjusted to give the approximate required resistance value and laser trimming of this resistive glaze achieves the value inside tolerance. The whole element is covered by a protective Epoxycoat. Finally, the two external terminations (Ni / matte tin) are added. See fig. 2.

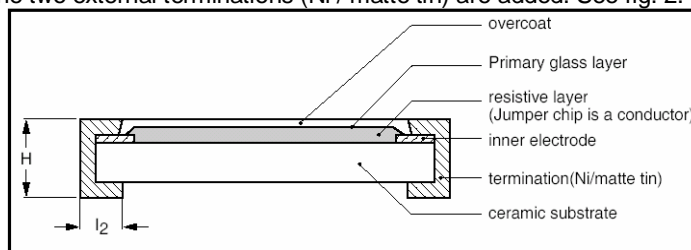


Fig.2

ORDERING EXAMPLE

The ordering code of a RC0100 chip resistor, value 10 Ω with $\pm 5\%$ tolerance, supplied in 7-inch tape reel is: RC0100JR-0710RL.

NOTE

1. All our RSMD products meet RoHS compliant and Halogen Free. "LFP" of the internal 2D reel label mentions "Lead Free Process".
2. On customized label, "LFP" or specific symbol can be printed.



DIMENSION

Table 1

TYPE	RC01005
L (mm)	0.40±0.02
W (mm)	0.20±0.02
H (mm)	0.13±0.02
I1 (mm)	0.10±0.03
I2 (mm)	0.10±0.03

For dimension see Table 1

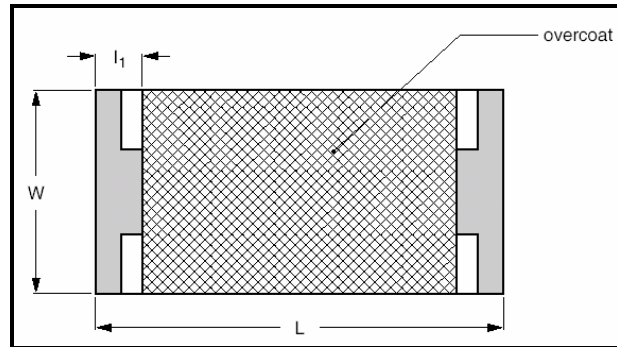


Fig.3 Chip resistor outlines

POWER RATING

RC01005 rated power at 70°C is 1/32W

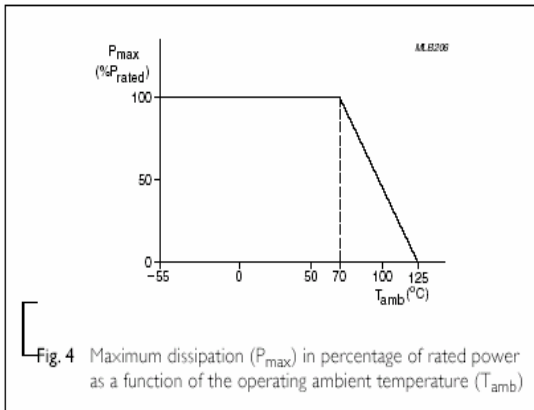


Fig. 4 Maximum dissipation (P_{max}) in percentage of rated power as a function of the operating ambient temperature (T_{amb})

ELECTRICAL CHARACTERISTICS

Table 2

CHARACTERISTICS	RC01005 1/32 W
Operating Temperature Range	-55°C to +125°C
Maximum Working Voltage	15V
Maximum Overload Voltage	30V
Dielectric Withstanding Voltage	30V
Resistance Range	±5% (E24) 10Ω to 1MΩ ±1% (E24) 10Ω to 1MΩ Zero Ohm Jumper <50mΩ
Temperature Coefficient	±250ppm/°C

RATED VOLTAGE:

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$$U = \sqrt{P * R}$$

Where

U=Continuous rated DC
or AC (rms) working voltage

P=Rated power

R=Resistance value



TAPING REEL

Table 3

DIMENSION	RC01005
ØA (mm)	180.0+0/-3.0
ØN (mm)	60.0+1/-0
ØC (mm)	13.0±0.2
ØD (mm)	21.0±0.8
W1 (mm)	9.0±0.3
W2 (mm)	11.4±1.0

For dimension see Table 3

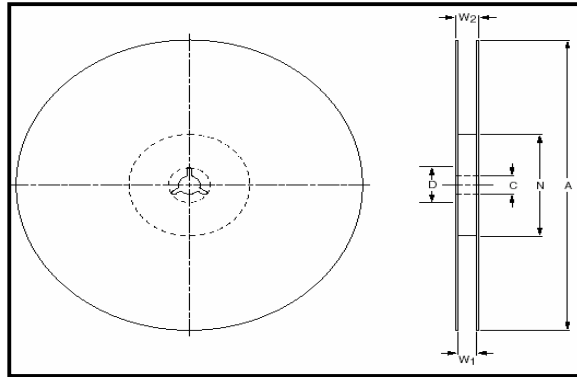


Fig.5 Reel

PAPER TAPE SPECIFICATION

Table 4

DIMENSION	RC01005
A (mm)	0.24±0.03
B (mm)	0.45±0.03
W (mm)	8.0±0.2
E (mm)	1.75±0.1
F (mm)	3.5±0.05
P ₀ (mm)	4.0±0.05
P ₁ (mm)	2.0±0.1
P ₂ (mm)	2.0±0.05
ØD ₀ (mm)	1.5+0.1/-0
T (mm)	0.31±0.1

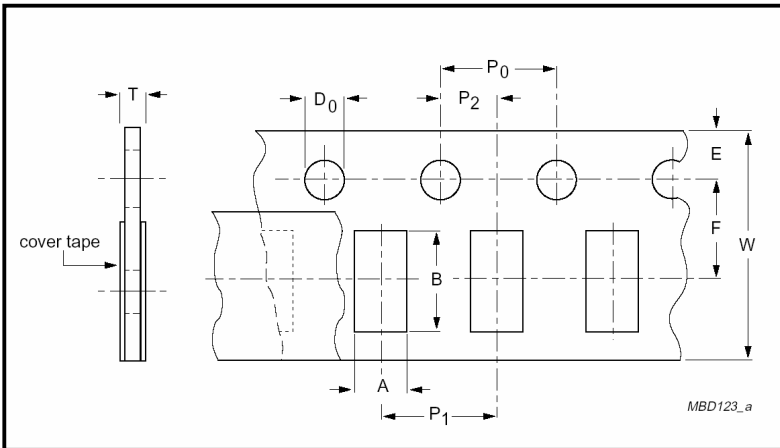


Fig.6 PAPER TAPE SPECIFICATION

PACKING METHOD

LEADER/TRAILER TAPE SPECIFICATION

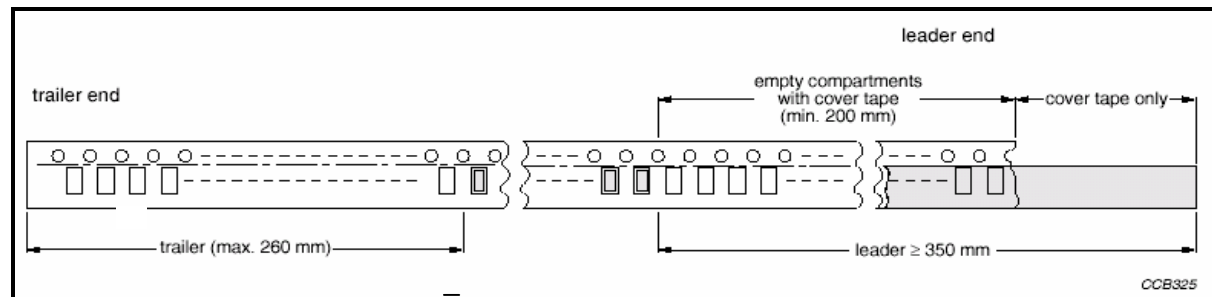


Fig.7 Leader/trailer tape

Table 5 Packing style and packaging quantity.

PACKING STYLE	REEL	DIMENSION	RC01005
Press Pocket Paper	7" (178 mm)		20,000 units



TESTS AND REQUIREMENTS

TEST	TEST METHOD	PROCEDURE	REQUIREMENT
Life/Endurance	IEC 60115-1 4.25.1	At 70±5°C for 1,000 hours; RCWV applied for 1.5 hours on and 0.5 hour off, still air required	±(3%+0.05Ω) <100mΩ for Jumper
High Temperature Exposure	IEC 60068-2-2	1,000 hours at 125±5 °C,unpowered	±(1%+0.05Ω) <50mΩ for Jumper
Moisture Resistance	MIL-STD-202 Method 106G	Each temperature / humidity cycle is defined at 8 hours (method 106F), 3 cycles / 24 hours for 10d with 25 °C / 65 °C 95% R.H, without steps 7a & 7b, unpowered Parts mounted on test-boards, without condensation on parts	±(2%+0.05Ω) <100mΩ for Jumper
Thermal Shock	MIL-STD-202G Method 107G	-55/+125°C Note Number of cycles required is 300 Devices unmounted Maximum transfer time is 20 seconds Dwell time is 15 minutes. Air - Air	±(1%+0.05Ω) <50mΩ for Jumper
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV or maximum overload voltage which is less for 5 seconds at room temperature	±(2%+0.05Ω) <50mΩ for Jumper No visible damage
Board Flex/Bending	IEC 60068-2-21	Device mounted or as described only 1 board bending required 2 mm bending time: 60±5 seconds	±(1%+0.05Ω) <50mΩ for Jumper No visible damage
Solderability - Wetting	IPC/JEDEC J-STD-002B test B	Electrical Test not required Magnification 50X SMD conditions: 1st step: method B, aging 4 hours at 155 °C dry heat 2nd step: leadfree solder bath at 245±3 °C Dipping time: 3±0.5 seconds	Well tinned (≥95% covered) No visible damage
-Leaching	IPC/JEDEC J-STD-002B test D	Solder bath at 260±5°C Dipping time : 30±1 seconds	No visible damage
-Resistance to Soldering Heat	IEC 60068-2-58	Condition B, no pre-heat of samples Leadfree solder, 260 °C ±5°C, 10 ±1 seconds immersion time Procedure 2 for SMD: devices fluxed and cleaned with isopropanol	±(1%+0.05Ω) <50mΩ for Jumper No visible damage



TYPE PROCEDURE SIZE FOOTPRINT DIMENSION REQUIREMENTS

RECOMMENDED
FOOTPRINT
DIMENSIONS

Size Footprint	Dimensions		Code		unit :mm
RC01005	A	B	C	D	
	0.48	0.12	0.18	0.18 ~ 0.23	

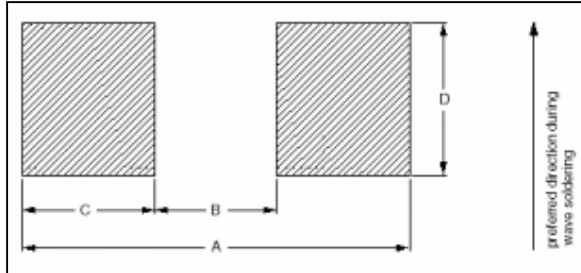


Fig.8 RECOMMENDED FOOTPRINT DIMENSIONS

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	2008-06-20		- First issue of this specification