Innovative Service Around the Globe YAGEO

DATA SHEET

High Power CHIP RESISTORS

RC2512

1% / 5%

3W

RoHS Compliant & Halogen Free

YAGEO

Phicomp

Product specification – May 25, 2020 V1

SCOPE

This specification describes RC2512 series chip resistors with lead-free terminal made by thick film process.

ORDERING INFORMATION

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

RC2512 X K - 7 T XXXXX L

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

(1) TOLERANCE

J = ±5%

F = ±1%

(2) PACKAGING STYLE

K = Embossed taping reel

(3) TEMPERATURE COEFFICIENT OFRESISTANCE

- = Based on spec. (see table 2)

(4) TAPING REEL

7 = 7“ dia. Reel

(5) Power rating

T = 3 x standard power 3W

(6) RESISTANCE VALUE

1R to 1MR

(7) Default Code

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

MARKING

RC2512

101

Fig.1 Value = 100Ω

E-24 series: 3 digits for 5%

First two digits for significant figure and 3rd digit for number of zeros

1500

Fig.2 Value = 150Ω

E-24/E-96 series: 4 digits for 1%

First three digits for significant figure and 4rd digit for number of zeros

CONSTRUCTION

The resistors are constructed out of a high-grade ceramic body. Internal metal electrodes are added at each end and connected by a resistive paste. The composition of the paste is adjusted to give the approximate required resistance. The resistive layer is covered with a protective coat. Finally, the two external terminations are added. See fig.3

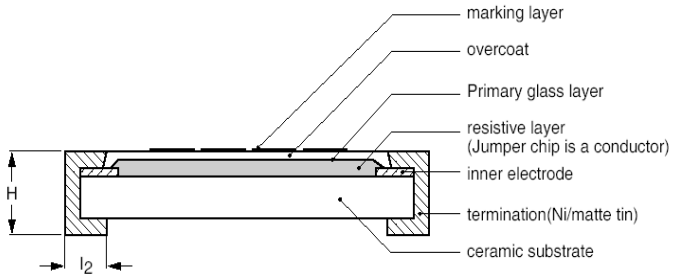


Fig. 3

Note:

1. All our RSMD products are RoHS compliant. On our 2D reel label the internal CTC (without L) will be mentioned with additional print "LFP" for: Lead Free Process.
2. On customized label, "LFP" or specific symbol can be printed.

DIMENSION

Table 1

TYPE	RC2512
L (mm)	6.35±0.10
W (mm)	3.10±0.15
H (mm)	0.55±0.10
I1 (mm)	0.60±0.20
I2 (mm)	2.50±0.25

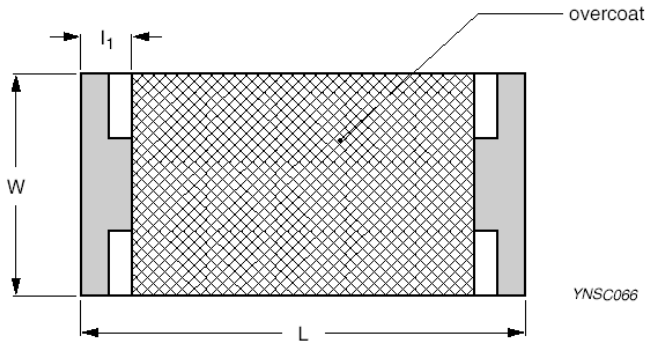
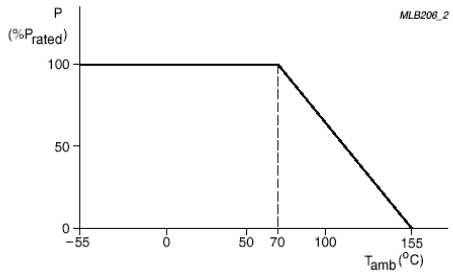


Fig. 4

POWER RATING

RC2512 rated power at 70℃ is 3W



Maximum dissipation (P) in percentage of rated power as a function of the operating ambient temperature (T_{amb})

Fig. 5

ELECTRICAL CHARACTERISTICS

Table 2

CHARACTERISTICS	RC2512 3 W
Operating Temperature Range	–55℃ to +155℃
Maximum Working Voltage	200V
Maximum Overload Voltage	400V
Dielectric Withstanding Voltage	500V
Resistance Range	1Ω to 1MΩ 1% (E24/E96) 1Ω to 1MΩ 5% (E24)
Temperature Coefficient	±5%: ±200ppm/℃ ±1%: ±100ppm/℃
Jumper Criteria	Rated Current 6.0A Maximum Current 15.0A

RATED VOLTAGE:

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

$V=\sqrt{(P*R)}$

Where

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

P=Rated power

R=Resistance value

Table 5 Packing style and packaging quantity.

PACKING STYLE	REEL	DIMENSION	RC2512
Embossed Taping Reel (K)	7" (178 mm)		4,000

NOTE: For embossed tape and reel specification/dimensions, please see the special data sheet “Packing” document.

TESTS AND REQUIREMENTS

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

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 1	2020-05-25		- Update dimension I2
Version 0	2019-12-10		- First issue of this specification