

DATA SHEET

CURRENT SENSOR-LOW TCR

PF0805-Series

5%,1% ; 20 m Ω

size 0805

RoHS Compliant & Halogen Free



YAGEO
Phycomp

Product specification –May 07, 2009 V0



SCOPE

This specification describes PF0805 current sensor – low TCR chip resistors with lead-free terminations.

APPLICATIONS

- Power supplies
- Consumer(Mobile 、PNDs 、...)
- Laptop
- HDDs

FEATURES

- Products with lead free terminations meet RoHS requirements.
- High component and equipment reliability with high power rating (0.125W).
- Low resistance 20mΩ and narrow tolerance ±1% can suitable for current detection.

ORDERING INFORMATION - GLOBAL PART NUMBER

Part number is identified by the series name, size, tolerance, packaging type, temperature coefficient of resistance, taping reel, resistance value.

PF0805	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>XXXX</u>	<u>L</u>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) TOLERANCE

F = ±1%

J = ±5%

(2) PACKAGING TYPE

R = Paper/PE taping reel

(3) TEMPERATURE COEFFICIENT OF RESISTANCE

M=±75ppm/°C

F=±100ppm/°C

(4) TAPING REEL

7 = 7 inch dia. Reel

(5) POWER RATING

P= Low Profile& 0.125W(1/8W)

(6) RESISTANCE VALUE

0R02

(7) Default Code

Letter L is system default code for order only

(NOTE)

ORDERING EXAMPLE

The ordering code for a PF0805 0.125W chip resistor, TC75 value 0.02Ω with ±1% tolerance, supplied in 7-inch tape reel with 4Kpcs quantify is:

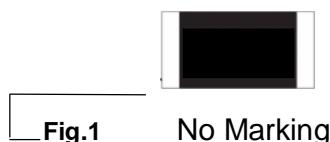
PF0805FRM7P0R02L.

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.

MARKING

PF0805: E-24 SERIES



For further marking information, please see special data sheet “Chip resistors marking”.

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 and laser cutting of this resistive layer that achieves tolerance trims the value. The resistive layer is covered with a protective coat and printed with the resistance value. Finally, the two external terminations (matte tin) are added. See fig. 2.

DIMENSIONS

Table 1

TYPE	PF0805
L (mm)	2.03±0.25
W (mm)	1.27±0.25
H (mm)	0.33±0.12
l1 (mm)	0.38±0.25
l2 (mm)	0.38±0.25

OUTLINES

For dimension see Table 1

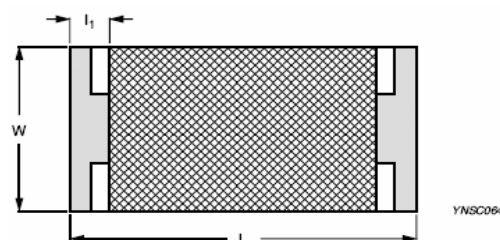
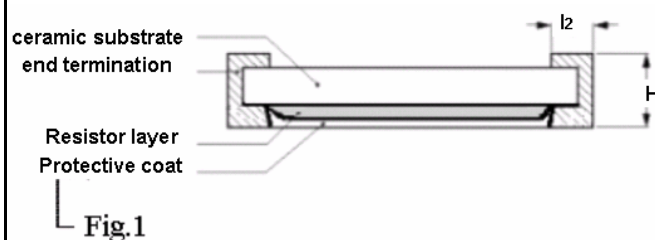


Fig.2 Chip resistor outlines

ELECTRICAL CHARACTERISTICS

Table 2

CHARACTERISTICS	PF0805 0.125W
Operating Temperature Range	-55°C to +155°C
Maximum Working Voltage	$\sqrt{(P * R)}$
Resistance Range	20mΩ
Temperature Coefficient	M=±75ppm/°C F=±100ppm/°C

FOOTPRINT AND SOLDERING PROFILES

For recommended footprint and soldering profiles, please see the special data sheet “Chip resistors mounting”.

PACKING STYLE AND PACKAGING QUANTITY

Table 3

PRODUCT TYPE	PACKING STYLE	REEL DIMENSION	QUANTITY PER REEL
PF0805	Paper taping reel	7" (178 mm)	4,000 Units

NOTE

1. For paper tape and reel specification/dimensions, please see the special data sheet “Packing” document.

FUNCTIONAL DESCRIPTION

POWER RATING

PF0805 rated power at 70°C is 0.125W

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 (v)

P=Rated power

R=Resistance value (Ω)

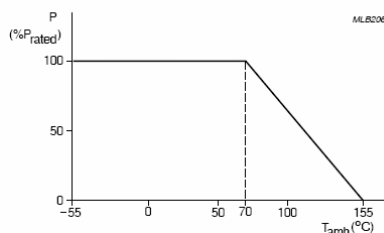


Fig. 3 Maximum dissipation (P) in percentage of rated power as a function of the operating ambient temperature (T_{amb})

TAPING REEL

Table 4

DIMENSION	0805
Tape Width(mm)	8
ØA (mm)	180.0+0/-3
ØN (mm)	60.0+1/-0
ØC (mm)	13.0±0.2
ØD (mm)	21.0±0.8
W1 (mm)	9.0±0.2
W2 (mm)	12.0±0.2

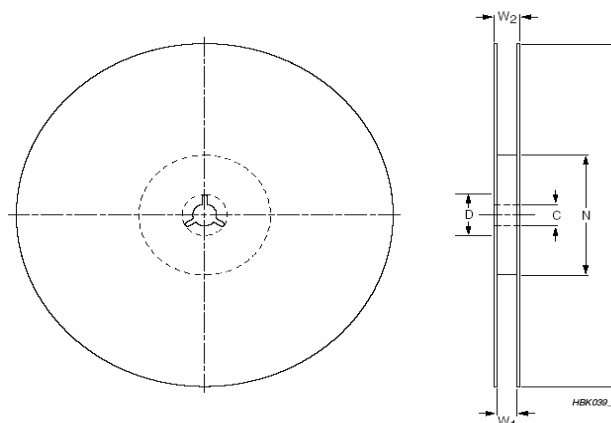


Fig.4 Reel

PAPER/PE TAPE SPECIFICATION

Table 5

DIMENSION	0805
A ₀ (mm)	1.65±0.10
B ₀ (mm)	2.40±0.10
W (mm)	8.0±0.20
E (mm)	1.75±0.10
F (mm)	3.5±0.05
P ₀ (mm)	4.0±0.10
P ₁ (mm)	4.0±0.05
P ₂ (mm)	2.0±0.05
D ₀ (mm)	1.5+0.1/-0
T (mm)	0.85±0.10

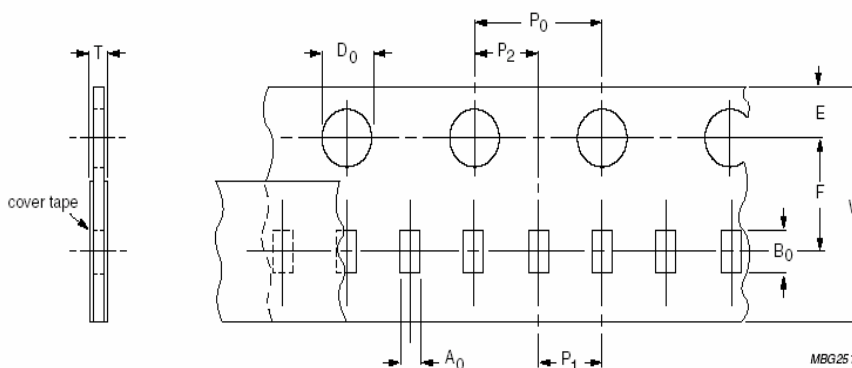


Fig.5 Paper/PE tape

PACKING METHOD

LEADER/TRAILER TAPE SPECIFICATION

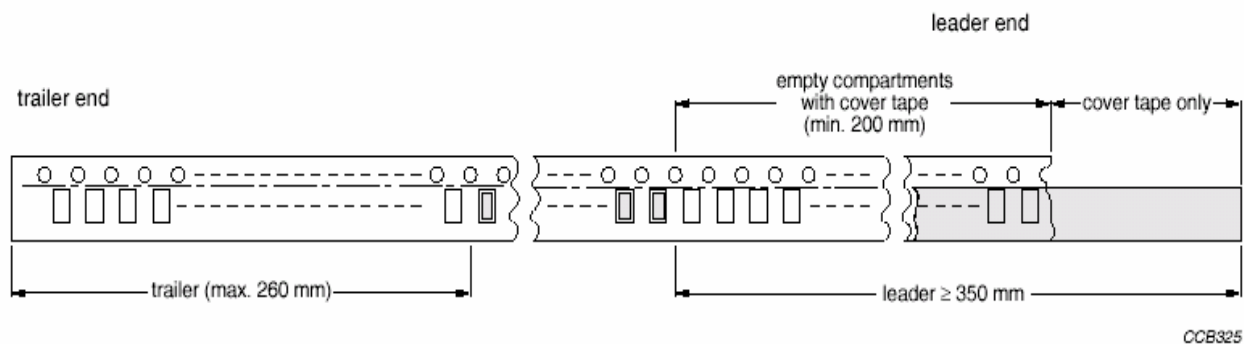


Fig.6 Leader/trailer tape

TESTS AND REQUIREMENTS

TEST	TEST METHOD	PROCEDURE	REQUIREMENT
Life/ Endurance	IEC 60115-1 4.25.1	1,000 hours at 70±5 °C applied RCWV 1.5 hours on, 0.5 hour off, still air required	± (1.0 % + 0.0005Ω)
High Temperature Exposure/ Endurance at upper category temperature	IEC 60068-2-2	1,000 hours at 155±5 °C,unpowered	± (1.0 % + 0.0005Ω)
Moisture Resistance	MIL-STD-202 Method 106G	Each temperature / humidity cycle is defined at 8 hours (Method 106G), 3 cycles / 24 hours for 10d. with 25 °C / 65 °C 95% R.H, without steps 7a & 7b, un-powered Parts mounted on test-boards, without condensation on parts Measurement at 24±2 hours after test conclusion.	± (0.5% + 0.0005Ω)
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% + 0.0005Ω)
Short time overload	IEC 60115-1 4.13	2.5 times of rated voltage or maximum overload voltage whichever is less for 5 sec at room temperature	± (1.0% + 0.0005Ω) No visible damage
Board Flex/ Bending	IEC 60068-2-21	Chips mounted on a 90mm glass epoxy resin PCB(FR4) 2 mm bending Bending time: 60±1 seconds	± (1.0 % + 0.0005Ω)
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	Leadfree solder, 260 °C, 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 °C, 10±1seconds immersion time Procedure 2 for SMD: devices fluxed and cleaned with isopropanol	± (0.5% + 0.0005Ω) No visible damage

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	2009-05-07		- First issue of this specification