YAGEO
YAGEO CORPORATION

Approval Sheet

for

Precision Power Wirewound Resistor Ceramic Carrier & Axial Type

PPN Series

±0.5%、±1%、±2% & ±5%

YAGEO CORPORATION

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Rev.	Description	Issue Date	Drawn	Approved
00	issue new spec.	May 25, 2012	Feng Ye	Ken Hsu

Description	Precision Power Wirewound Resistors, Ceramic Carrier & Axial Type		
Series	PPN	Rev.	00

1. PRODUCT:

PRECISION POWER WIREWOUND RESISTORS, CERAMIC CARRIER&CAOTED&AXIAL TYPE
Body colour:
Grey

2. PART NUMBER:

Part number of the precision power wirewound resistor is identified by the name, power, tolerance, packing, temperature coefficient, special type and resistance value.

Example：

PPN	100	J	T	-	52-	10R
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Series Name	Power Rating	Resistance Tolerance	Packing Style	Temperature Coefficient of Resistance	Special Type	Resistance Value

(1) Style: PPN SERIES

(2) Power Rating : 100=1W、160=1.6W、200=2W、250=2.5W、300=3W、350=3.5W、430=4.3W、500=5W、650=6.5W

(3) Tolerance: D=±0.5% F=±1% G=±2% J=±5%

(4) Packaging Type**:** T＝Tape on Box Packing

(5) Temperature Coefficient ：”-“=Base on spec.

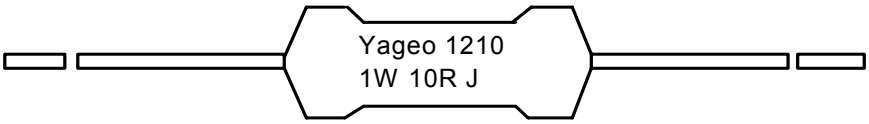
(6) Special Type： 52-=52.4mm
73-=73mm

(7) Resistance Value：E24 & E96 & E192 Series

Example：0.1R、 1R、10R、100R、……

3. MARKING:

Pinted in clear



4. ELECTRICAL CHARACTERISTICS

TABLE I

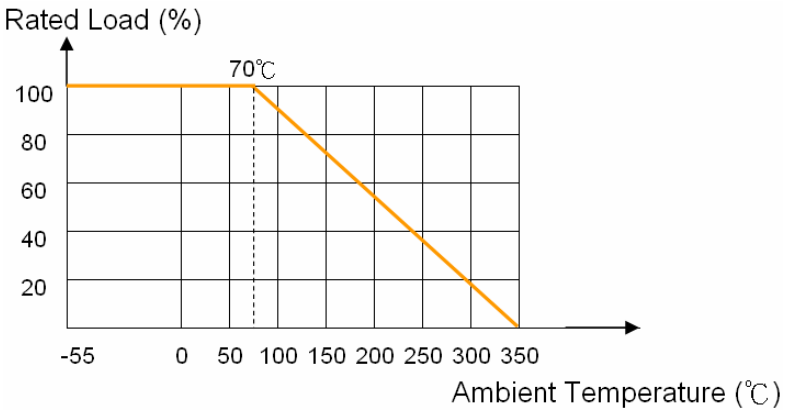
STYLE	PPN100	PPN160	PPN200	PPN250	PPN300	PPN350	PPN430	PPN500	PPN650
Power Rating at 70 ℃	1W	1.6W	2W	2.5W	3W	3.5W	4.3W	5W	6.5W
Max. Cont. Work. Voltage	$\sqrt{P70 \times R}$								
Thermal resistancev (℃/W)	125	100	85	65	55	65	48	45	35
Insulation Resistance	Not insulated								
Tolerances	Rmin.~Rmax.: ±5%, ±2%, ±1%; R≧1R: ±0.5%								
Insulation Voltage (1min.)	Max. 75V								
Operating Temp. Range	- 55 ℃ to + 350 ℃								

TABLE II Resistance Range and Temperature Coeficient

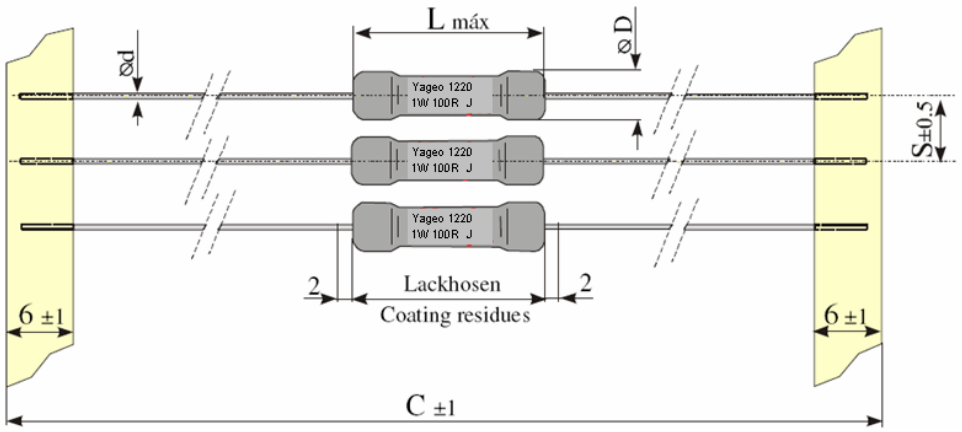
STYLE	Temperature Coeficient									
	500 +400 ppm/℃		400 ± 50 ppm/℃		Appr.+180 ppm/℃		±20 ppm/℃		±10 ppm/℃	
PPN100	----	----	≧0R01	≤0R024	≧0R027	≤0R091	≧0R1	≤15R	≧16R	≤220R
PPN160	≧0R022	≤0R033	≧0R036	≤0R062	≧0R068	≤0R091	≧0R1	≤160R	≧180R	≤470R
PPN200	≧0R01	≤0R02	≧0R022	≤0R047	≧0R051	≤0R091	≧0R1	≤47R	≧51R	≤750R
PPN250	≧0R01	≤0R027	≧0R03	≤0R075	≧0R082	≤0R091	≧0R1	≤47R	≧51R	≤750R
PPN300	≧0R015	≤0R024	≧0R027	≤0R062	≧0R068	≤0R091	≧0R1	≤68R	≧75R	≤1K
PPN350	≧0R02	≤0R03	≧0R033	≤0R062	≧0R068	≤0R091	≧0R1	≤130R	≧150R	≤1K5
PPN430	≧0R027	≤0R047	≧0R051	≤0R062	≧0R091	≤0R13	≧0R15	≤150R	≧160R	≤2K2
PPN500	≧0R033	≤0R062	≧0R068	≤0R013	≧0R15	≤0R16	≧0R18	≤160R	≧180R	≤2K7
PPN650	≧0R047	≤0R075	≧0R082	≤0R015	≧0R16	≤0R24	≧0R27	≤180R	≧200R	≤3K9

∗ Below or over this resistance on request.

5. DERATING CURVE



6. DIMENSIONS



STYLE	DIMENSIONS (unit: mm)		
	Lmax.	ϕ D* max.	ϕ d
PPN100	9.0	3.0	0.65
PPN160	9.7	4.0	0.80
PPN200	14.5	4.5	0.65
PPN250	12.6	5.5	0.80
PPN300	15.0	8.5	0.80
PPN350	17.0	5.5	0.80
PPN430	18.0	8.5	0.80
PPN500	22.0	8.5	0.80
PPN650	27.0	8.5	0.80

7. ENVIRONMENTAL CHARACTERISTICS

(1) Voltage Proof

The resistor shall be clamped in the trough of a 90° metal V Block. Apply the insulation voltage specified in the "Table I " between the terminals connected together with the block for about 60 seconds.
The resistor shall be able to withstand without breakdown or flashover.

(2) Temperature Coefficient Test

Test of resistors above room temperature 100°C ± 2°C (Testing Temperature 115°C to 130°C) at the constant temperature silicon plate for over 5 minutes. Then measure the resistance value.
The Temperature Coefficient is calculated by the following equation and its value should be within the range of requested.

$$\text{Resistor Temperature Coefficient} = \frac{R - R_0}{R_0} \times \frac{1}{t - t_0} \times 10^6$$

- R = Resistance value under the testing temperature
- R_0 = Resistance value at the room temperature
- t = The testing temperature
- t_o = Room temperature

(3) Solderability
Immerse the specimen into the solder pot at 235 ± 5 °C for 3 ± 0.5 seconds.
At least 95% solder coverage on the termination.

(4) Solvent Resistance of Marking

The specimen into the appropriate solvent of IPA condition of ultrasonic machine for 5± 0.5 minutes.
The specimen is no deterioration of coatings and color code

(5) Robustness of Terminations

Direct Load – Resistors shall be held by one terminal and the load shall be gradually applied in the direction of the longitudinal axis of the resistor unit the applied load reached the requirement.
The load shall be held for 10 seconds. The load of weight shall be ≧ 40N

(6) Damp Heat Steady State

Place the specimen in a test chamber at 40 ± 2 °C and 90 ~ 95 % relative humidity. Apply the 0.1 times rated voltage to the specimen at the 1.5 hours on and 0.5 hour off cycle. The total length of test is 56 days.
The change of the resistance value shall be within ± 1.0 %

(7) Endurance at 70 °C

Placed in the constant temperature chamber of 70 ± 3 °C the resistor shall be connected to the lead wire at the point of 25mm. Length with each terminal, the resistors shall be arranged not much effected mutually by the temperature of the resistors and the excessive ventilation shall not be performed, for 90 minutes on and 30 minutes off under this condition the rated D.C. voltage is applied continuously for 1000+48/-0 hours then left at no-load for 1hour, measured at this time the resistance value ◦
The change of the resistance value shall be within ± 3.0%
There shall be no remarkable change in the appearance and the color code shall be legible after the test..

(8) Resistance to Soldering Heat
The terminal lead shall be dipped into the solder pot at 260 ± 3 °C for 10 ± 1.0 seconds up to 2.5 ~ 3.5 mm.

The change of the resistance value shall be within ± 0.2%

8. PACKAGING

STYLE	Packaging	Pieces	Pack.-code	C	s
PPN100	taped	1000	T	65	5
PPN160	taped	1000	T	65	5
PPN200	taped	1000	T	85	10
PPN250	taped	1000	T	85	10
PPN300	taped	500	T	85	10
PPN350	taped	1000	T	85	10
PPN430	taped	500	T	85	10
PPN500	taped	500	T	85	10
PPN650	taped	500	T	85	10

9. Plant Address

A. China Dongguan Plant
7-1, Gaoli Road, Gaoli Industrial Zone
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B. China Mudu Plant
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