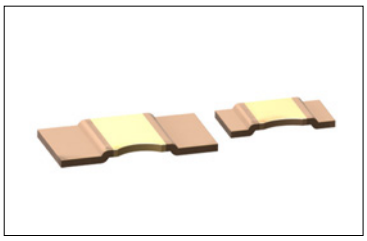
Ultra low ohmic Metal plate / High power type Shunt Resistors

PSR Series Data Sheet

●Features

1) High power class up to 4 to 5W.
2) The lineup of ultra-low resistance value : correspondence from 0.2mΩ
3) Excellent temperature coefficiency.
4) Ideal for current detection under high current circuit.



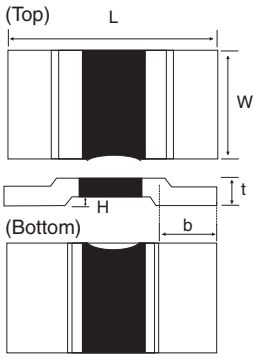
●Products List

Part No.	Size (mm)	Size (inch)	Rated power (70°C)	Tolerance	Resistance range (mΩ)	Temperature* coefficient (ppm / °C)	Operating Temperature Range (°C)
PSR400	10×5.2	3921	4W	J (±5%) G (±2%) F (±1%)	0.3,0.5	±175	−55 to +170
					1.0,2.0,3.0	±75	
PSR500	15×7.75	5931	5W	J (±5%) G (±2%) F (±1%)	0.2	±225	
					0.3,0.4,0.5	±150	
					1.0,2.0	±75	

*(+20°C to +125°C)

●Chip Resistor Dimensions and Materials

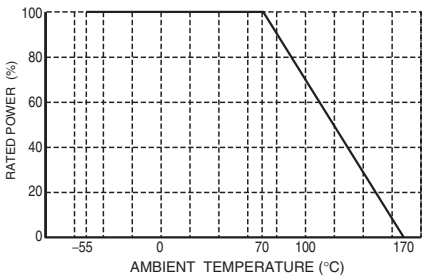
(Unit : mm)



Part No.	(mm)	(inch)	L	W	H	b	Resistance	t	Material
PSR400	10×5.2	3921	10±0.3	5.2±0.3	0.5±0.1	2.0±0.6	0.3	1.85±0.15	Cu / Mn
							0.5	1.30±0.15	
							1.0	0.90±0.15	
							2.0	1.15±0.15	Ni / Cr
							3.0	0.90±0.15	
PSR500	15×7.75	5931	15±0.3	7.75±0.3	0.5±0.1	4.0±0.6	0.2	1.85±0.15	Cu / Mn
							0.3	1.40±0.15	
							0.4	1.15±0.15	
							0.5	1.05±0.15	
							1.0	1.35±0.15	Ni / Cr
							2.0	0.90±0.15	

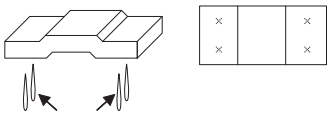
●Derating Curve

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curves below.



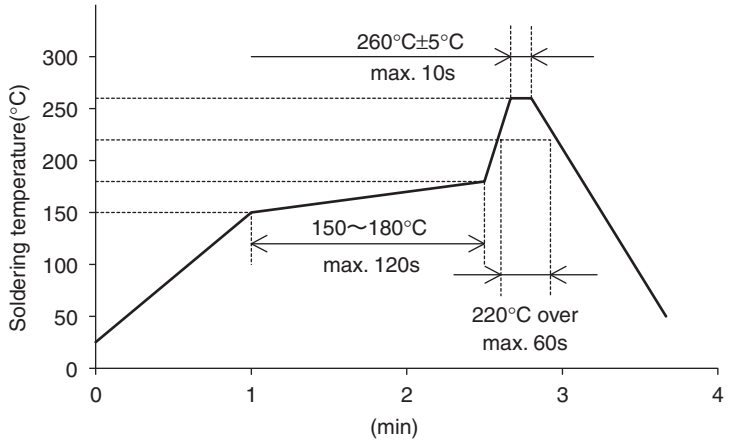
Design and specifications are subject to change without notice.
Carefully check the specification sheet supplied with the product before using or ordering it.

●Characteristics

Test Items	Guaranteed Value Resistor Type	Test Conditions
Resistance	F : ±1% G : ±2% J : ±5%	Measuring method : 2probe per terminal  Probes
Variation of resistance with temperature	See P1	Measurement : +20/+125
Overload	±0.5%	Rated power×5,5s
Solderability	A new uniform coating of minimum of 95% of the surface being immersed an no soldering da a	Rosin- Ethanol solution(25% weight) Soldering condition : 245±5°C Duration of immersion : 2.0±0.5s.
Resistance to soldering heat	±1.0% No remarkable abnormality on the appearance.	Soldering condition : 260±5°C Duration of immersion : 10±1s
Rapid change of temperature	±1.0%	Test temp. : –55°C to +155°C 5cycle
Damp heat, steady state	±0.5%	40°C, 93%RH (Relative Humidity) Test time : 1,000h to 1,048h
Endurance at 70°C	±1.0%	70°C Rated power 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance at 170°C	±1.0%	70°C Test time : 1,000h to 1,048h
Component Solvent Resistance	±0.5%	23±5°C Solvent : 2–propanol
Bend strength of the end face plating	Without open	–

Compliance Standard(s) : IEC60115–8
JISC 5201–1

●Solder Conditions



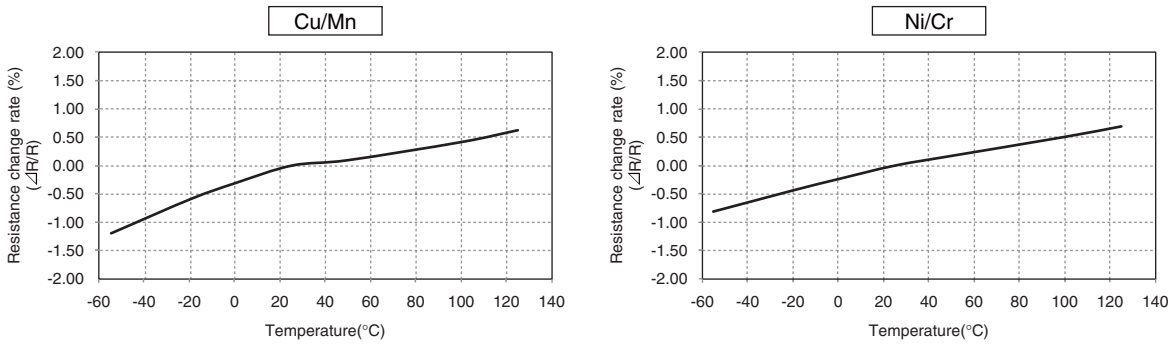
Recommended solder profile			
Reflow			
Temperature(°C)	260	220	150 to 180
Time(s)	Peak 10s Max.	60s	120s

<Reference data>

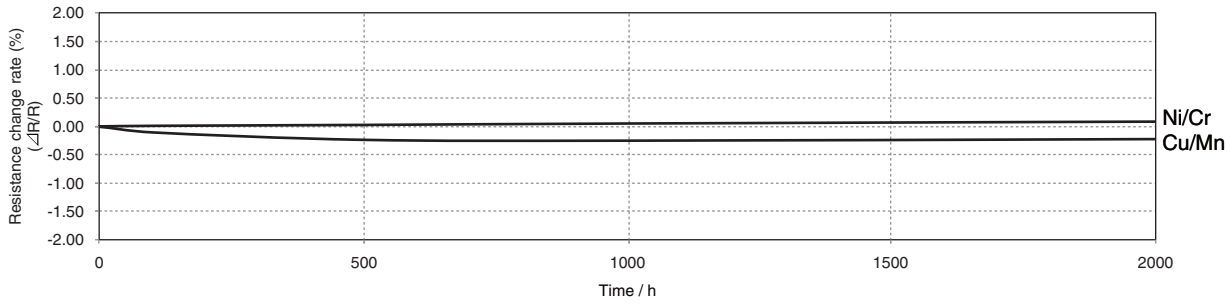
●Characteristics

Type	Resistance Value (mΩ)	Thermal resistivity of product (ºC /W)	Thermal EMF (μV/ºC)	Inductance (nH)
PSR400	0.3	4.5	2μV/ºC Max.	< 3nH
	0.5	8		
	1	15		
	2	16		
	3	24		
PSR500	0.2	3		
	0.3	4.5		
	0.4	7		
	0.5	8		
	1	8		
	2	16		

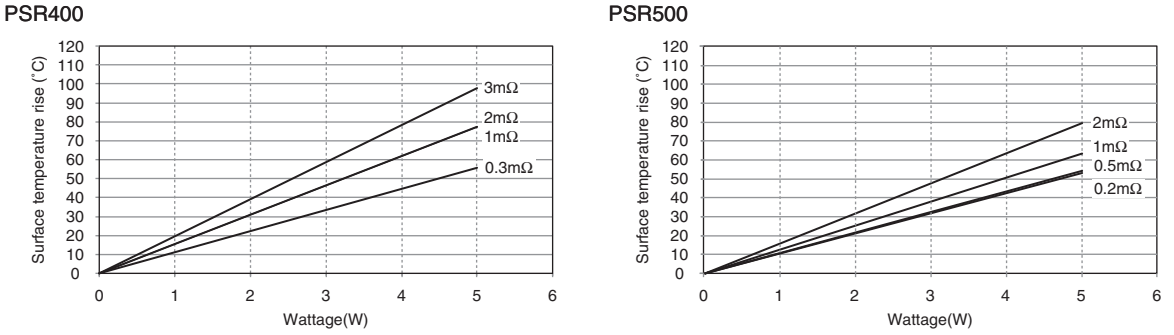
●Variation of resistance with temperature (Reference temperature is 20ºC)



●Endurance (170ºC with no load)



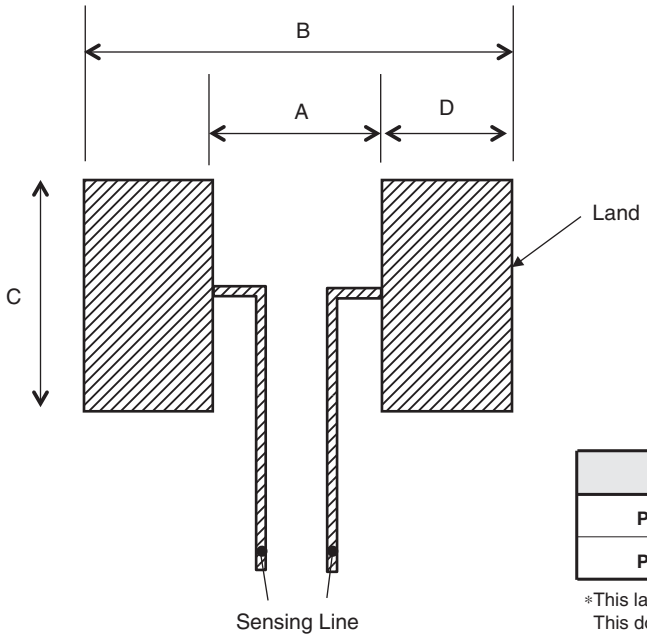
●Surface Temp Rise (Ta=25ºC)



Measurement condition of this data was taken out from board created under our regulation.
Product with highest temperature was selected for the measurement.

Please contact us about test board and test conditions.

●Land Pattern



Type	A	B	C	D
PSR500	5.60	16.00	8.75	5.20
PSR400		11.00	6.20	2.70

∗This land pattern is only for standard pattern.
This does not gurantee the characteristics of the parts

●Part Number Description

P S R 4 0 0 I T Q J □ □ □ □ □ □

Part No.

PSR
(Ultra low ohmic metal plate / High power type shunt Resistors)

Size (mm [inch])

400 (1.0×5.2 [3921])
500 (15×7.75 [5931])

Tolerance

F	1%
G	2%
J	5%

Special part code

C	0.2mΩ
D	0.3mΩ
E	0.4mΩ
F	0.5mΩ
H	1.0mΩ
J	2.0mΩ
L	3.0mΩ

Nominal Resistance

Resistance code, 3 or 4 digits.

tolerance	Resistance code
F,G	: 4 digits
J	: 3 digits

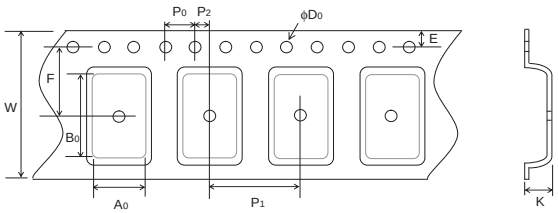
Resistance	Tolerance	
	J	F,G
0.2	0L2	0L20
0.3	0L3	0L30
0.4	0L4	0L40
0.5	0L5	0L50
1.0	1L0	1L00
2.0	2L0	2L00
3.0	3L0	3L00

Packaging Specifications code

Part No.	Code	Packaging specifications	Basic ordering unit (pcs)
PSR400	ITQ	Embossed tape (8mm Pitch)	3,000
PSR500	HTQ	Embossed tape (12mm Pitch)	2,000

●Tape Dimensions

■Embossed Tape

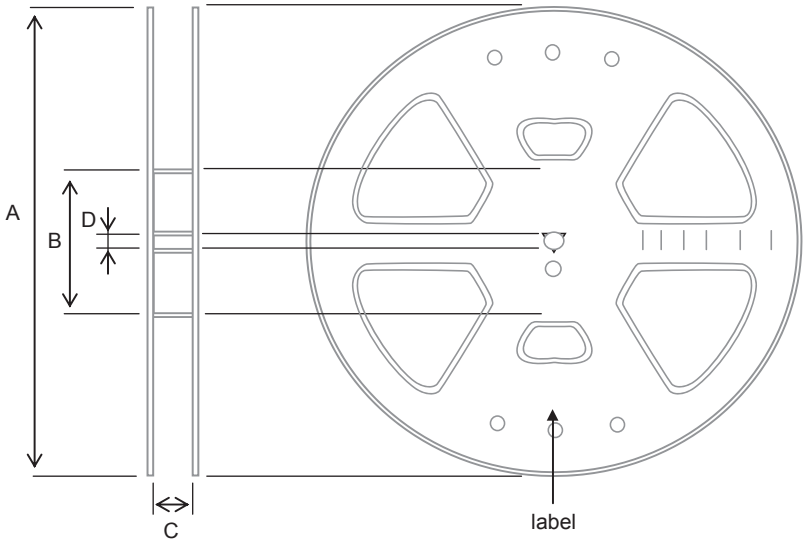


(Unit : mm)

Part No.	W	F	E	A0	B0
PSR400	16.0±0.2	7.5±0.1	1.75±0.1	5.7±0.2	10.5±0.2
PSR500	24.0±0.2	11.5.±0.1	1.75±0.1	8.3±0.2	15.6±0.2

Part No.	D0	P0	P1	P2	K
PSR400	$\phi 1.5^{+0.1}_{0}$	4.0±0.1	8.0±0.1	2.0±0.1	2.3±0.1
PSR500	$\phi 1.5^{+0.1}_{0}$	4.0±0.1	12.0±0.1	2.0±0.1	2.3±0.1

●Reel Dimensions



ACCORDING TO EIAJ ET-7200A
(Unit : mm)

Part No.	A	B	C	D
PSR400	φ330±2.00	φ100±1.00	φ17.4±1.0	φ13.00±0.20
PSR500			φ25.4±1.0	

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
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4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

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7) The Products specified in this document are not designed to be radiation tolerant.

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