

High power thin film chip resistors (long side terminal)

■ PRG series

AEC-Q200 Compliant

Features

- Long side terminal enabling higher power capability
- Significantly larger power handling capability than conventional same size resistors
Size: 2010 ~ 6432, power ratings: 0.5 ~ 3.0W, Resistance range: 2.5 ~ 250K Ω
- Precision resistance tolerance: $\pm 0.1\%$, very small TCR: $\pm 25\text{ppm}/^\circ\text{C}$
- Thin film structure enabling low noise and anti-sulfur

Applications

- Automotive electronics
- DC motor, inverters
- Robotics, Industrial control system



Thin film surface mount resistors

PRG series

◆ Part numbering system

PRG 3216 P - 1001 - B - T5

Series code

Size: PRG2010, PRG3216
PRG5020, PRG6432

Temperature coefficient of resistance

Nominal resistance value (E-24, E-96: all 4 digit)

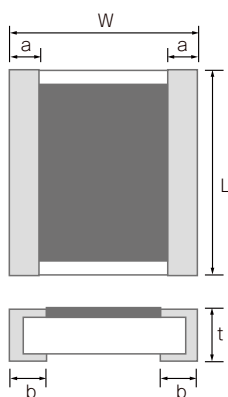
Packaging quantity: T4(4,000pcs)
(PRG6432, PRG5020)
T5(5,000pcs)
(PRG3216, PRG2010)

Resistance tolerance

◆ Electrical Specification

Type	Power ratings	Temperature coefficient of resistance (ppm/ $^\circ\text{C}$)	Resistance range(Ω) Resistance tolerance		Maximum voltage	Resistance value series	Operating temperature	Packaging quantity
			$\pm 0.1\%$ (B)	$\pm 0.5\%$ (D)				
PRG2010	0.5W	± 25 (P)	$47 \leq R \leq 25k$	$10 \leq R \leq 25k$	100V	E-24, E-96	$-55^\circ\text{C} \sim 155^\circ\text{C}$	T5
		± 50 (Q)		$2.5 \leq R \leq 25k$				
PRG3216	1.0W	± 25 (P)	$47 \leq R \leq 100k$	$10 \leq R \leq 100k$	150V			
		± 50 (Q)		$2.5 \leq R \leq 100k$				
PRG5020	1.5W ~ 2.0W	± 25 (P)	$47 \leq R \leq 200k$	$10 \leq R \leq 200k$	200V			
		± 50 (Q)		$2.5 \leq R \leq 200k$				
PRG6432	2.0W ~ 3.0W	± 25 (P)	$47 \leq R \leq 250k$	$10 \leq R \leq 250k$	400V			
		± 50 (Q)		$2.5 \leq R \leq 250k$				

◆ Dimensions



Type	Size (inch)	L	W	a	b	t
PRG2010	0804	2.00±0.20	1.00±0.20	0.20±0.10	0.25±0.05	0.35±0.05
PRG3216	1206	3.20+0.40/-0.20	1.60±0.20	0.30±0.20	0.35±0.20	0.45±0.10
PRG5020	2008	5.00±0.20	2.00±0.20	0.40±0.20	0.40±0.20	0.45±0.10
PRG6432	2512	6.40+0.20/-0.40	3.20±0.25	0.40±0.20	0.55±0.20	0.45±0.10

(unit : mm)

Thin film surface mount resistors

◆ Reliability specification

Test items	Condition (test methods (JIS C5201-1))	Standard	
		≤47Ω	≥47Ω
Life (biased)	70°C, rated voltage, ^{*1} 90min on 30min off, 1000hours	±(0.25%+0.05Ω)	±(0.1%+0.01Ω)
High temperature high humidity	85°C, 85%RH, 1/10 of rated power, 90min on 30min off, 1000hours	±(0.25%+0.05Ω)	±(0.1%+0.01Ω)
Temperature shock	-55°C (30min) ~ 125°C (30min) 1000cycles	±(0.25%+0.05Ω)	±(0.1%+0.01Ω)
High temperature exposure	155°C, no bias, 1000hours	±(0.25%+0.05Ω)	±(0.1%+0.01Ω)
Resistance to soldering heat	260±5°C, 10 seconds (reflow)	±(0.1%+0.01Ω)	±(0.05%+0.01Ω)

*1 Rated voltage is given by $E = \sqrt{R \times P}$

E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)

If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

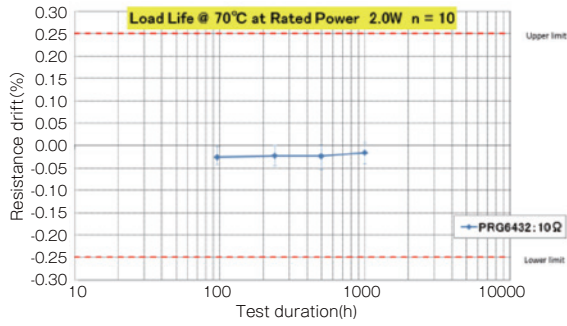
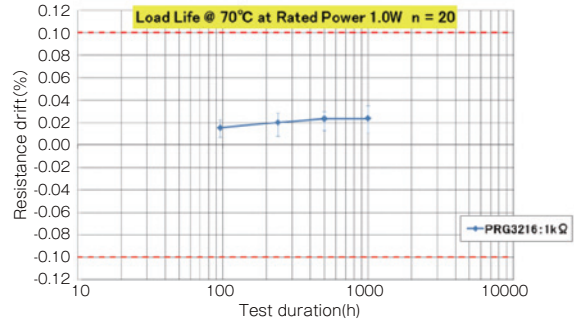
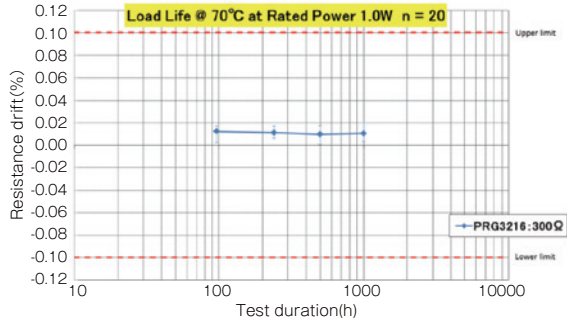
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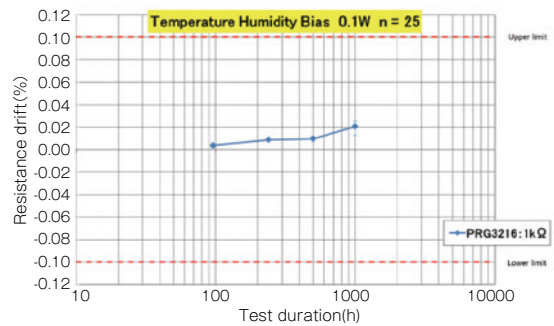
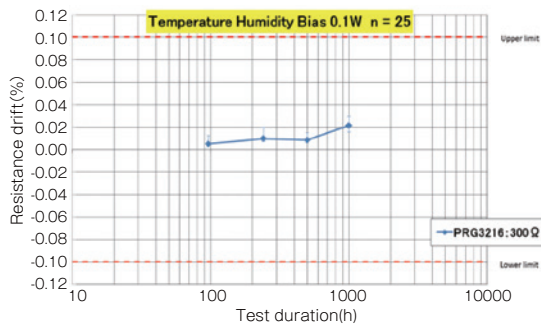
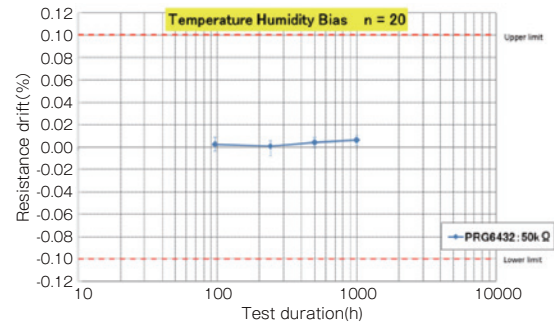
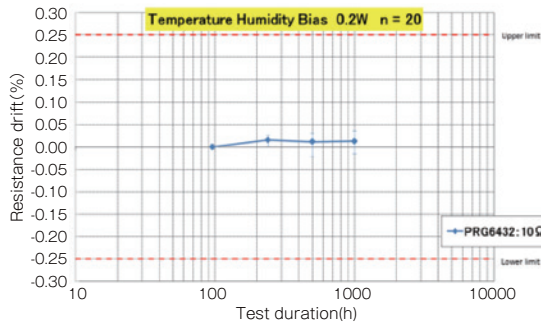
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Reliability test data

Biased life test



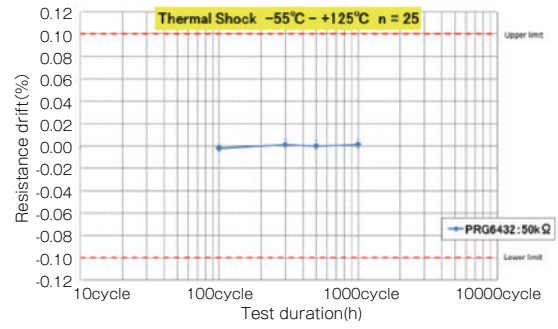
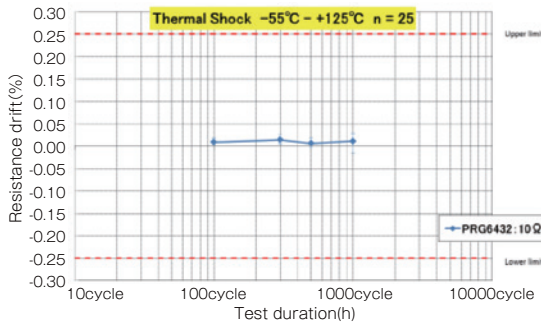
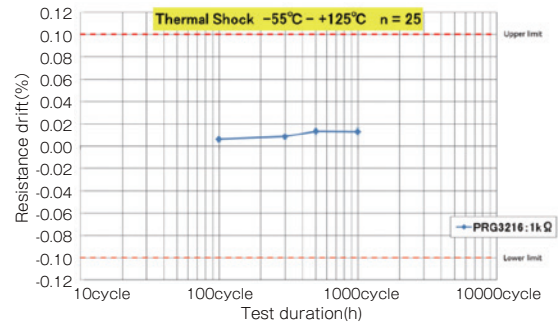
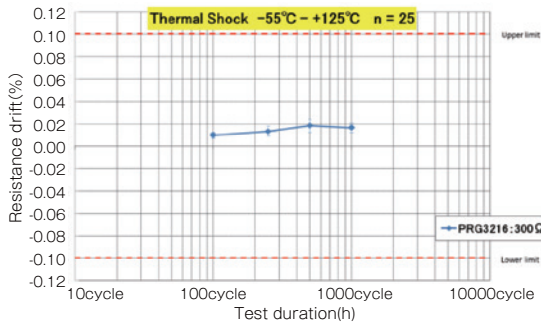
High temperature high humidity (biased)



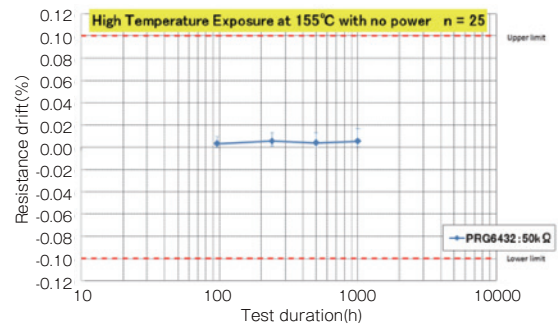
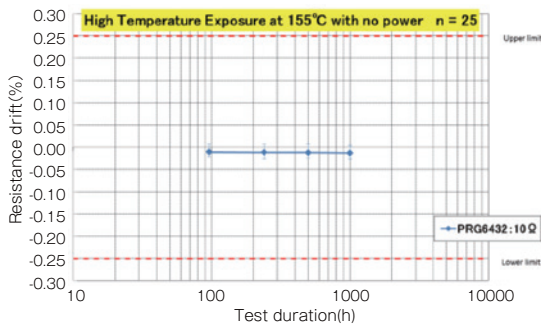
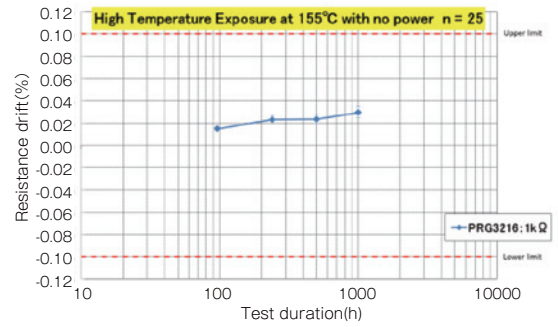
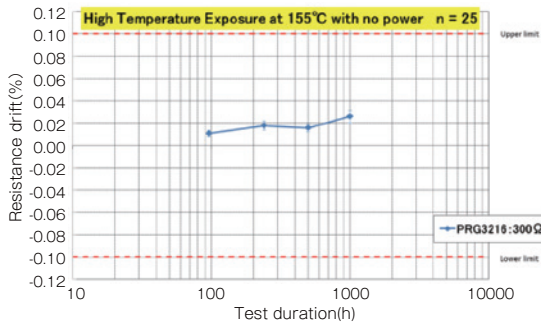
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○ Temperature shock

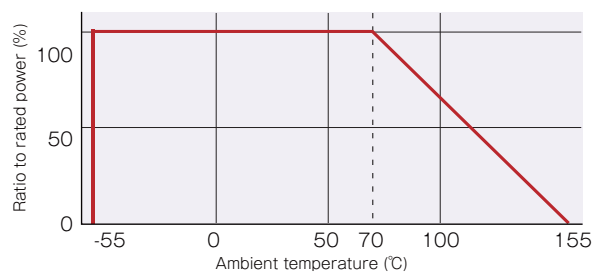


○ High temperature exposure



◆ Derating Curve

○ PRG3216



○ PRG6432

