



# 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: 3216 ~ 6432, power ratings: 0.5 ~ 3.0W, Resistance range: 2.5 ~ 250KΩ
- 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



## ◆ Part numbering system



## ◆ Electrical Specification

Type	Power ratings	Temperature coefficient of resistance	Resistance range(Ω) Resistance tolerance		Maximum voltage	Resistance value series	Operating temperature	Packaging quantity					
		(ppm/°C)	$\pm 0.1\%$ (B)	$\pm 0.5\%$ (D)									
PRG3216	1.0W	$\pm 25$ (P)	$47 \leq R \leq 100\text{k}$	$10 \leq R \leq 100\text{k}$	150V	E-24, E-96	$-55^\circ\text{C} \sim 155^\circ\text{C}$	T5					
		$\pm 50$ (Q)		$2.5 \leq R \leq 100\text{k}$									
PRG5025	1.5W ~ 2.0W	$\pm 25$ (P)	$47 \leq R \leq 200\text{k}$	$10 \leq R \leq 200\text{k}$	200V			E-24, E-96	$-55^\circ\text{C} \sim 155^\circ\text{C}$	T4			
		$\pm 50$ (Q)		$2.5 \leq R \leq 200\text{k}$									
PRG6432	2.0W ~ 3.0W	$\pm 25$ (P)	$47 \leq R \leq 250\text{k}$	$10 \leq R \leq 250\text{k}$	400V						E-24, E-96	$-55^\circ\text{C} \sim 155^\circ\text{C}$	T4
		$\pm 50$ (Q)		$2.5 \leq R \leq 250\text{k}$									

## ◆Dimensions



Type	Size (inch)	W	L	a	b	t
PRG3216	1206	3.20+0.40/-0.20	1.60±0.20	0.30±0.20	0.35±0.20	0.45+0.15/-0.10
PRG5025	2010	5.00±0.20	2.50±0.20	0.55±0.20	0.60±0.20	0.45+0.15/-0.10
PRG6432	2512	6.40+0.20/-0.40	3.20±0.20	0.40±0.20	0.55±0.20	0.45+0.15/-0.10

(unit : mm)

Thin film surface mount resistors

PRG series

## ◆Reliability specification

Test items	Condition (test methods (JIS C5201-1))	Standard	
		≤47Ω	≥47Ω
Life (biased)	70°C, rated voltage <sup>*1</sup> , 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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### Reliability test data

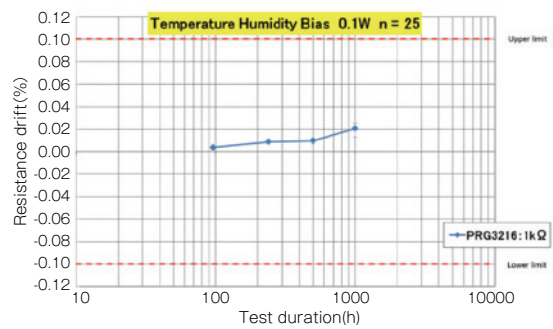
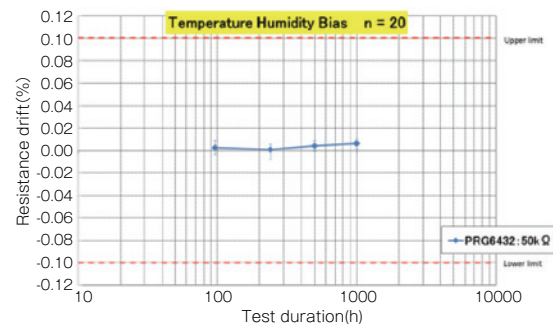
#### Biased life test

Thin film surface mount resistors

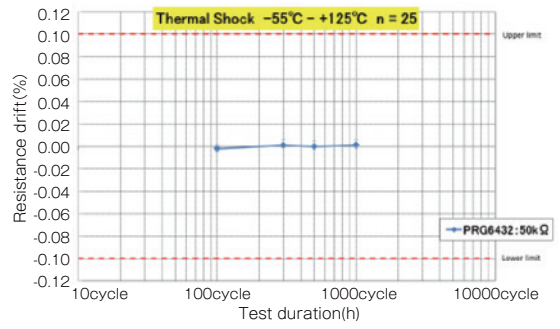
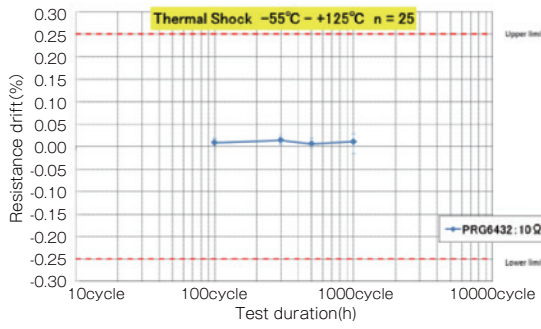
PRG series



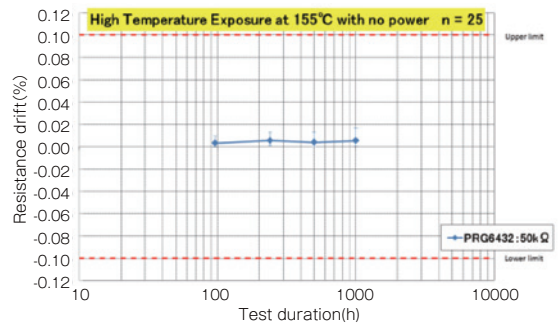
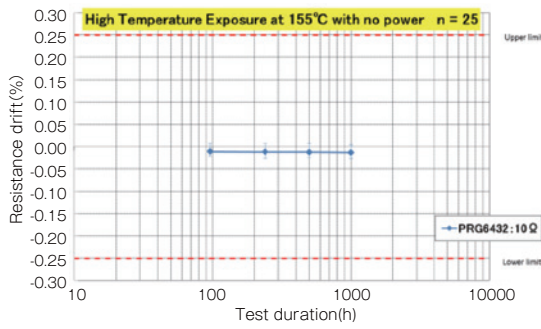
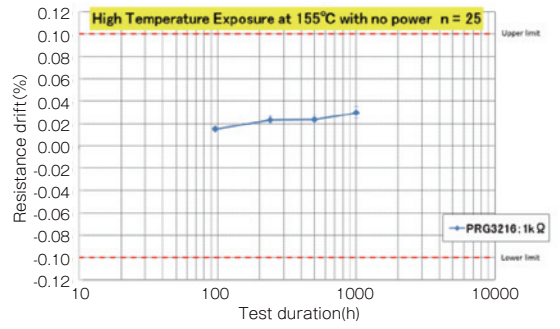
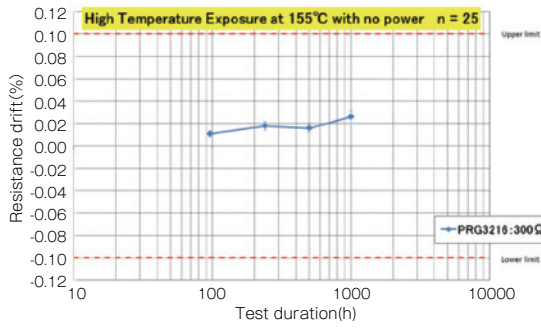
#### High temperature high humidity (biased)



### ○ Temperature shock

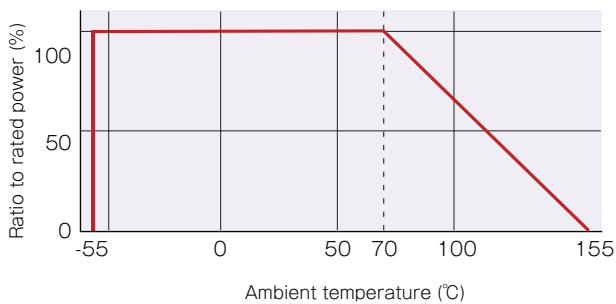


### ○ High temperature exposure

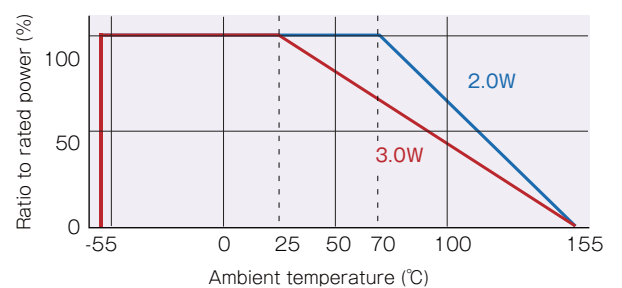


### ◆ Derating Curve

#### ○ PRG3216



#### ○ PRG6432



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