High power thin film chip resistors
(short side terminal)

■HRG series **AEC-Q200 Compliant**

Lead free Halogen free RoHS Compliance

Features

- Wider bottom terminal enabling higher power capability (short side terminal)
- Significantly larger power handling capability than existing same size resistors
  Size: 3216, Power rating: 1.0W, Resistance range: 10 ~ 100KΩ
- Precision resistance tolerance: ±0.1%, very small TCR: ±25ppm/°C
- Thin film structure enabling low noise and anti-sulfur

Applications

- Power source related devises
- DC motors, inverters
- Robotics, Industrial control system

◆Part numbering system

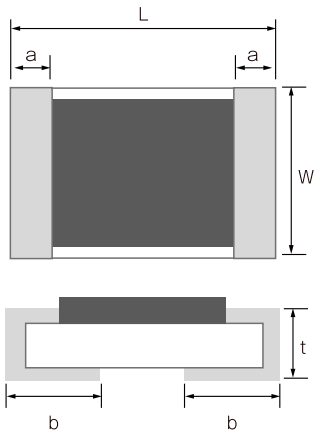
HRG 3216 P - 1001 - B - T5

- HRG: Series code
- 3216: Size: HRG3216
- P: Temperature coefficient of resistance
- 1001: Nominal resistance value (E-24, E-96: all 4 digit)
- B: Resistance tolerance
- T5: Packaging quantity: T1(1,000pcs), T5(5,000pcs)

◆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)	±0.1% (B)	±0.5% (D)				
HRG3216	1.0W	±25(P)	47≦R≦100k		200V	E-24, E-96	-55℃ ~ 155℃	T1 T5
		±50(Q)	47≦R≦100k	10≦R≦100k				

◆Dimensions



Type	Size (inch)	L	W	a	b	t
HRG3216	1206	3.20±0.20	1.60±0.25	0.50±0.25	1.10±0.20	0.40+0.15/−0.10

(unit : mm)

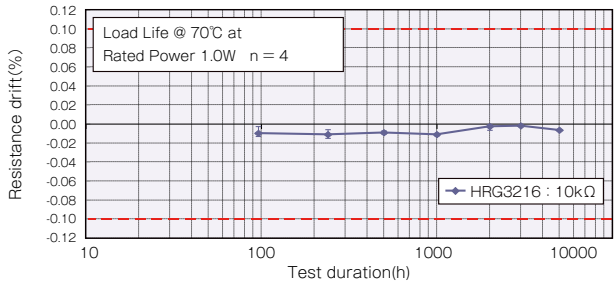
◆Reliability specification

Test items	Condition (test methods (JIS C5201-1)	Standard	
		≦47Ω	≧47Ω
Life (biased)	70°C, rated voltage,*1 90min on 30min off, 1000hours	±(0.5%+0.05Ω)	±(0.25%+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)	±(0.25%+0.05Ω)	±(0.1%+0.01Ω)

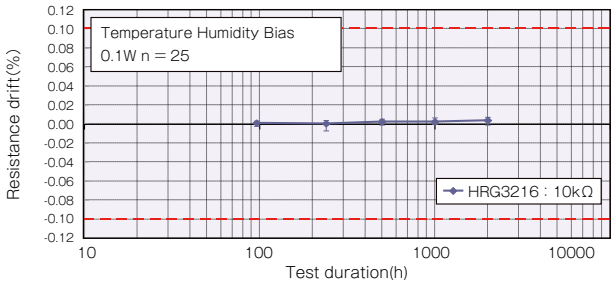
*1 Rated voltage is given by $E=\sqrt{R \times P}$
E= rated voltage (V), R=nominal resistance value(Ω), P=rated power(W)
If rated voltage exceeds maximum voltage /element, maximum voltage/element is the rated voltage.

◆Reliability test data

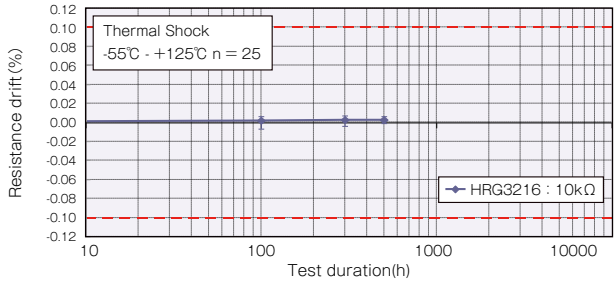
○Biased life test



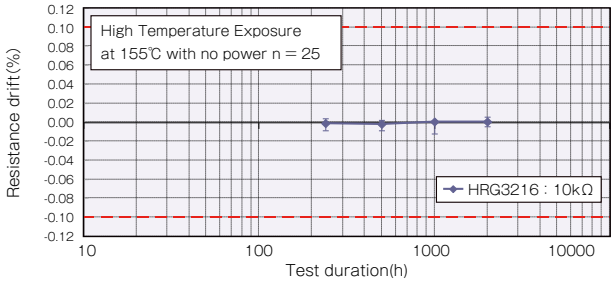
○High temperature high humidity (biased)



○Temperature shock



○High temperature exposure



◆Derating Curve