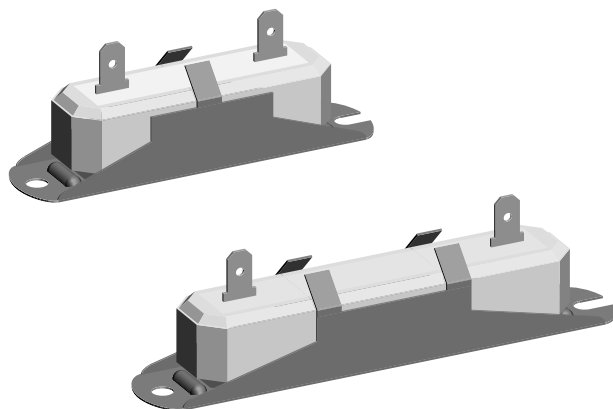


# SPR2213 and SPR2214

Vishay Dale



## Wirewound Resistors, Special Purpose, Commercial, High Power



### FEATURES

- High power/size ratio
- Quick connect terminals
- Complete welded construction
- High surge capability
- Non-inductive styles available
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package
- SPR2214 includes a center terminal option
- Compliant to RoHS directive 2002/95/EC



### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{25^{\circ}\text{C}}$ W		RESISTANCE RANGE $\Omega$ $\pm 5\%, \pm 10\%$
		WITHOUT HEAT SINK	WITH HEAT SINK <sup>(1)</sup>	
SPR2213	SPR-2213	40	70	0.5 to 24K
SPR2214	SPR-2214	50	100	1.0 to 44K

#### Note

<sup>(1)</sup> Recommended heat sink is 12" x 12" x 0.125" thick aluminum panel (294 sq. in. surface area)

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	SPR2213 AND SPR2214 RESISTOR CHARACTERISTICS	
Temperature Coefficient	ppm/ $^{\circ}\text{C}$	$\pm 50$ below 10 $\Omega$ , $\pm 30$ 10 $\Omega$ and above	
Short Time Overload	-	10 x rated power for 5 s	
Maximum Working Voltage	V	$(P \times R)^{1/2}$	700 V for 10k, 1100V for 25k
Operating Temperature Range	$^{\circ}\text{C}$	- 65 to + 275	
Dielectric Withstanding Voltage	$V_{AC}$	2500	

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering Example: SPR221375R000JD (preferred part number format)

S P R 2 2 1 3 7 5 R 0 0 0 J D

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
SPR2213 SPR2214	R = Decimal K = Thousand R15000 = 0.15 $\Omega$ 1K5000 = 1500 $\Omega$	J = $\pm 5.0\%$ K = $\pm 10.0\%$	D = Skin pack (S51) K = RoHS compliant, skin pack (E51)	(Dash Number) (up to 2 digits) From 1 to 99 as applicable

Historical Part Number Example: SPR-2213 75  $\Omega$  5 % S51 (will continue to be accepted)

SPR-2213	75 $\Omega$	5 %	S51
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

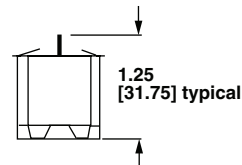
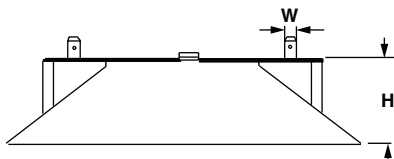
#### Note

- Brackets used with "D" packaging code are not RoHS/Green compliant

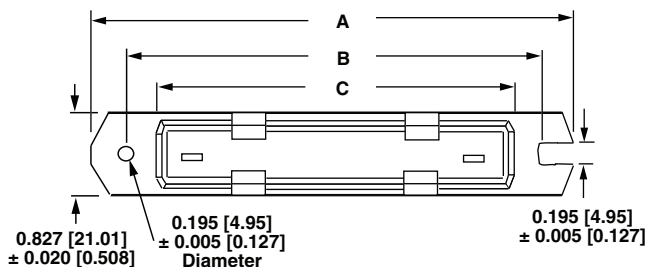
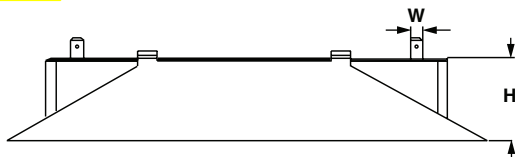
\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

### DIMENSIONS in inches (millimeters)

#### SPR2213



#### SPR2214



GLOBAL MODEL	DIMENSIONS in inches (millimeters)				
	A typical	B ± 0.031 [0.794]	C ± 0.031 [0.794]	W ± 0.005 [0.127]	H typical
SPR2213	3.375 (85.73)	3.00 (76.20)	2.50 (63.50)	0.250 x 0.031 (6.35 x 0.794)	0.810 (20.57)
SPR2214	4.563 (115.90)	4.125 (104.78)	3.625 (92.08)	0.250 x 0.031 (6.35 x 0.794)	0.810 (20.57)

### MATERIAL SPECIFICATIONS

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

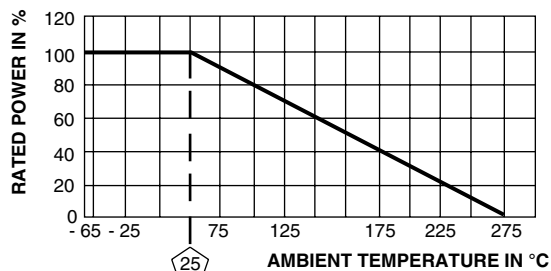
**Core:** Steatite ceramic

**Body:** Steatite ceramic case with inorganic potting compound

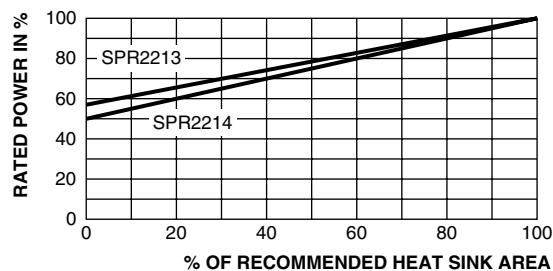
**Terminals:** Nickel plated steel

**Bracket:** Zinc plated steel

**Part Marking:** DALE, model, wattage, value, tolerance, date code



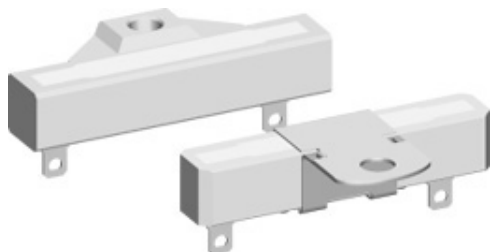
Derating



Heat Sink Derating

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS
Thermal Shock	Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C	± (2.0 % + 0.05 Ω) ΔR
Short Time Overload	10 x rated power for 5 s	± (2.0 % + 0.05 Ω) ΔR
Dielectric Withstanding Voltage	1000 V <sub>rms</sub> , 1 min	± (0.1 % + 0.05 Ω) ΔR
Low Temperature Storage	- 65 °C for 24 h	± (2.0 % + 0.05 Ω) ΔR
High Temperature Exposure	250 h at + 275 °C	± (2.0 % + 0.05 Ω) ΔR
Moisture Resistance	MIL-STD-202 Method 106, 7b not applicable	± (2.0 % + 0.05 Ω) ΔR
Shock, Specified Pulse	MIL-STD-202 Method 213, 100 g's for 6 ms, 10 shocks	± (0.2 % + 0.05 Ω) ΔR
Vibration, High Frequency	Frequency varied 10 Hz to 2000 Hz, 20 g peak, 2 directions 6 h each	± (0.2 % + 0.05 Ω) ΔR
Load Life	1000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF"	± (3.0 % + 0.05 Ω) ΔR

## Wirewound Resistors, Commercial High Power, Quick Connect Terminals



CP050 IDEM SPR2214

### FEATURES

- Can be purchased with or without brackets installed
- Quick connect terminals
- High power ratings
- Special inorganic potting compound and ceramic case provide high thermal conductivity in a fireproof package

RoHS  
COMPLIANT

### APPLICATIONS

The CP resistors are suited for use in high ambient temperatures and also where ease of mounting and electrical connections are to be made with quick connect terminals. Model CP0050 is particularly recommended for automotive electronic ignition ballast, appliance and motor ballasts and two-speed fans.

### STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL	HISTORICAL MODEL	POWER RATING $P_{40^{\circ}\text{C}}$ W	RESISTANCE RANGE $\Omega$ $\pm 10\%$ standard, $\pm 5\%$ available	WEIGHT (typical) g
CP015B	CP-15B	15	0.1 - 288	21.5
CP020B	CP-20B	20	0.1 - 460	27.5
CP026B <sup>(1)</sup>	CP-26B <sup>(1)</sup>	25	0.12 - 570	44.0
CP26SM	CP-26SM	25	0.12 - 570	56.9
CP30SM	CP-30SM	30	0.32 - 623	57.5
CP050B <sup>(1)</sup>	CP-50B <sup>(1)</sup>	50	0.16 - 740	90.0
CP050B...1 <sup>(1)</sup>	CP-50B-1 <sup>(1)</sup>	50	0.16 - 740	90.0

#### Note

<sup>(1)</sup> To order the CP026B, CP050B and CP050B...1 without brackets, remove the B from model number (CP0026, CP0050 and CP0050...1).

### TECHNICAL SPECIFICATIONS

PARAMETER	UNIT	CP QUICK CONNECT CHARACTERISTICS
Temperature Coefficient	ppm/ $^{\circ}\text{C}$	$\pm 600$ below 1.0 $\Omega$ , $\pm 300$ 1.0 $\Omega$ and above
Short Time Overload	-	10 $\times$ rated power for 5 s
Operating Temperature Range	$^{\circ}\text{C}$	- 65 to + 275
Dielectric Withstanding Voltage	$V_{AC}$	1000
Maximum Working Voltage	V	$(P \times R)^{1/2}$

### GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: CP050B15R00JB141 (preferred part number format)

C P 0 5 0 B 1 5 R 0 0 J B 1 4 1

GLOBAL MODEL	VALUE	TOLERANCE	PACKAGING	SPECIAL
(See Standard Electrical Specifications Global Model column for options)	R = Decimal K = Thousand R1500 = 0.15 $\Omega$ 1K500 = 1500 $\Omega$	H = $\pm 3.0\%$ J = $\pm 5.0\%$ K = $\pm 10.0\%$	B14 = Lead (Pb)-free, bulk B31 = Lead (Pb)-free, four layer bulk	(Dash Number) (up to 3 digits) From 1 - 999 as applicable

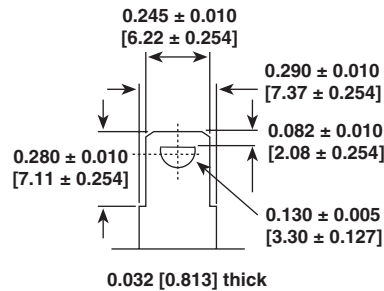
Historical Part Number Example: CP-50B-1 15  $\Omega$  5% B14 (will continue to be accepted)

CP-50B-1	15 $\Omega$	5%	B14
HISTORICAL MODEL	RESISTANCE VALUE	TOLERANCE CODE	PACKAGING

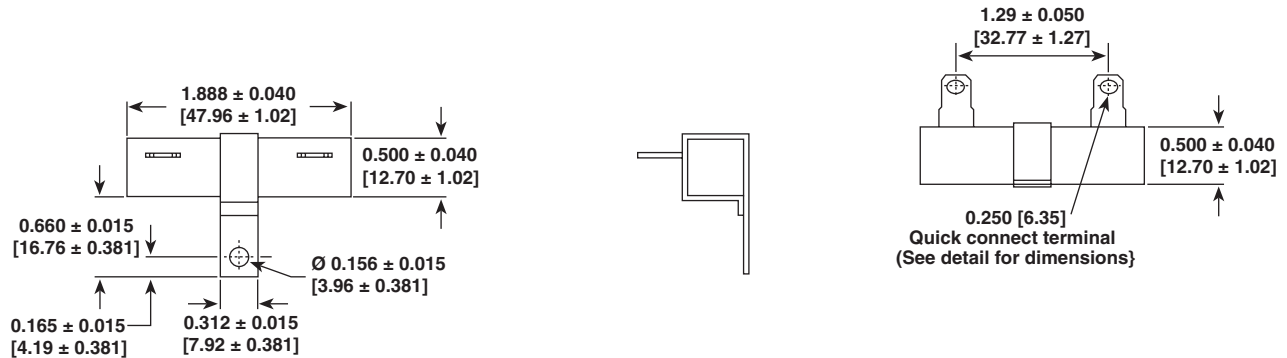


### DIMENSIONS in inches [millimeters]

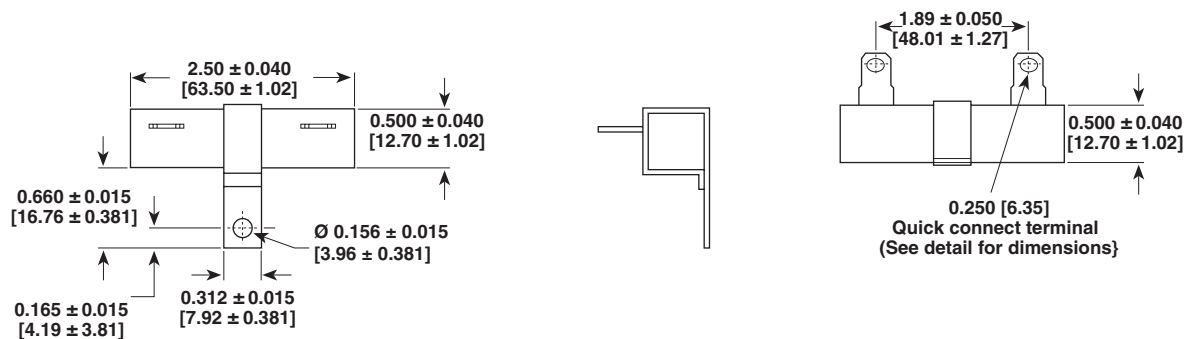
#### Quick Connect Terminal Connections 0.250 [6.35]



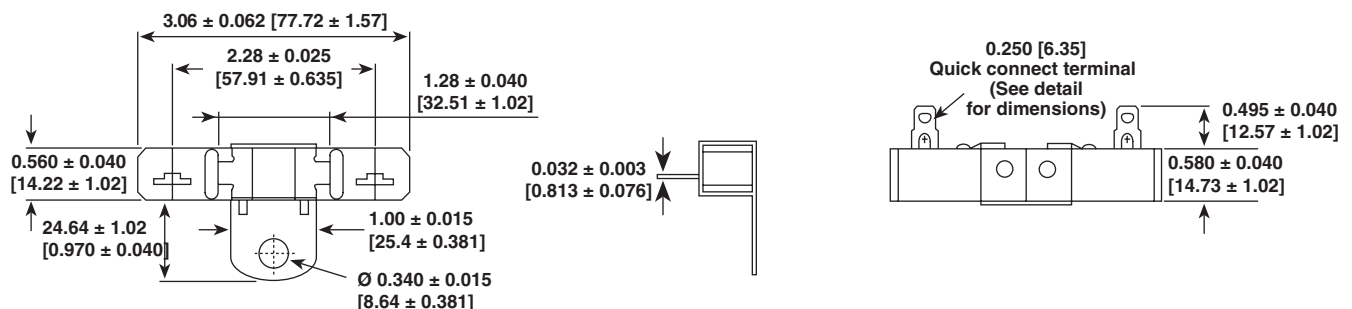
### MODEL CP015B



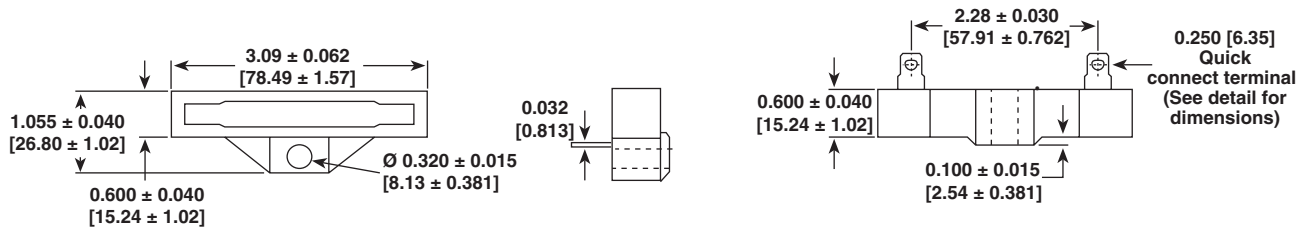
### MODEL CP020B



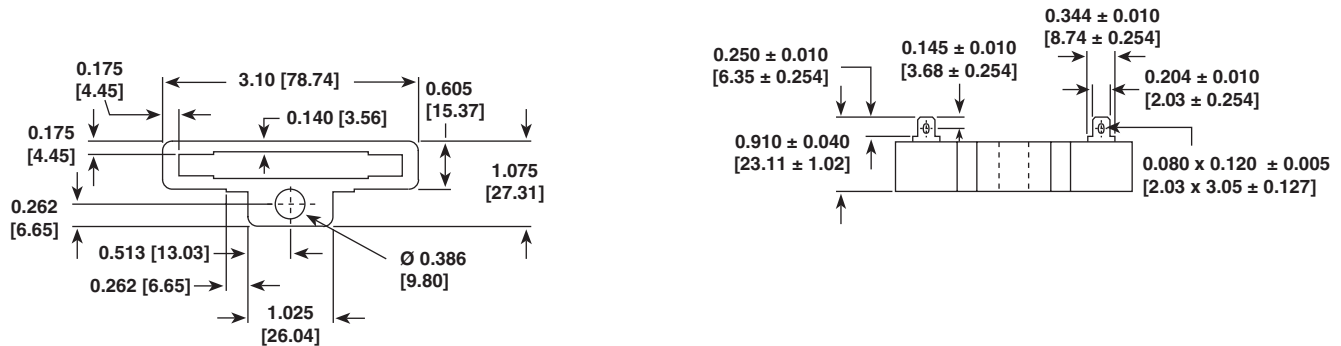
### MODEL CP0026 AND CP026B



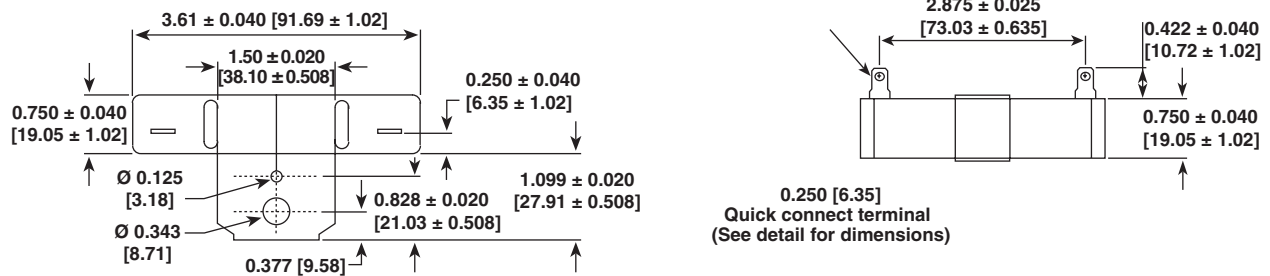
## MODEL CP26SM



## MODEL CP30SM

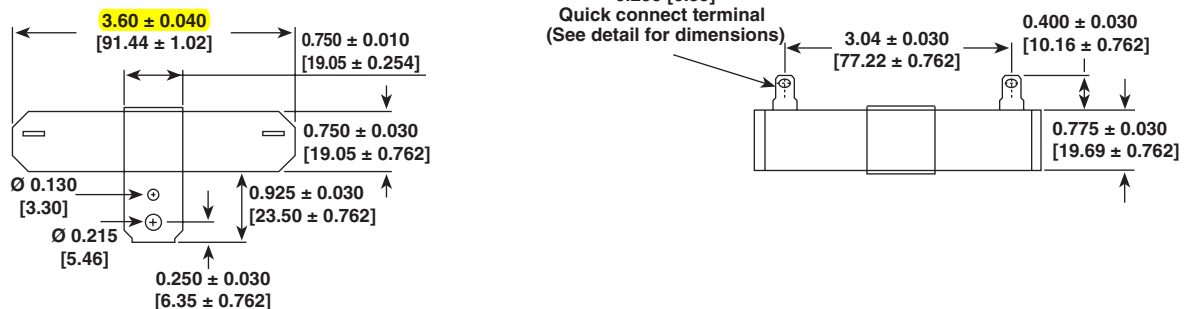


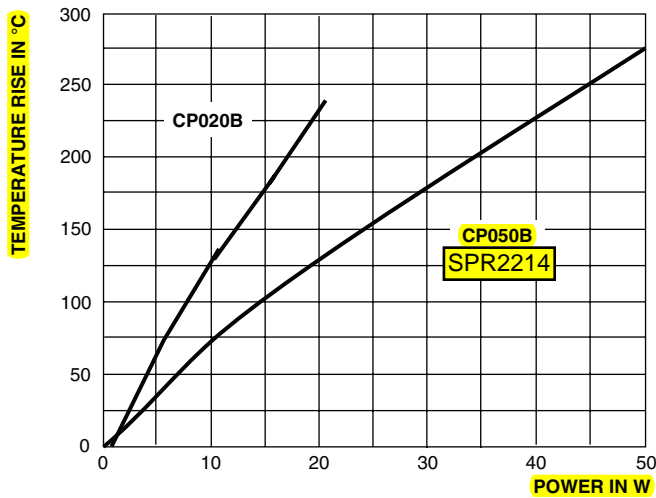
## MODEL CP0050 AND CP050B



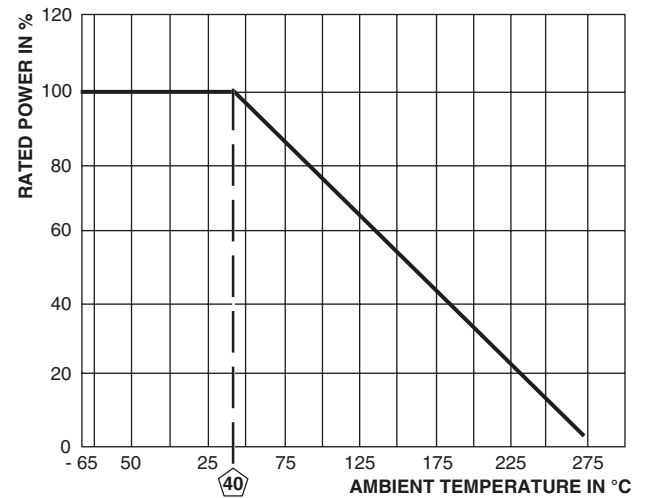
## MODEL CP0050...1 AND CP050B...1

IDEM SPR2214





**Temperature Rise**



**Derating**

### MATERIAL SPECIFICATIONS

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Woven fiberglass

**Body:** Steatite ceramic case with inorganic potting compound

**Terminals:** Bare brass (CP30SM is tin plated steel)

**Bracket:** Aluminum

**Part Marking:** DALE, model, wattage, value, tolerance, date code

PERFORMANCE		
TEST	CONDITIONS OF TEST	TEST LIMITS (EIA RS-344)
Thermal Shock	- 55 °C to + 275 °C, 5 cycles, 30 min dwell time	$\pm (5.0 \% + 0.05 \Omega) \Delta R$
Short Time Overload	10 x rated power for 5 s	$\pm (4.0 \% + 0.05 \Omega) \Delta R$
Dielectric Withstanding Voltage	1000 V <sub>rms</sub> for 1 min	$\pm (2.0 \% + 0.05 \Omega) \Delta R$
Low Temperature Operation	- 65 °C, full rated working voltage for 45 min	$\pm (3.0 \% + 0.05 \Omega) \Delta R$
Humidity	75 °C, 90 % - 100 % RH, 240 h	$\pm (5.0 \% + 0.05 \Omega) \Delta R$
Load Life	1000 h at rated power, + 40 °C, 1.5 h "ON", 0.5 h "OFF"	$\pm (10.0 \% + 0.05 \Omega) \Delta R$
Terminal Strength	10 pounds for 30 s	$\pm (2.0 \% + 0.05 \Omega) \Delta R$