VISHAY SFERNICE

RLK

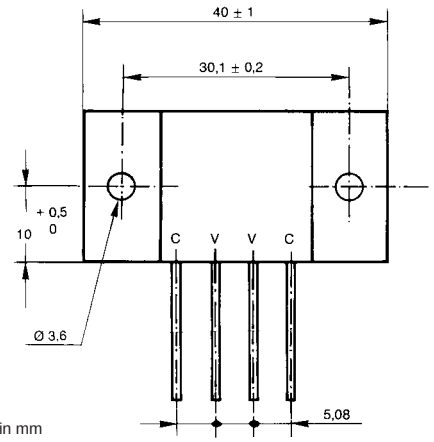
very high precision power resistor
– bulk metal®

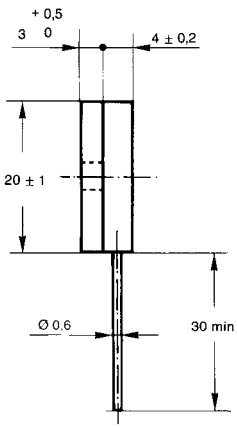
3 W at 25°C
2 W at 70°C

The RLK series resistors offers a unique set of superior performances : low temperature coefficient, high stability and very tight tolerance together with a greater power dissipation than usually available with components using the metal-foil technology.
The 3 W power rating is achieved by mounting the resistive element directly on to an aluminium heatsink.
The four terminals may then also be used for current measurement.

- **VERY HIGH STABILITY <25 ppm/year or <50 ppm/3 years (shelf life)**
- **VERY TIGHT TOLERANCE ±0,01 % to ±1 %**
- **RISE TIME approx. 1.10^{-9} second**
- **ELECTRICAL INSULATION <10^6 mΩ**
- **VERY LOW TEMPERATURE COEFFICIENT**
- **CLIMATIC CATEGORY –55°C /+155°C / 56 days**

RLK

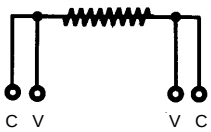




Dimensions in mm

Fig. 1

CIRCUIT DIAGRAM



C = current output
V = voltage ouptut

SPECIFICATIONS

MECHANICAL

MECHANICAL PROTECTION...	aluminium heat-sink/insulated case
RESISTIVE ELEMENT...	nickel-chromium
TERMINAL LEADS...	tinned copper, weldable, solderable
UNIT WEIGHT...	10 g max.

ENVIRONMENTAL

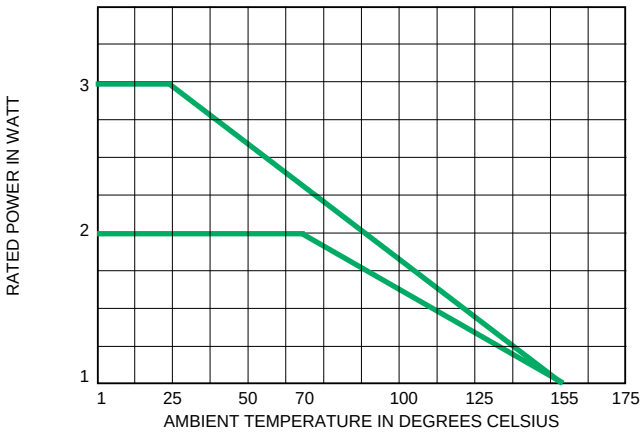
TEMPERATURE LIMITS...	–55°C +155°C
CLIMATIC CATEGORY...	55 / 125 / 56

ELECTRICAL

RESISTANCE VALUE RANGE	0,1 Ω... 80 kΩ
RESISTANCE TOLERANCE...	± 0,01 % ±1%
POWER RATING...	2 W at +70°C 3 W in free air at +25°C 10 W on heatsink at +25°C (3A max.)
TEMPERATURE COEFFICIENT	<± 5 ppm/°C in the range –55°C +155°C (max.) <±1 ppm/°C in the range 0°C +60°C (typical)
DIELECTRIC VOLTAGE...	750 V RMS
INSULATION RESISTANCE...	>10^6 MΩ
LIMITING ELEMENT VOLTAGE...	200 V
CRITICAL RESISTANCE...	20 kΩ 2 W/70°C - 13,33 kΩ - 3 W/25°C
THERMO-ELECTRIC EFFECT...	0,5 µV/°C max - 0,3 µV/°C typical
THERMAL RESISTANCE...	7°C/W (foil case) 35°C/W (case ambient)
NOISE...	<–45 dB

POWER RATING CHART

Fig. 2



TOLERANCE AND TEMPERATURE COEFFICIENT IN RELATION TO OHMIC VALUES

Table 1

Ohmic values	Tolerance	Temperature coefficient
0,05 Ω to < 0,1 Ω	± 2 %	± 30 ppm/°C
0,1 Ω to < 0,25 Ω	± 1 %	± 25 ppm/°C
0,25 Ω to < 0,5 Ω	± 0,5 %	± 20 ppm/°C
0,5 Ω to < 1 Ω	± 0,25 %	± 15 ppm/°C
1 Ω to < 2 Ω	± 0,1 %	± 10 ppm/°C
10 Ω to < 5 Ω	± 0,05 %	± 8 ppm/°C
25 Ω to < 10 Ω	± 0,02 %	± 6 ppm/°C
>25 Ω	± 0,01 %	± 5 ppm/°C

In order to increase stability, it is recommended to reduce the nominal power (Pr) in relation to tolerance :

for ±0,1 % to ±0,05% Power = Pr x 0,75
for ±0,02% to ±0,01% Power = Pr x 0,5

GENERAL APPLICATIONS

– Any circuits requiring high precision and high stability
– Circuits for analog computers and graphic display computers
– Stable measurement systems
– Weighing sensors.

MARKING

SFERNICE trademark, series, nominal resistance (in Ω), tolerance (in %), manufacturing date, leads designation.

ORDERING PROCEDURE

SERIES	OHMIC VALUE	TOLERANCE	OPTIONAL SPECIFICATIONS
RLK	32 kΩ	±0,01%	XXX
			Methode no.

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