VISHAY SFERNICE

RTK 32 34

hermetically sealed very high precision power resistor

– bulk metal®

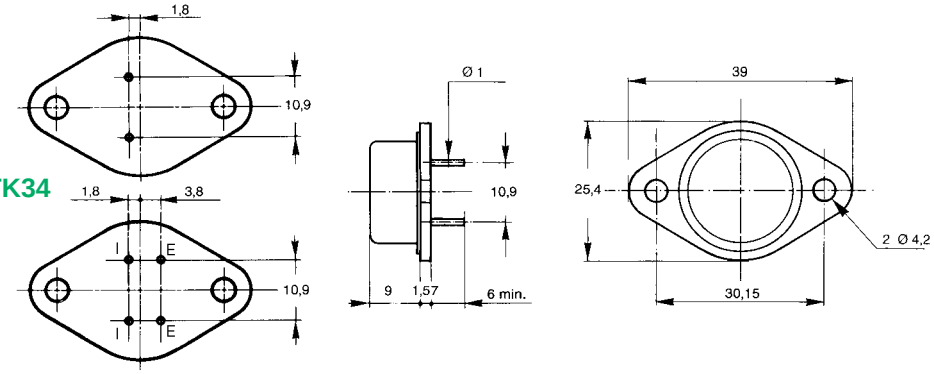
Free air
3 W at 25°C
on heatsink
10 W at 25°C

With a power rating of 3 W in free air and 10 W when mounted on to a heatsink, the RTK series provides higher power dissipation capabilities than usual metal-foil resistors. The resistive element is housed in a standard T03 hermetically sealed metal case protecting it from environmental stress and offers superior performances in terms of temperature coefficient, stability and accuracy of resistance tolerances. The RTK can be easily mounted on all electronic circuits and on metal heatsink.

- **HERMETICALLY SEALED <10^{-7} atmosphere x cm^3 /s**
- **HIGH TEMPERATURE +175°C**
- **VERY HIGH STABILITY 25 ppm/year or <50 ppm/3 years (shelf life)**
- **VERY TIGHT TOLERANCES ±0,01 % to ±1 %**
- **RISE TIME approx. 1.10^{-9} second**
- **ELECTRICAL INSULATION <10^6 MΩ**
- **VERY LOW TEMPERATURE COEFFICIENT**

RTK32

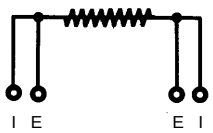
RTK34



Dimensions in mm

Fig. 1

CIRCUIT DIAGRAM
RTK 34



I = current output
E = voltage ouptut

SPECIFICATIONS

MECHANICAL

MECHANICAL PROTECTION...	hermetically sealed metal case (T03)
RESISTIVE ELEMENT...	nickel-chromium
TERMINAL LEADS...	ferro-nickel sheath with copper core (weldable, solderable)
UNIT WEIGHT...	15 g

ENVIRONMENTAL

TEMPERATURE LIMITS...	–55°C +175°C
CLIMATIC CATEGORY...	55 / 155 / 56
HERMETICALLY SEALED...	betther than 10^{-7} atmosphere cm^3/s

ELECTRICAL

RESISTANCE VALUE RANGE	1 Ω... 80 kΩ (VΩ <1Ω : on request)
RESISTANCE TOLERANCE...	± 0,01 % ±1%
POWER RATING...	3 W free air 10 W on heatsink at 25°C (3 A 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...	>10^5 MΩ (U = 500 V)
LIMITING ELEMENT VOLTAGE...	400 V
CRITICAL RESISTANCE...	3 W/25°C Rc : 53 kΩ 10 W/25°C Rc : 16 kΩ
THERMO-ELECTRIC EFFECT...	0,6 µV/°C max.
THERMAL RESISTANCE...	10°C/W (foil case) 35°C/W (case ambient)
NOISE...	<–45 dB

TOLERANCE AND TEMPERATURE COEFFICIENT IN RELATION TO OHMIC VALUES

Table 1

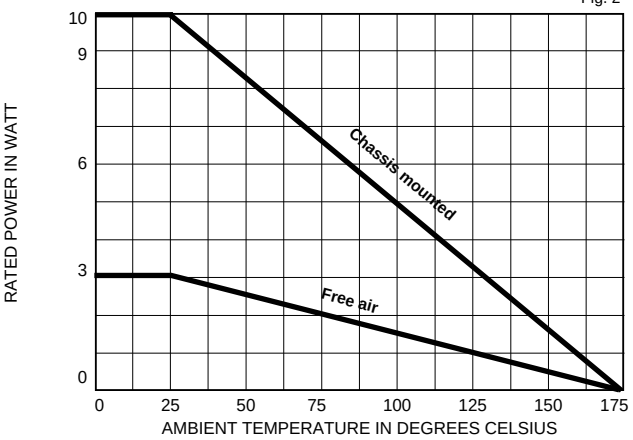
RTK32	Tolerance	Temperature coefficient
0,1 Ω to < 0,25 Ω	± 5 %	± 50 ppm/°C
0,25 Ω to < 0,5 Ω	± 2 %	
0,5 Ω to < 1 Ω	± 1 %	
1 Ω to < 2 Ω	± 0,5 %	± 25 ppm/°C
2 Ω to < 5 Ω	± 0,25 %	± 20 ppm/°C
5 Ω to < 10 Ω	± 0,1 %	± 13 ppm/°C
10 Ω to < 25 Ω	± 0,05 %	± 10 ppm/°C
25 Ω to < 50 Ω	± 0,02 %	± 7 ppm/°C
> 50 Ω	± 0,01 %	± 5 ppm/°C

RTK 34	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

Please consult SFERNICE for higher ohmic values

POWER RATING CHART

Fig. 2



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, style, nominal resistance (in Ω, kΩ), tolerance (in %), manufacturing date, leads designation.

ORDERING PROCEDURE

SERIES	STYLE	OHMIC VALUE	TOLERANCE	OPTIONAL SPECIFICATIONS
RTK	32	10 kΩ	0,01%	XXX

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