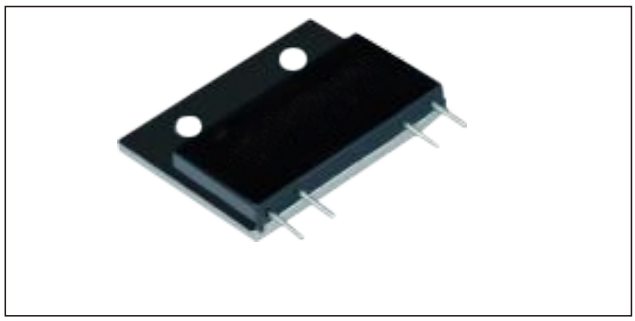
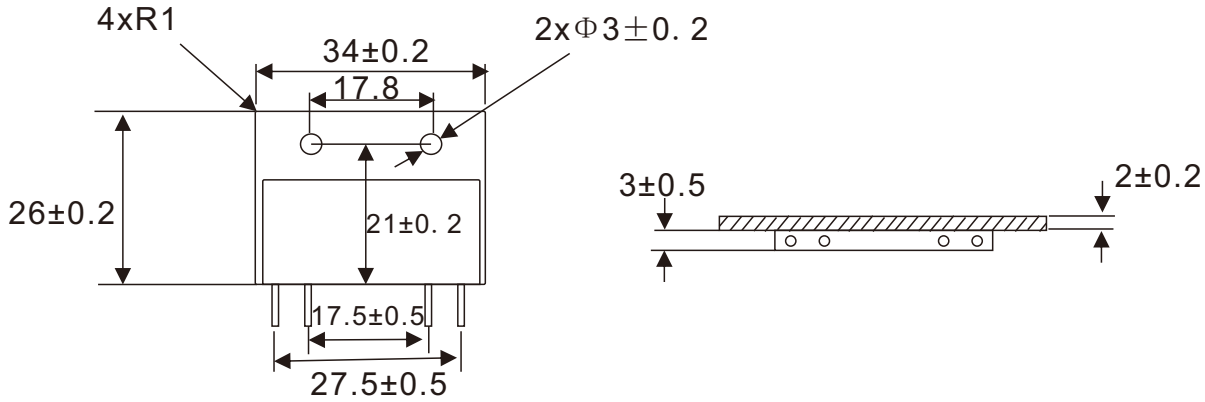
RNG3426 Precision Shunt Resistors



Features

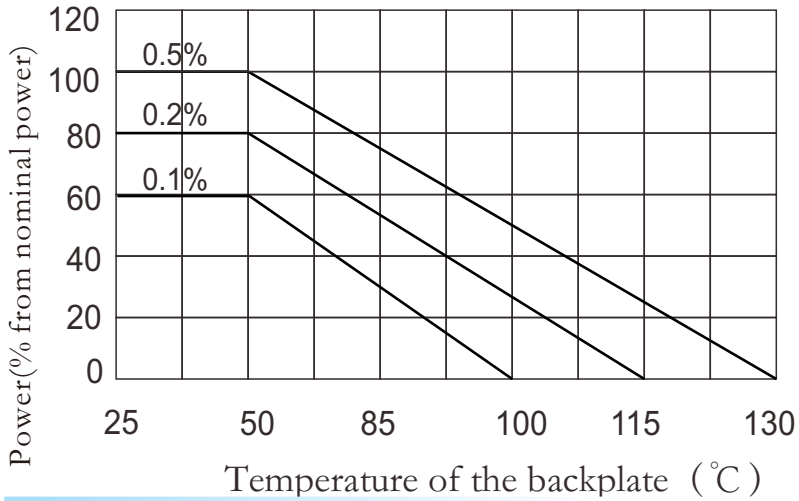
-Resistance from 0.005 Ohm to 500 Ohms
-Power Rating to3Watts
-Resistance Tolerances to ±0. 01%、0.02%、0.05%、 0.1%
-TCR to ±2ppm/K
-High Stability to 0.02%、0.05%
-Extremely low inductance
-Compliant with ROHS and REACH

Dimensions



Note: The lead length is 25 ± 5 millimeters, and the lead diameter ranges from 0.8 millimeters to 1.2 millimeters depending on the current size.

Derating Curve



Power Rating Notes-
the RNG3426 series resistors must be attached to a suitable heat-sink,the maximum internal resistor temperature is 130C. To specify an appropriate heatsink use the following formula:

$$RgH = \frac{TMAX - (P \times RgR) - TA}{P}$$

Where:
RgH=Thermal resistance of heatsink(K/W)
RgR =Maximum temperature of resistor
TMAX=Maximum temperature of resistor
TA=Ambient temperature of heatsink(℃)
P =Power through resistor(W)

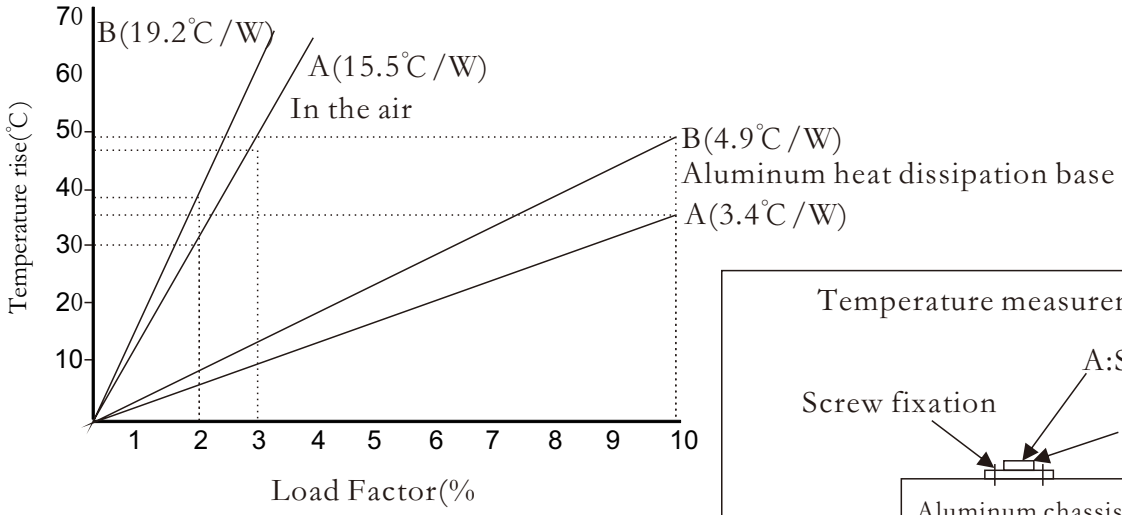
Ordering Information

Example:

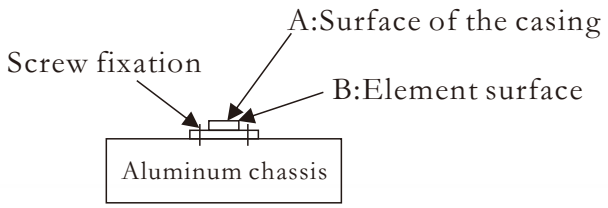
RNG3426	3W	10R0	B	C8	T
(1)	(2)	(3)	(4)	(5)	(6)
Series Name	Power Rating	Resistance	Resistance Tolerance	TCR	Packaging

(1)Type: RNG3426 SERIES
(2)Power Rating: 3=3W、10W=10W
(3)Resistance Value:10R0=10R、R10=0.1Ω、47R0=47Ω
(4)Tolerance: P=±0.02%、W=±0.05%、B=±0.1%、D=±0.5%、
(5))TCR: C8=±2ppm/℃;C7=±5ppm/℃;C6=±10ppm/℃;
(6)Packaging: B=bulk, T=Tape&Reel

Surface Temperature Rise



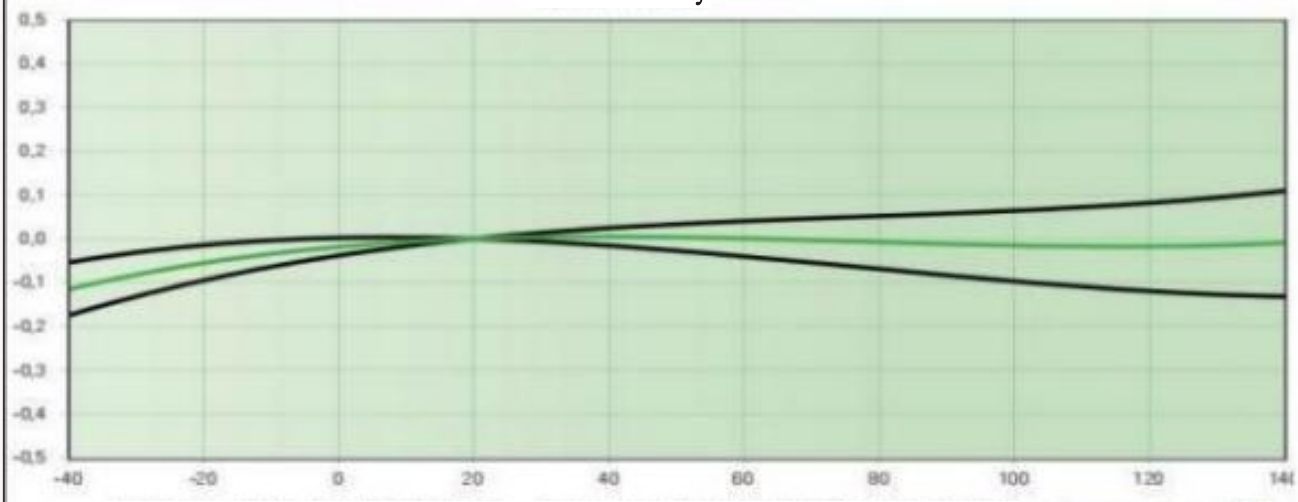
Temperature measurement point (in still air)



(L)152.4mm*(W)101.6 mm*(H)50.8mm *(T)1.0 mm

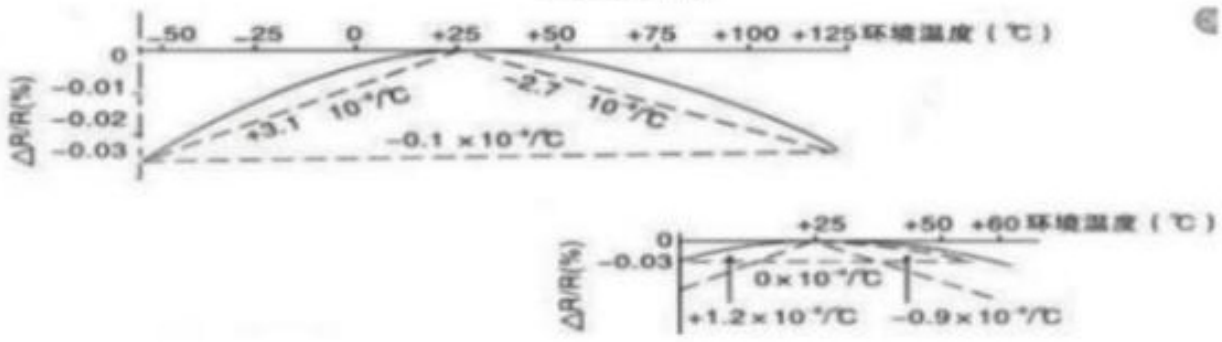
Temperature coefficient

Cu-Ni alloy



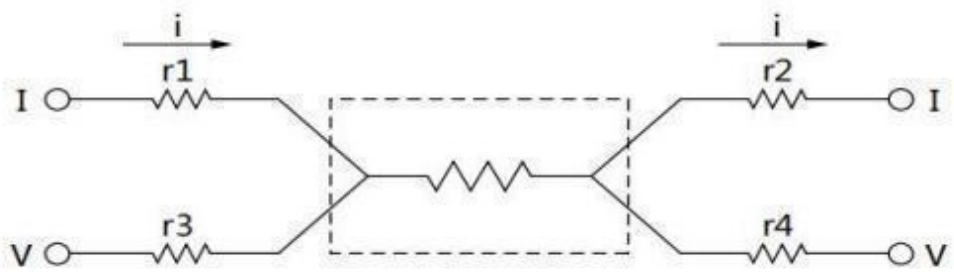
The black line is a graph showing the variation of the resistance limit curve, and the green line is a graph showing the variation of the typical resistance curve.

Ni-Cr alloy



Four-line connection

For low-value resistors (＜10Ω), the resistance rise and temperature coefficient introduced by copper leads exceed those of the resistor element itself. A four-terminal Kelvin connection as shown in the figure below is recommended. Load current flowing through the V terminal will result in measurement errors.



Performance

Item	Performance(JIS C 5201-1)
Resistance Range	0.005~500Ω
Power Rating free air 70℃	3W
with heatsink	10W
Tolerances	0.01%、0.02%、0.05%、0.1%、0.25%、0.5%、1%
Thermal Resistance Rthj-c	6K/W
Stability	0.02%
Temperature Coefficient Cu-Ni alloy(0.005R-0.05R) Ni-Cr alloy(0.05-500R)	± 10 ppm/K (20~ 60℃) ± 5 ppm/K (20 ~ 60℃) ± 2 ppm/K (20~ 60℃)
Power Coefficient Resistance	≤4ppm/w
Voltage Proof	500 V
Max. Current	50A
Thermal EMF	< 0.5 μV/ K
Operating Temperature Range	-40~130 ° C
Resistor Material	Cu-Ni alloy ,NiCr-alloy
substrate	Anodized aluminum
Outer protective laye	Epoxy resin coating
Electrode material	Tin-plated copper
Terminals	4
Max. torque	1 N m
Load life stability target:	Under a load of 3W power and at an ambient temperature of 25℃, the resistance change rate should be ±0.01% after 2,000 hours.
Thermal dissipation system load life target:	When a resistor is placed on the thermal dissipation system and a power load of 3W is applied, the resistance value change rate should be ±0.005% after 2,000 hours.
Short-term Overload:	5 times the rated power for 5 seconds, resistance change ≤ 0.02%
ESD Capability:	At least 25 kV