

METAL OXIDE FILM RESISTORS, FLAMEPROOF (SMALL TYPE)

不燃性金屬氧化皮膜電阻器(小型化)



Features

- 1. High power, Small body size.
- 2. Electrical and mechanical stability and high reliability.
- 3. Nonflame painting, “Solvent” proof, resistant to heat & humidity.
- 4. Annual shift is low for the strengthened metal oxide film.
- 5. Low noise ; can produce high resistance values which wire wound resistors can not reach.

特色

- 1. 功率大、體積小。
- 2. 電氣及機械上之性能極安定，具高度信賴性。
- 3. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
- 4. 已氧化過之電阻皮膜經年變化甚少，皮膜強度特強。
- 5. 低雜音，可製繞線電阻器不能製作之高阻值。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	±5% (J) or ±2% (G)	-
溫度係數 Resistance Temp. Coeff.	±300 ppm / °C	-55°C ~ 155°C
額定負載 Power Rating Load	Surface temp. 275°C Max. 最高表面溫度 275°C, ΔR/R ≤ ±1%	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±2%	2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	Max. Working Voltage for 1 min. 施加最高工作電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC100V or 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	< 1/2W : 1 kg > 1W : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 ≥ 95%	235 ± 5°C for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, ΔR/R ≤ ±1%	270 ± 5°C for 10 ± 1 seconds 350 ± 10°C for 3.5 ± 0.5 seconds

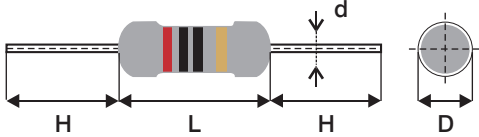
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	ΔR/R ≤ ±1%	-55°C (30 min.) → Room Temp.(3 min.) → +155°C (30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

Dimensions

尺寸



Unit : mm

Rated Wattage	D ± 1	L ± 1	H ± 3	d ± 0.1	Resistance (Ω)	Max. Working Voltage	Max. Overload Voltage
1/2W	2.6±0.5	6.8	28	0.6	0.22~33K	250V	400V
1W	3.5	9	28	0.65	0.22~50K	350V	600V
2W	4.5	11	28	0.8	0.22~50K	350V	600V
3W	5.0	15	28	0.8	0.22~50K	350V	600V
5W	8.5	24	38	0.8	0.22~100K	500V	800V
6W	8.5	32	33	0.8	0.22~150K	500V	800V
7W	8.5	41	38	0.8	0.22~200K	750V	1000V
10W	8.5	53	38	0.8	0.22~200K	800V	1500V

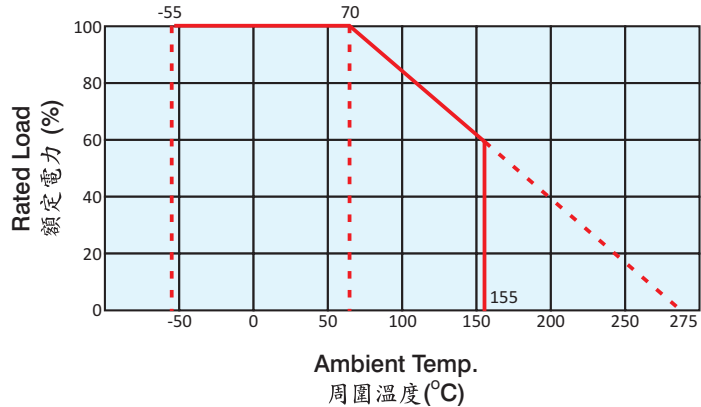
Note: 1. Too low or too high ohmic values can be supplied only case by case.
2. If high resistance values are required, we suggest using RDN series.
3. 0.22 ~ 9.1Ω are using alloy film.

Rate Continuous Working Voltage (RCWV) shall be determined
√ Rated Power X Resistance Value or Max. Working Voltage listed above,
whichever less.

Derating Curve

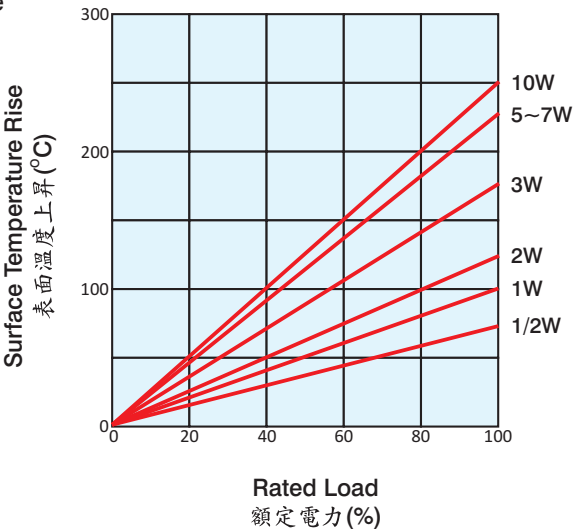
電力輕減曲線

For resistors operated in ambient temperatures above 70°C,
power rating must be derated in accordance with the curve
below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

RSS 1W 10R J T/B
a. b. c. d. e.

- a. : Type(種類): Metal Oxide Film Resistors, Flameproof (Small Type) are called "RSS".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/2W, 1W, 2W, 3W, 5W, 6W, 7W, 10W.
- c. : Nominal Resistance(公稱電阻值) : 10Ω.
- d. : Tolerance(容許誤差): G = ±2% , J = ±5% .
- e. : Package (包裝方式):
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).

METAL OXIDE FILM RESISTORS (ULTRA SMALL TYPE)

金屬氧化皮膜電阻器(超小型)



Features

1. Ultra high thermal conductivity material, excellent power dissipation in small volume.
2. Flameproof painting, resistance to heat & solvents.
3. Annual shift is low for the strengthened metal oxide film.

特色

1. 採用超高散熱功能材質，產品具超小型化高功率特點。
2. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
3. 已氧化過之電阻皮膜經年變化甚少，皮膜強度特強。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	$\pm 5\%$ (J) or $\pm 2\%$ (G)	-
溫度係數 Resistance Temp. Coeff.	± 300 ppm / $^{\circ}\text{C}$	$-55^{\circ}\text{C} \sim 155^{\circ}\text{C}$
額定負載 Power Rating Load	Surface temp. 235°C Max. 最高表面溫度 235°C , $\Delta R/R \leq \pm 1\%$	Rated voltage for 30 minutes 額定電壓 / 30分鐘
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	AC 350V for 1 minutes 施加 AC 350V 電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000M Ω	DC100V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	1W : 1 kg 2W & 3W : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 $\geq 95\%$	$235 \pm 5^{\circ}\text{C}$ for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, $\Delta R/R \leq \pm 1\%$	$270 \pm 5^{\circ}\text{C}$ for 10 ± 1 seconds $350 \pm 10^{\circ}\text{C}$ for 3.5 ± 0.5 seconds

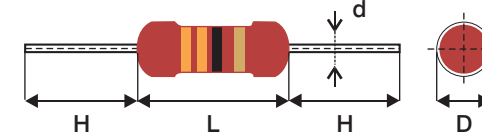
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格値 Standards	試験方法 Test Methods
温度週率 Temp. Cycle	$\Delta R/R \leq \pm 1\%$	-55°C (30 min.) → Room Temp.(3 min.) → +155°C(30 min.) → Room Temp(3 min.) / (5 cycles)
負載壽命 Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

Dimensions

尺寸



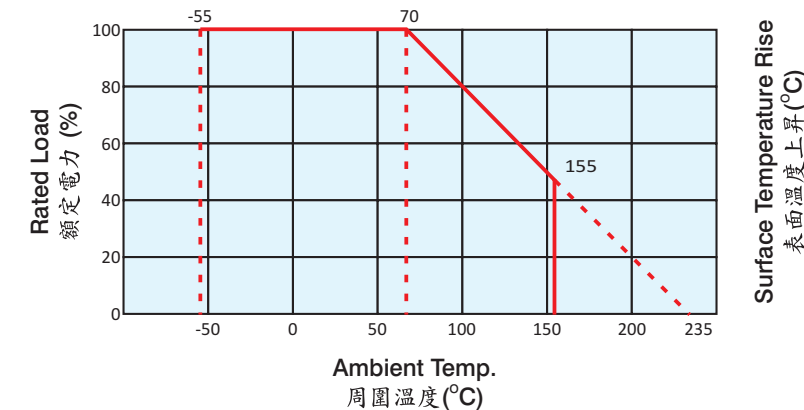
Unit : mm						
Rated Wattage	D ± 1	L ± 1	H ± 3	d ± 0.1	Resistance (Ω)	Max. Working Voltage
1W	2.6±0.5	6.8	28	0.6	0.22~1M	350V
2W	3.5	9	28	0.8	0.22~1M	500V
3W	5	15	28	0.8	0.22~1M	750V

Rate Continuous Working Voltage (RCWW) shall be determined
 $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$ or Max. Working Voltage listed above,
 whichever less.

Derating Curve

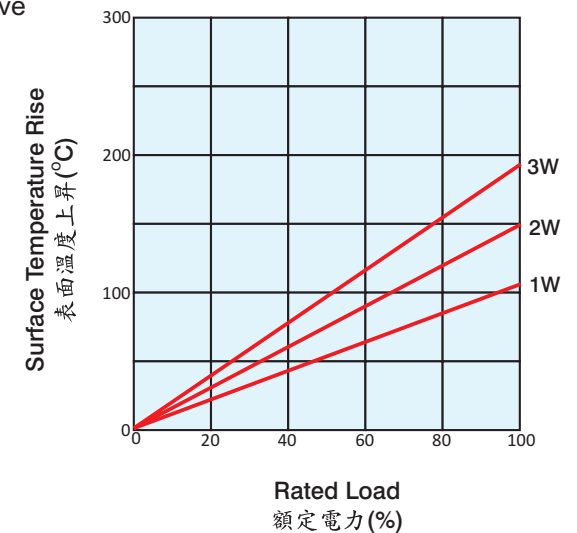
電力輕減曲線

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

RSU	1W	10R	J	T/B
a.	b.	c.	d.	e.

- Type(種類): Metal Oxide Film Resistors (Ultra Small Type) are called "RSU".
- Rated Wattage(額定電力) : Shown by "W", such as 1W, 2W, 3W.
- Nominal Resistance(公稱電阻值) : 10Ω
- Tolerance(容許誤差): G= ±2% , J= ±5% .
- Package (包裝方式) :
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil=Bulk(散裝).

METAL GLAZE HIGH VOLTAGE RESISTORS

金屬釉高壓電阻器



Features

- 1. Similar characteristic with metal film but resistance value can be as high as 33MΩ.
- 2. Metal-glaze elements provide high stable performance against environmental conditions and overload.
- 3. Resistant to heat, humidity & solvents.
- 4. Resistance tolerance : ±5% & ±1%.
- 5. UL1676 approved : RT 1/2W, RT 1W & 2W series(960KΩ~12MΩ).

特色

- 1. 接近金屬皮膜特性，阻值可高達33MΩ。
- 2. 使用高穩定性金屬釉作基體，耐溫度及超負載，性能安定。
- 3. 可耐溶劑清洗及耐高溫高濕環境。
- 4. 產品精密，容許誤差為±5%及±1%。
- 5. UL1676 認證：RT 1/2W, RT 1W & 2W series(960KΩ~12MΩ)。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	±5% (J) or ±1% (F)	-
溫度係數 Resistance Temp. Coeff.	±200 ppm / °C	-65°C ~ 175°C
額定負載 Power Rating Load	Surface temp. 175°C Max. 最高表面溫度 175°C, △R/R ≤ ±1%	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±1%	2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	AC 350V for 1 minutes 施加 AC 350V 電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC100V megger
耐脈衝 Pulse Loading Capability	△R/R ≤ ±2%	IEC 60065 14.1
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	< 1/2W : 1 kg > 1W : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 ≥ 95%	235±5°C for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, △R/R ≤ ±1%	270±5°C for 10 ±1 seconds 350±10°C for 3.5 ±0.5 seconds

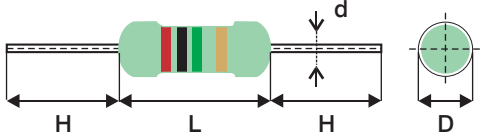
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	△R/R ≤ ±0.5%	-55°C(30 min.) → Room Temp.(3 min.) → +175°C(30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	△R/R ≤ ±3%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	△R/R ≤ ±3%	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min. (RT 1W & RT 2W)

Dimensions

尺寸



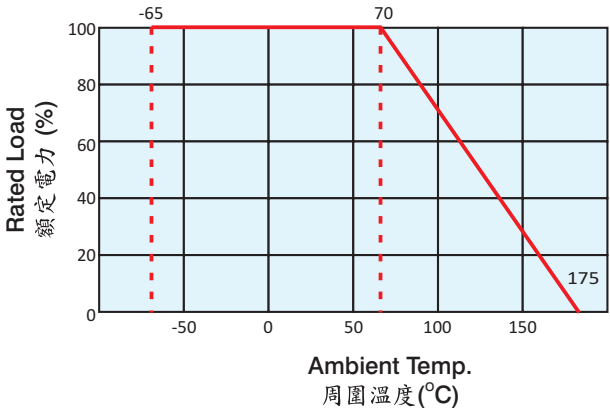
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance (Ω)	Max. Permissible Voltage	
						DC	RMS
1/4W	2.4±0.5	6.4	28	0.6	47K~33M	1600V	1150V
1/2W	3.5	9	28	0.65	47K~33M	3500V	2500V
1W	4.5	11	28	0.8	47K~33M	5000V	3500V
2W	5.0	15	28	0.8	47K~33M	10000V	7000V

Note: 1. Too low or too high ohmic values can be supplied only case by case.
2. RT 1W & RT 2W are coated by flameproof paint .

Derating Curve

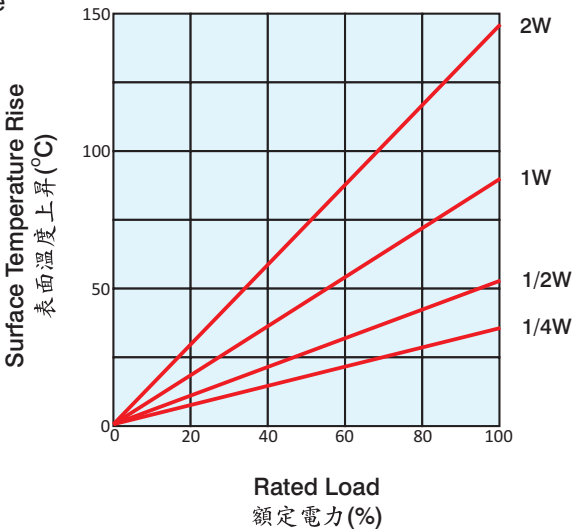
電力輕減曲線

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

RT 1/4W 1M J T/B
a. b. c. d. e.

- a. : Type(種類): Metal Glaze High Voltage Resistors are called "RT".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/4W, 1/2W, 1W, 2W.
- c. : Nominal Resistance(公稱電阻值) : 1MΩ.
- d. : Tolerance(容許誤差): F = ±1% , J = ±5% .
- e. : Package (包裝方式):
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).



ANTI-PULSE NON-INDUCTIVE RESISTORS

耐脈衝無感型電阻器



Features

- 1. Excellent pulse characteristics.
- 2. Flameproof painting, resistant to heat & solvents.
- 3. Very low inductance (less than 1 μ H).

特色

- 1. 絕佳之耐脈衝特性。
- 2. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
- 3. 超低電感量 (1 μ H以下)。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	$\pm 5\%$ (J) or $\pm 2\%$ (G)	-
溫度係數 Resistance Temp. Coeff.	± 300 ppm / $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ ~ 155 $^{\circ}\text{C}$
額定負載 Power Rating Load	Surface temp. 235 $^{\circ}\text{C}$ Max. 最高表面溫度 235 $^{\circ}\text{C}$, $\Delta R/R \leq \pm 1\%$	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	$\pm 1\%$	2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	Max. Working Voltage for 1 min. 施加最高工作電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000M Ω	DC 100V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	< 1/2W : 1 kg > 1W : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 $\geq 95\%$	235 $\pm 5^{\circ}\text{C}$ for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, $\Delta R/R \leq \pm 1\%$	270 $\pm 5^{\circ}\text{C}$ for 10 ± 1 seconds 350 $\pm 10^{\circ}\text{C}$ for 3.5 ± 0.5 seconds

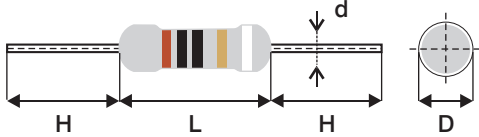
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	$\Delta R/R \leq \pm 1\%$	-55 $^{\circ}\text{C}$ (30 min.) $\rightarrow$ Room Temp.(3 min.) $\rightarrow$ +155 $^{\circ}\text{C}$ (30 min.) $\rightarrow$ Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 70 $^{\circ}\text{C}$ 1000 hours
耐濕壽命 Moisture-proof Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 40 $^{\circ}\text{C}$ 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

Dimensions

尺寸



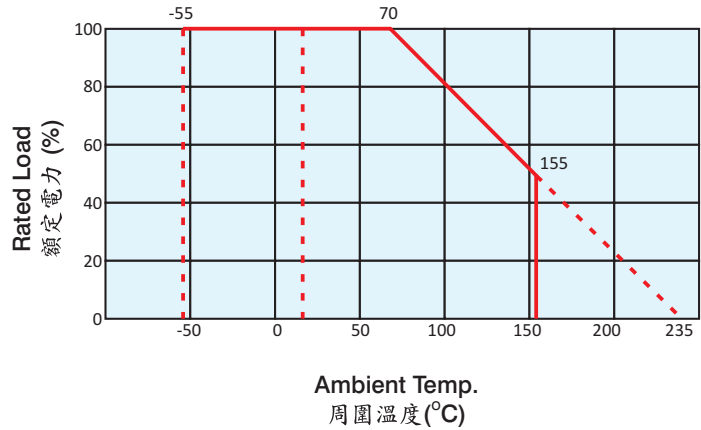
Rated Wattle	D ± 1	L ± 1	H ± 3	d ± 0.1	Resistance Range(Ω)	Max. Working Voltage	Max. Overload Voltage
1/4W	2.6 ± 0.5	6.8	28	0.6	0.22~200K	250V	400V
1/2W	3.0	9	28	0.65	0.22~200K	300V	400V
1W	4.5	11	28	0.8	0.22~200K	350V	600V
2W	5.0	15	28	0.8	0.22~200K	350V	600V

Note: 1. Too low or too high ohmic values can be supplied only case by case.
2. Pricing is different, depending on resistance values .
Rate Continuous Working Voltage (RCWV) shall be determined
 $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$ or Max. Working Voltage listed above,
whichever less.

Derating Curve

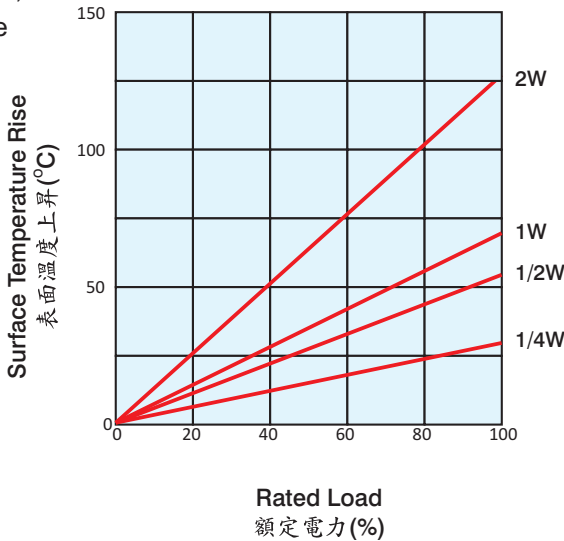
電力輕減曲線

For resistors operated in ambient temperatures above 70 $^{\circ}\text{C}$,
power rating must be derated in accordance with the curve
below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

NRSN 1W 10R J T/B
a. b. c. d. e.

- a. : Type(種類): Anti-Pulse Non-Inductive Resistors are called "NRSN".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/4W, 1/2W, 1W, 2W.
- c. : Nominal Resistance(公稱電阻值) : 10 Ω .
- d. : Tolerance(容許誤差): G = $\pm 2\%$, J = $\pm 5\%$.
- e. : Package (包裝方式):
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).

ANTI-PULSE NON-INDUCTIVE RESISTORS (SMALL TYPE)

耐脈衝無感型電阻器(小型化)



Features

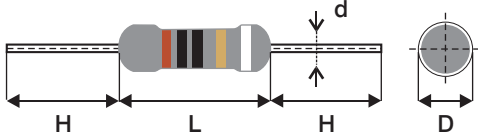
- 1. High power, Small body size.
- 2. Excellent pulse characteristics.
- 3. Flameproof painting, resistant to heat & solvents.
- 4. Very low inductance (less than 1 μ H).

特色

- 1. 功率大、體積小。
- 2. 絕佳之耐脈衝特性。
- 3. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
- 4. 超低電感量 (1 μ H 以下)。

Dimensions

尺寸



Unit : mm							
Rated Wattage	D $\pm$ 1	L $\pm$ 1	H $\pm$ 3	d $\pm$ 0.1	Resistance Range(Ω)	Max. Working Voltage	Max. Overload Voltage
1/2W	2.6 $\pm$ 0.5	6.8	28	0.6	0.22~200K	250V	400V
1W	3.5	9	28	0.65	0.22~200K	350V	600V
2W	4.5	11	28	0.8	0.22~200K	350V	600V
3W	5.0	15	28	0.8	0.22~200K	350V	600V

Note: 1. Too low or too high ohmic values can be supplied only case by case.
2. Pricing is different, depending on resistance values .
Rate Continuous Working Voltage (RCWW) shall be determined $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$ or Max. Working Voltage listed above, whichever less.

ELECTRICAL AND MECHANICAL PERFORMANCE

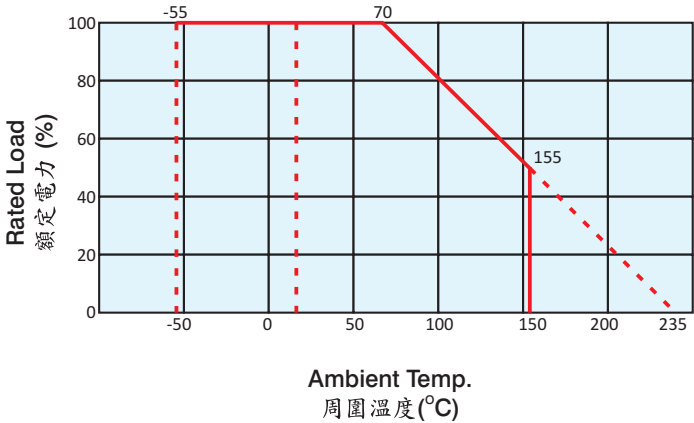
電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	$\pm 5\%$ (J) or $\pm 2\%$ (G)	-
溫度係數 Resistance Temp. Coeff.	± 300 ppm / $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ ~ 155 $^{\circ}\text{C}$
額定負載 Power Rating Load	Surface temp. 235 $^{\circ}\text{C}$ Max. 最高表面溫度 235 $^{\circ}\text{C}$, $\Delta R/R \leq \pm 1\%$	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	$\pm 2\%$	2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	Max. Working Voltage for 1 min. 施加最高工作電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000M Ω	DC 100V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	< 1/2W : 1 kg > 1W : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 $\geq 95\%$	235 $\pm 5^{\circ}\text{C}$ for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, $\Delta R/R \leq \pm 1\%$	270 $\pm 5^{\circ}\text{C}$ for 10 ± 1 seconds 350 $\pm 10^{\circ}\text{C}$ for 3.5 ± 0.5 seconds

Derating Curve

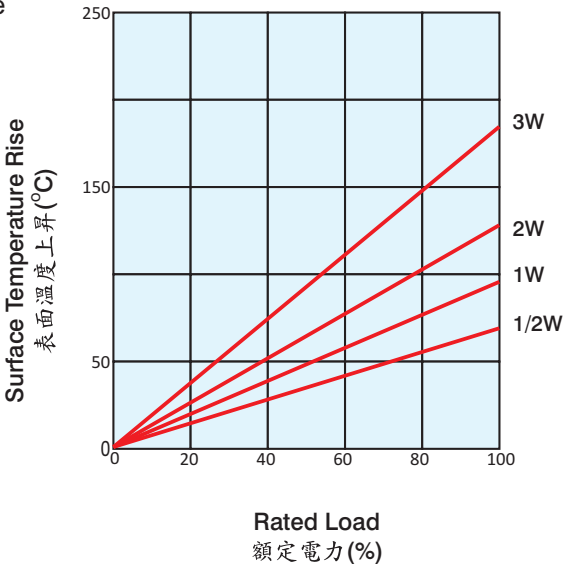
電力輕減曲線

For resistors operated in ambient temperatures above 70 $^{\circ}\text{C}$, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

NRSS	1W	10R	J	T/B
a.	b.	c.	d.	e.

- a. : Type(種類): Anti-Pulse Non-Inductive Resistors (Small Type) are called "NRSS".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/2W, 1W, 2W, 3W.
- c. : Nominal Resistance(公稱電阻值) : 10 Ω .
- d. : Tolerance(容許誤差): G = $\pm 2\%$, J = $\pm 5\%$.
- e. : Package (包裝方式):
T/R = tape & reel (捲裝); T/B = tape in box(帶裝); Nil = Bulk(散裝).

ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	$\Delta R/R \leq \pm 1\%$	-55 $^{\circ}\text{C}$ (30 min.) $\rightarrow$ Room Temp.(3 min.) $\rightarrow$ +155 $^{\circ}\text{C}$ (30 min.) $\rightarrow$ Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 70 $^{\circ}\text{C}$ 1000 hours
耐濕壽命 Moisture-proof Load Life	$\Delta R/R \leq \pm 5\%$	Rated power load 90 minutes ON 30 minutes OFF 40 $^{\circ}\text{C}$ 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

FUSIBLE WIRE WOUND RESISTORS, FLAMEPROOF

保險絲繞線電阻器



Features

- 1. It is suitable for protecting circuit boards.
- 2. Noncombustible insulating coating; “Solvent” proof and resistant to high temperature.
- 3. Low temperature coefficient.
- 4. Uniform in fusing time.
- 5. UL1412 approval : FKN 1W ~ 3W Series.

特色

- 1. 適用於需要保護的各種電路基板及設計。
- 2. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
- 3. 溫度係數低(±300ppm/°C以下)。
- 4. 保險絲熔斷時間一致。
- 5. UL1412認證：FKN 1W ~ 3W Series。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	±5% (J) or ±2% (G)	-
溫度係數 Resistance Temp. Coeff.	±300 ppm / °C	-55°C ~ 200°C
額定負載 Power Rating Load	Surface temp. 275°C Max. 最高表面溫度 275°C, ΔR/R ≤ ±3%	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±2%	2.5 times of rated voltage for 5 seconds. 2.5 倍額定電壓 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	Applying suitable voltage listed on Dimensions for one minute. 施加規定電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC100V or 500V megger
熔斷特性 Fusing Characteristics	Fusing time is within 60 seconds. 熔斷時間 < 60秒.	25 times of rated wattage
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 ≥ 95%	235 ± 5°C for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, ΔR/R ≤ ±1%	270 ± 5°C for 10 ± 1 seconds 350 ± 10°C for 3.5 ± 0.5 seconds

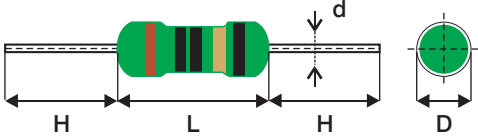
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	ΔR/R ≤ ±1%	-55°C (30 min.) → Room Temp. (3 min.) → +200°C (30 min.) → Room Temp. (3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 1000 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

Dimensions

尺寸



Unit : mm

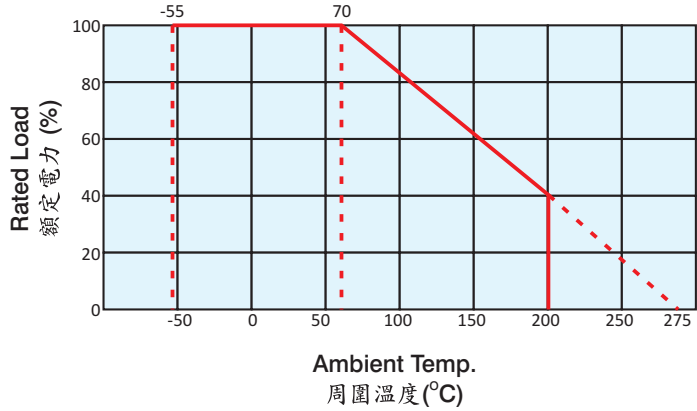
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)	Dielectric Withstanding Voltage
1W	4.0	9	28	0.65	0.1~500	350V
2W	5.0	11	28	0.8	0.1~800	500V
3W	5.5	13	38	0.8	0.1~800	500V
5W	6.5	19	38	0.8	0.1~800	500V

- Note:
- 1. Fusing time can also be consulted between buyers and the manufacturer before producing.
 - 2. The resistance value will be as high as 100 times the original value after fusing.

Derating Curve

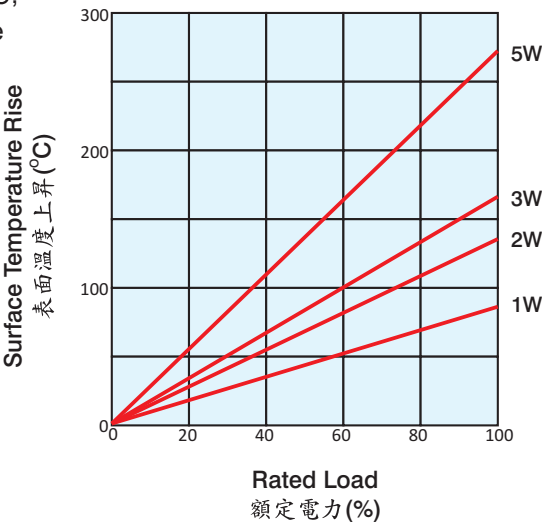
電力輕減曲線

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

FKN 1W 10R J T/B
a. b. c. d. e.

- a. : Type(種類): Fusible Wire Wound Resistors, Flameproof are called "FKN".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1W, 2W, 3W, 5W.
- c. : Nominal Resistance(公稱電阻值) : 10Ω.
- d. : Tolerance(容許誤差): G = ±2% , J = ±5% .
- e. : Package(包裝方式) :
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).

FUSIBLE WIRE WOUND RESISTORS, FLAMEPROOF (SMALL TYPE)

保險絲繞線電阻器(小型化)



Features

- 1. High power, Small body size.
- 2. It is suitable for protecting circuit boards.
- 3. Noncombustible insulating coating; "Solvent" proof and resistant to high temperature.
- 4. Low temperature coefficient.
- 5. Uniform in fusing time.
- 6. UL1412 approved.

特色

- 1. 功率大、體積小。
- 2. 適用於需要保護的各種電路基板及設計。
- 3. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。
- 4. 溫度係數低(±300 ppm/°C以下)。
- 5. 保險絲熔斷時間一致。
- 6. UL1412 認證。

ELECTRICAL AND MECHANICAL PERFORMANCE

電氣及機械特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
阻值容許誤差 Resistance Tolerance	±5% (J) or ±2% (G)	-
溫度係數 Resistance Temp. Coeff.	±300 ppm / °C	-55°C ~ 200°C
額定負載 Power Rating Load	Surface temp. 275°C Max. 最高表面溫度 275°C, ΔR/R ≤ ±2%	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±2%	5 times of rated wattage for 5 seconds. 5 倍額定功率 / 5秒
耐電壓 Dielectric Withstanding Voltage	No evidence of mechanical damage or insulation breakdown. 無機械性能損壞及絕緣擊穿現象	Applying suitable voltage listed on Dimensions for one minute. 施加規定電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC 100V or 500V megger
熔斷特性 Fusing Characteristics	Fusing time is within 60 seconds. 熔斷時間 < 60秒.	16 times of rated wattage
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 ≥ 95%	235±5°C for 2 seconds
浸錫耐熱性 Resistance to Soldering Heat	No evidence of mechanical damage. 無機械性能損壞現象, ΔR/R ≤ ±1%	270±5°C for 10 ±1 seconds 350±10°C for 3.5 ±0.5 seconds

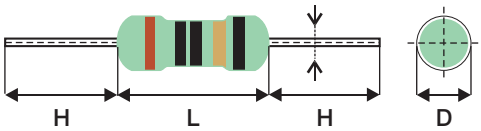
ENVIRONMENTAL CHARACTERISTICS

耐環境特性

特性 Characteristics	規格值 Standards	試驗方法 Test Methods
溫度週率 Temp. Cycle	ΔR/R ≤ ±1%	-55°C (30 min.) → Room Temp. (3 min.) → +200°C (30 min.) → Room Temp. (3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 40°C 95% RH 1000 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

Dimensions

尺寸



Unit : mm

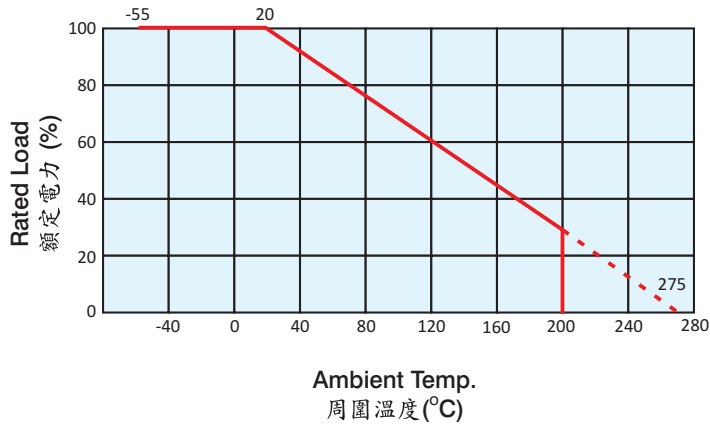
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)	Dielectric Withstanding Voltage
1WS	2.6±0.5	6.8	28	0.65	0.1~200	250V
2WS	3	9	28	0.65	0.1~300	350V
3WS	5	11	28	0.8	0.1~800	500V

Note: 1. Fusing time can also be consulted between buyers and the manufacturer before producing.
2. The resistance value will be as high as 100 times the original value after fusing.

Derating Curve

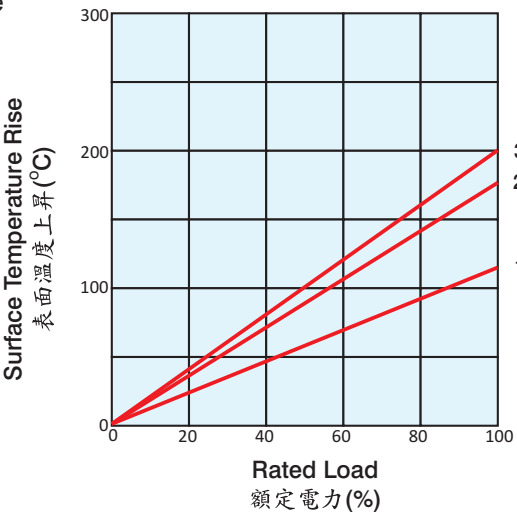
電力輕減曲線

For resistors operated in ambient temperatures above 20°C, power rating must be derated in accordance with the curve below.



Surface Temperature Rise

表面溫度上昇曲線



How to order

訂貨方式

It is composed by Type, Rated Wattage, Nominal Resistance, Tolerance and Package. e.g.

FKN	1WS	10R	J	T/B
a.	b.	c.	d.	e.

- a. : Type(種類): Fusible Wire Wound Resistors, Flameproof are called "FKN".
- b. : Rated Wattage(額定電力) : Shown by "WS", such as 1WS, 2WS, 3WS.
- c. : Nominal Resistance(公稱電阻值) : 10Ω.
- d. : Tolerance(容許誤差): G = ±2% , J = ±5% .
- e. : Package(包裝方式):
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).