

NON-INDUCTIVE WIRE WOUND RESISTORS

無感型繞線電阻器



Features

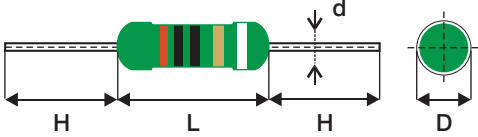
- 1. Very low inductance (less than 1 μ H).
- 2. Flameproof painting, resistant to heat & solvents.
- 3. Super heat dissipation, small linear temperature coefficient.
- 4. Instant overload capability, low noise figure and low annual shift on resistance values.

特色

- 1. 超低電感量(1 μ H以下)。
- 2. 不燃性塗裝，可耐溶劑及高溫。
- 3. 散熱性佳，溫度係數小且呈線性變化。
- 4. 耐短時間超負載，低雜音，阻值經年無變化。

Dimensions

尺寸



Unit : mm

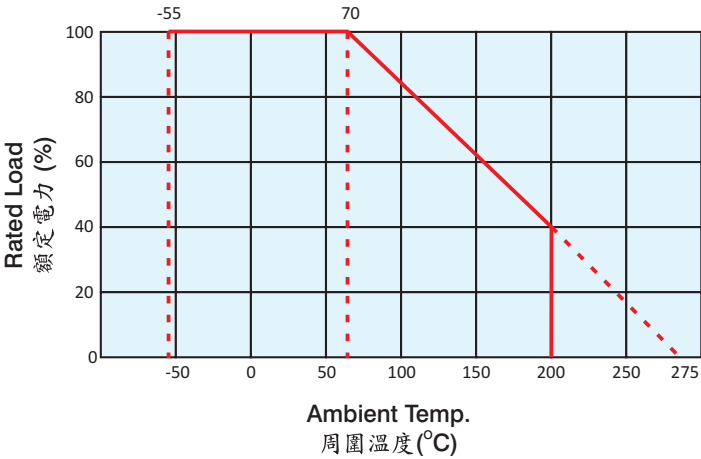
Rated Wattage	D $\pm$ 1	L $\pm$ 1	H $\pm$ 3	d $\pm$ 0.1	Resistance Range(Ω)	Dielectric Withstanding Voltage
1/2W	3.0	9	28	0.65	0.1~3	300V
1W	4.0	9	28	0.65	0.1~3	350V
2W	5.0	11	28	0.8	0.1~10	350V
3W	5.5	13	38	0.8	0.1~10	350V
3WL	5.5	15	38	0.8	0.1~10	350V
5W	6.5	19	38	0.8	0.1~20	350V
6W	8.5	24	38	0.8	0.1~20	500V
7W	8.5	32	33	0.8	0.1~20	500V
8W	8.5	41	38	0.8	0.1~20	750V
10W	8.5	53	38	0.8	0.1~20	800V

Note: Too low or too high ohmic values can be supplied only case by case.

Derating Curve

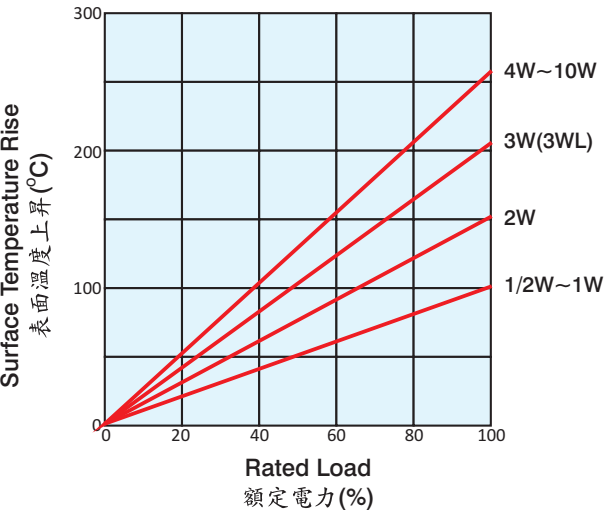
電力輕減曲線

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.

NKNP 2W 10R J T/B
a. b. c. d. e.

- a. : Type(種類): Non-Inductive Wire Wound Resistors, Flameproof are called "NKNP".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/2W 1W, 2W..... 10W.
- 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)

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.	$\pm$ 300 ppm / $^{\circ}$ C	-55 $^{\circ}$ C ~ 200 $^{\circ}$ C
額定負載 Power Rating Load	Surface temp. 275 $^{\circ}$ C Max. 最高表面溫度 275 $^{\circ}$ C, Δ R/R $\leq$ $\pm$ 2%	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	Applying suitable voltage listed on Dimensions for one minute. 施加規定電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000M Ω	DC100V or 500V 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 : 2.5 kg
焊錫性 Solder-ability	Minimum 95% coverage 焊錫面積 $\geq$ 95%	235 $\pm$ 5 $^{\circ}$ 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, Δ R/R $\leq$ $\pm$ 1%	270 $\pm$ 5 $^{\circ}$ C for 10 $\pm$ 1 seconds 350 $\pm$ 10 $^{\circ}$ C for 3.5 $\pm$ 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	Δ R/R $\leq$ $\pm$ 1%	-55 $^{\circ}$ C(30 min.) $\rightarrow$ Room Temp.(3 min.) $\rightarrow$ +200 $^{\circ}$ C(30 min.) $\rightarrow$ Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	Δ R/R $\leq$ $\pm$ 3%	Rated power load 90 minutes ON 30 minutes OFF 70 $^{\circ}$ C 1000 hours
耐濕壽命 Moisture-proof Load Life	Δ R/R $\leq$ $\pm$ 3%	Rated power load 90 minutes ON 30 minutes OFF 40 $^{\circ}$ C 95% RH 500 hours
不燃性 Nonflammability	not flamed	16 times of rated wattage for 5 min.

WIRE WOUND RESISTORS, FLAMEPROOF (SMALL TYPE)

不燃性繞線電阻器(小型化)



Features

- 1. High power, Small body size.
- 2. Super heat dissipation ; small linear temperature coefficient.
- 3. Instant overload capability ; low noise figure and low annual shift on resistance values.
- 4. Flameproof, light weight, price is lower than enamel types.
- 5. Winding wires are much more durable than enamel types which are produced in high temperature.

特色

- 1. 功率大、體積小。
- 2. 散熱性佳，溫度係數小且呈線性變化。
- 3. 耐短時間超負載；低雜音，阻值經年無變化。
- 4. 不燃性、重量輕，價格比琺瑯電阻便宜。
- 5. 不似琺瑯電阻高溫燒成，此種電阻持久而不損壞。

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.	±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	DC100V or 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	1WS & 2WS : 1 kg 3WS : 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

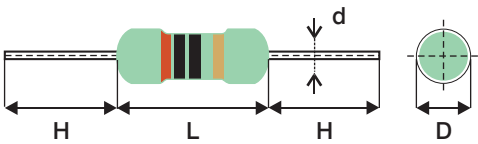
ENVIRONMENTAL CHARACTERISTICS

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.) → +200°C(30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±3%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±3%	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

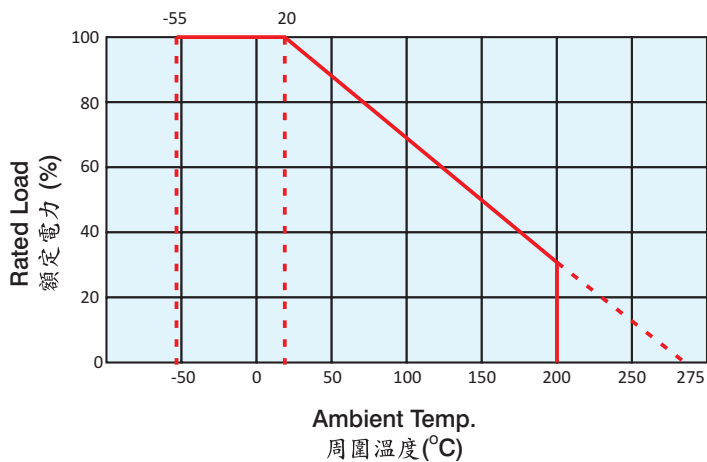
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)	Dielectric Withstanding Voltage
1WS	2.6±0.5	6.8	28	0.65	0.1~200	250V
2WS	3.0	9	28	0.65	0.1~300	350V
3WS	5.0	11	28	0.80	0.1~800	500V

Note: Too low or too high ohmic values can be supplied only case by case.

Derating Curve

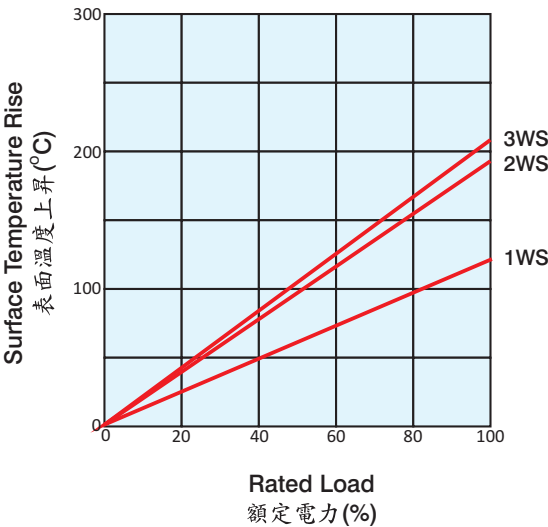
電力輕減曲線

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.

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

- a. : Type(種類): Wire Wound Resistors, Flameproof are called "KNP".
- 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): 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).

WIRE WOUND RESISTORS, FLAMEPROOF, ANTI-BURST

防爆型繞線電阻器



Features

- 1. Fail-Safe without flames,explosion and arc when mains voltage 80~270V AC directly applied.
- 2. High Dielectric Withstanding Voltage up to 1KV.
- 3. Anti-Burst construction in a ceramic tube, resistant to humidity and insulation.
- 4. UL1412 approved.

特色

- 1. 主電源直接跨接時，不會產生火花、爆炸及電弧現象。
- 2. 耐電壓能力可達 1KV。
- 3. 防爆型套管包覆，具耐濕及絕緣特性。
- 4. 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)	-
溫度係數 Resistance Temp. Coeff.	< 4500 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 ≤ ±1%	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	AC 1000V for 1 minutes 施加 AC 1000V 電壓 1 分鐘。
絕緣電阻 Insulation Resistance	1,000MΩ	DC 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	1 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

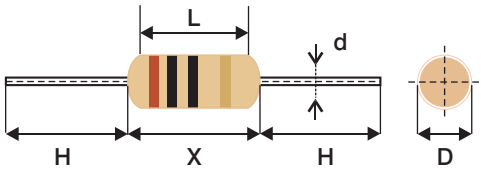
ENVIRONMENTAL CHARACTERISTICS

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.) → +200°C (30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±3%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±3%	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

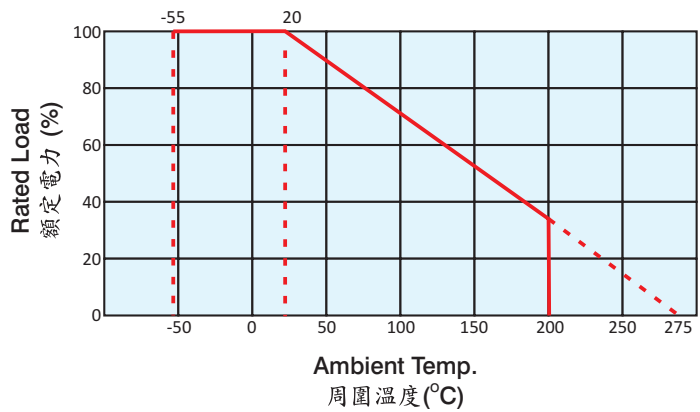
Rated Wattage	D ±1	L ±1	X Max.	H ±3	d ±0.1	Resistance Range(Ω)
1WS	4.5	6.5	9	28	0.65	1~47

Note: Too low or too high ohmic values can be supplied only case by case.

Derating Curve

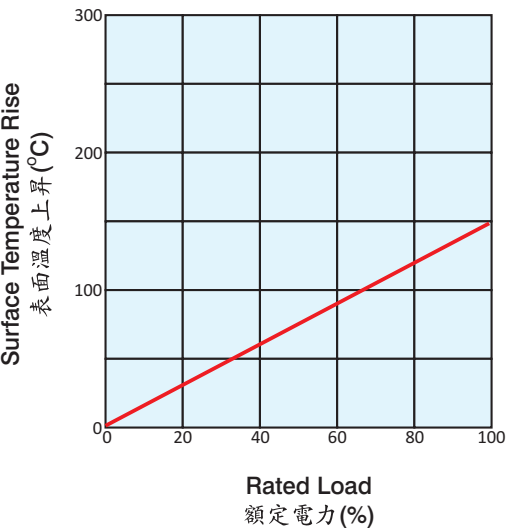
電力輕減曲線

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, Anti-Burst and Package. e.g.

KNP 1WS 10R J A H2 T/B
a. b. c. d. e. f. g.

- a. : Type(種類): Wire Wound Resistors, Flameproof are called "KNP".
- b. : Rated Wattage(額定電力): Shown by "W", such as "1WS".
- c. : Nominal Resistance(公稱電阻值): 10Ω.
- d. : Tolerance(容許誤差): G = ±2%, J = ±5%.
- e. : A : Letter "A" indicates anti-burst. ("A"表示防爆)
- f. : H2 : Letter "H2" indicates special wire. ("H2"表示特殊線材)
- g. : Package (包裝方式):
T/B=tape in box(帶裝); Nil= Bulk(散裝).

WIRE WOUND RESISTORS, FLAMEPROOF, ANTI-SURGE

耐雷擊型繞線電阻器



Features

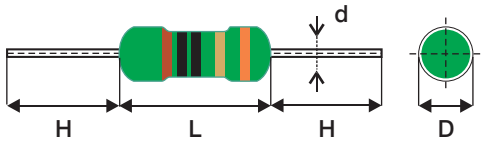
- 1. Excellent anti-surge characteristics - 6KV according to IEC 61000-4-5.
- 2. Super heat dissipation; small linear temperature coefficient.
- 3. Flameproof painting, resistant to heat & solvents.

特色

- 1. 依據 IEC 61000-4-5 測試方法，耐雷擊能力達6KV。
- 2. 散熱性佳，溫度係數小且呈線性變化。
- 3. 不燃性絕緣塗裝，可耐溶劑清洗及高溫。

Dimensions

尺寸



Unit : mm

Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)
3WL	5.5	15	38	0.8	0.1~1K

Note: Too low or too high ohmic values can be supplied only case by case.

ELECTRICAL AND MECHANICAL PERFORMANCE

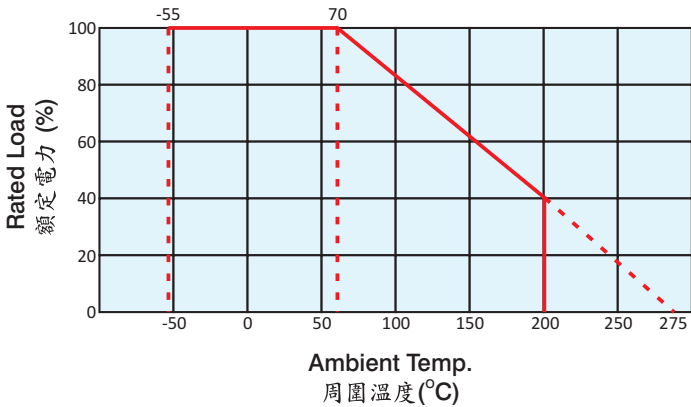
電氣及機械特性

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 ≤ ±0.5%	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±2%	10 times of rated wattage for 5 seconds. 10 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	AC 500V for 1 minutes 施加 AC 500V 電壓 1 分鐘
絕緣電阻 Insulation Resistance	1,000MΩ	DC 500V megger
耐雷擊 Surge Voltage Withstanding	ΔR/R ≤ ±5%	20 pulses(1.2/50us), max. 60s between each pulse.
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	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

Derating Curve

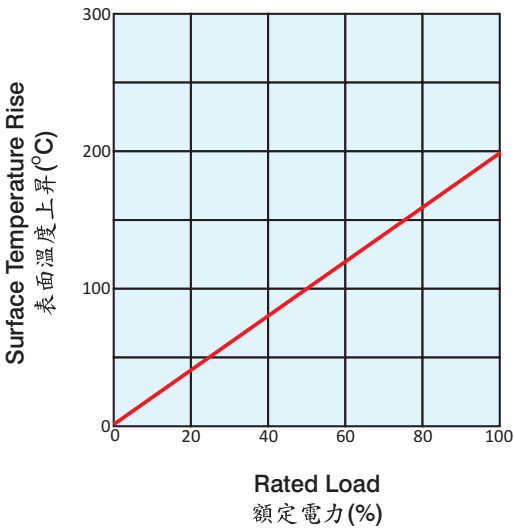
電力輕減曲線

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, Anti-Surge and Package. e.g.

KNP	3WL	10R	J	C	T/B
a.	b.	c.	d.	e.	f.

- a. : Type(種類): Wire Wound Resistors, Flameproof are called "KNP".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 3WL.
- c. : Nominal Resistance(公稱電阻值) : 10Ω.
- d. : Tolerance(容許誤差): G = ±2% , J = ±5% .
- e. : C : Letter "C" indicates anti-surge ("C"表示耐雷擊).
- f. : 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	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 ≤ ±3%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±3%	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.

※ 參考規格 Reference Standards
JIS C 5201-1

CARBON FILM RESISTORS

碳膜電阻器



Features

- 1. Pure carbonhydric on ceramic cores.
- 2. Low cost.
- 3. Good quality and reliability.
- 4. Provide flameproof type, RDN.

特色

- 1. 瓷棒著有機化合物之碳。
- 2. 價格便宜。
- 3. 良好品質和信賴性佳。
- 4. 供應不燃性塗裝產品，RDN。

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.	0~-1300 ppm / °C	-55°C ~ 155°C
額定負載 Power Rating Load	Surface temp. 235°C Max. 最高表面溫度 235°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	Max. Overload Voltage for 1 min. 施加最高過負載電壓 1 分鐘 (RDN 1 W & 2 W : AC 350V)
絕緣電阻 Insulation Resistance	10,000MΩ	DC 100V or 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	< 1/4W : 1 kg > 1/2W : 1.5 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

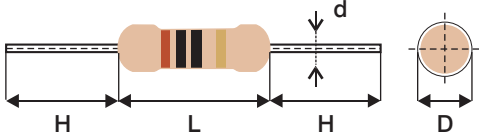
ENVIRONMENTAL CHARACTERISTICS

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 ≤ ±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	△R/R ≤ ±5%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	△R/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

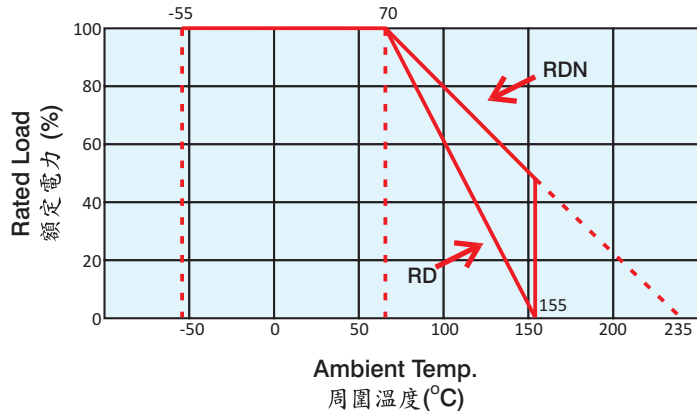
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)	Max. Working Voltage
RD 1/8W, 1/6W(1/4WS)	1.7±0.2	3.7Max.	28	0.45	3.9~4.7M	200V
RD 1/4W(1/2WS)	2.4±0.5	6.4	28	0.6	3.9~10M	250V
RD 1/2W	3.5	9	28	0.65	3.9~10M	350V
RDN 1W	4.5	11	28	0.8	3.9~10M	500V
RDN 2W	5.0	15	28	0.8	3.9~10M	750V

Note: 1. To prevent electric corrosion, the resistance over 100KΩ should be limited at 50V.
2. Too low or too high ohmic values can be supplied only case by case.
3. Max. Overload Voltage is 2 times of Max. Working Voltage.
4. Resistance values over 4.7MΩ(≥4.7MΩ), while RD 1/8W is ≥1MΩ, the tolerance shall be ±10%.
5. RD 1/4W, 1/2W can also be supplied flameproof coating (RDN).

Derating Curve

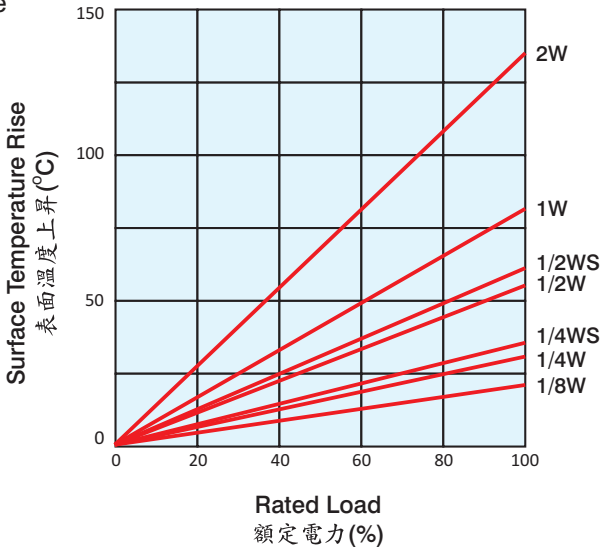
電力輕減曲線

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.

RD 1/4W 10R J T/B
a. b. c. d. e.

- a. : Type(種類): Carbon Film Resistors are called "RD".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/8W(1/6W,1/4WS), 1/4W(1/2WS), 1/2W, 1W, 2W.
- 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).



PRECISION METAL FILM RESISTORS

精密型金屬皮膜電阻器



Features

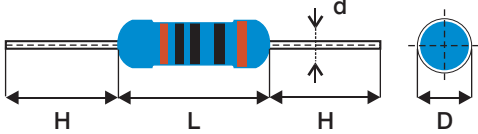
- 1. Low T.C. : 25ppm、50ppm、100ppm.
- 2. High precision : ±0.25%、±0.5%、±1%、±5%.
- 3. Temperature stable, low noise, good reliability.
- 4. 0.1% / 25ppm : case by case.

特色

- 1. 低溫度係數：25ppm、50ppm、100ppm。
- 2. 高精密度：±0.25%、±0.5%、±1%、±5%。
- 3. 溫度穩定，低雜音，可靠性良好。
- 4. 可客製化 0.1% / 25ppm。

Dimensions

尺寸



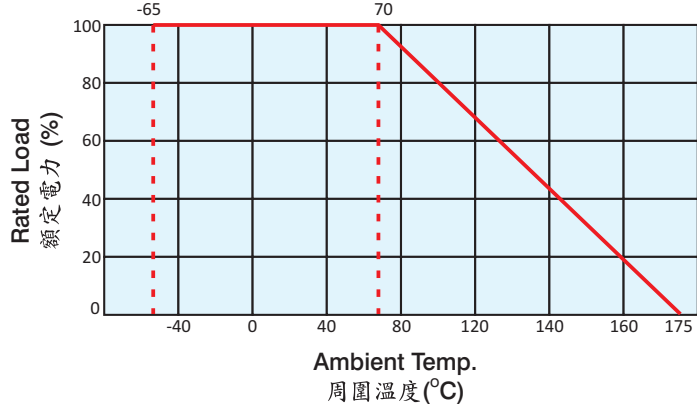
Rated Wattage	D±1	L±1	H±3	d±0.1	Resistance Range(Ω)	Max. Working Voltage
1/8W	1.7±0.2	3.7max.	28	0.45	10~1M	150V
1/4WS	1.7±0.2	3.7max.	28	0.45	10~1M	200V
1/4W	2.4±0.5	6.4	28	0.6	10~2M	250V
1/2WS	2.4±0.5	6.4	28	0.6	10~2M	300V
0.6W	2.4±0.5	6.4	28	0.6	10~2M	350V
1/2W	3.5	9	28	0.65	10~2M	350V
1W	4.5	11	28	0.8	10~2M	500V
1WL	5.0	15	28	0.8	10~2M	500V

Note: 1. To prevent electric corrosion, the resistance over 100KΩ should be limited at 50V.
2. Too low or too high ohmic values can be supplied only case by case.
3. Max. Overload Voltage is 2 times of Max. Working Voltage.
4. RN 1W & RN 1WL is coated by flameproof paint.

Derating Curve

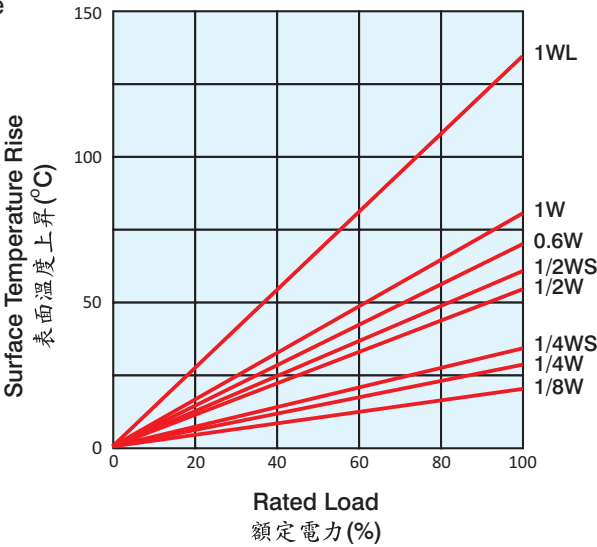
電力輕減曲線

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 , Temperature Coefficient and Package. e.g.

RN 1/4W 10R F 50ppm T/B
a. b. c. d. e. f.

- a. : Type(種類): Precision Metal Film Resistors are Called "RN".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/8W,1/4WS, 1/4W,1/2WS,0.6W,1/2W,1W,1WL.
- c. : Nominal Resistance(公稱電阻值) : 10Ω.
- d. : Tolerance(容許誤差): ±0.5%(D), ±1%(F) .
- e. : Temperature Coefficient (溫度係數) : ±25ppm/°C, ±50ppm/°C, Nil : ±100ppm/°C
- f. : Package (包裝方式):
T/R=tape & reel (捲裝); T/B=tape in box(帶裝); Nil= Bulk(散裝).

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	±1% (F) or ±0.5% (D)	-
溫度係數 Resistance Temp. Coeff.	±25 ppm / °C、±50 ppm / °C、±100 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, ΔR/R ≤ ±1 %	Rated voltage for 30 minutes 額定電壓 / 30分鐘
短時間過負載 Short Time Overload	±0.5%	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. Overload Voltage for 1 min. 施加最高過負載電壓 1 分鐘 (RN 1 W & 1 WL : AC 350V ; RN 1/4 WS : AC 300V)
絕緣電阻 Insulation Resistance	10,000MΩ	DC 100V or 500V megger
端子強度 Terminal Strength	No evidence of mechanical damage. 無機械性能損壞現象	1 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 ≤ ±0.25%	-65°C (30 min.) → Room Temp.(3 min.) → +175°C (30 min.) → Room Temp.(3 min.) / (5 cycles)
負載壽命 Load Life	ΔR/R ≤ ±2%	Rated power load 90 minutes ON 30 minutes OFF 70°C 1000 hours
耐濕壽命 Moisture-proof Load Life	ΔR/R ≤ ±1.5%	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. (RN 1W & RN 1WL).

METAL OXIDE FILM RESISTORS, FLAMEPROOF

不燃性金屬氧化皮膜電阻器



Features

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

特色

- 1. 電氣及機械上之性能極安定，具高度信賴性。
- 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。
- 4. 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. 235°C Max. 最高表面溫度 235°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	±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	1,000MΩ	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

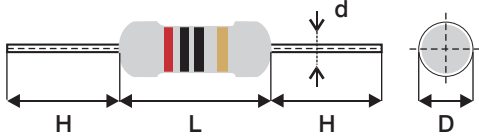
ENVIRONMENTAL CHARACTERISTICS

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
1/4W	2.6±0.5	6.8	28	0.6	0.22~33K	250V	400V
1/2W	3.0	9	28	0.65	0.22~33K	300V	400V
1W	4.5	11	28	0.8	0.22~50K	350V	600V
2W	5.0	15	28	0.8	0.22~50K	350V	600V
3WL	8.5	24	38	0.8	0.22~100K	500V	800V
4W	8.5	32	33	0.8	0.22~150K	500V	800V
5W	8.5	41	38	0.8	0.22~200K	750V	1000V
7W	8.5	53	38	0.8	0.22~200K	800V	1500V

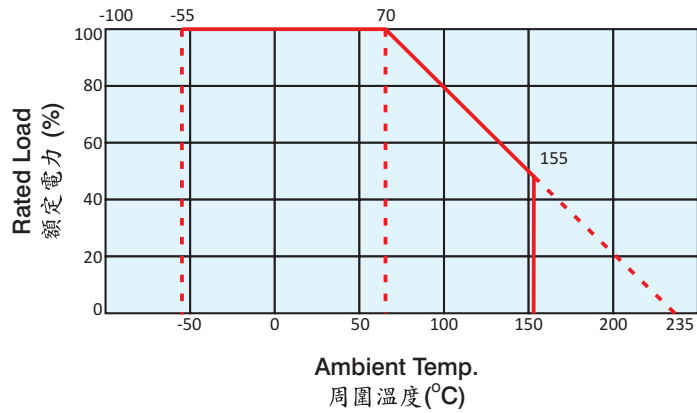
Note: 1. Too low or too high ohmic values can be supplied only case by case.
2. If high resistance values are required, we suggest using RDN series.
3. 0.22 ~ 9.1Ω are using alloy film.

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

Derating Curve

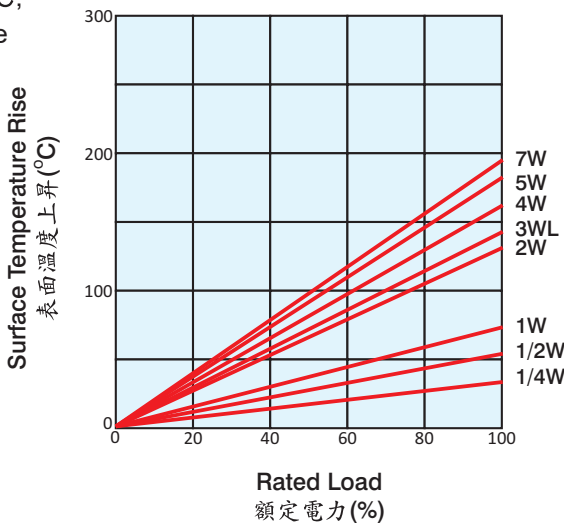
電力輕減曲線

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.

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

- a. : Type(種類): Metal Oxide Film Resistors, Flameproof are called "RSN".
- b. : Rated Wattage(額定電力) : Shown by "W", such as 1/4W, 1/2W, 1W, 2W, 3WL, 4W, 5W, 7W.
- 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).