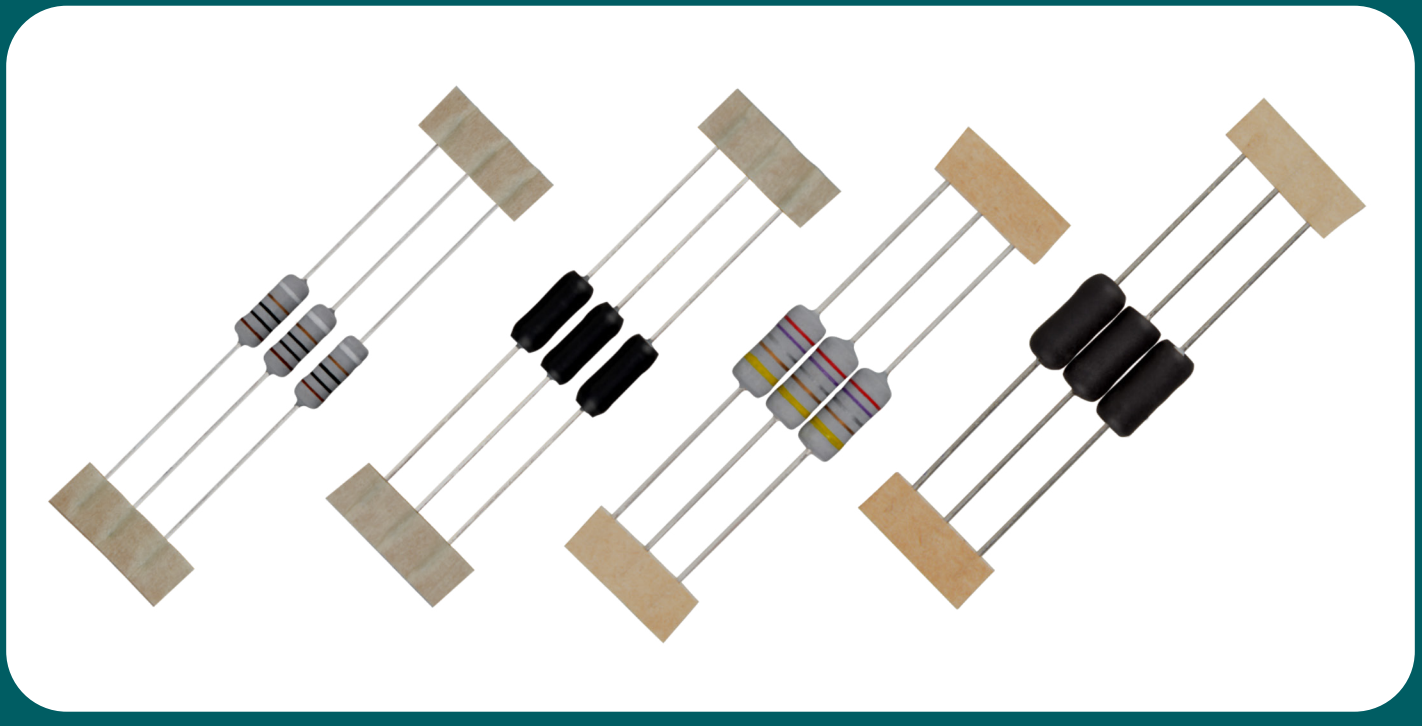
RXF

Fusible Wirewound Resistor

- Over Current Protection
- Surge Protection
- Inrush Current Protection
- Small Fault Current Protection
- Miniaturized Product
- RoHS & REACH Complaint

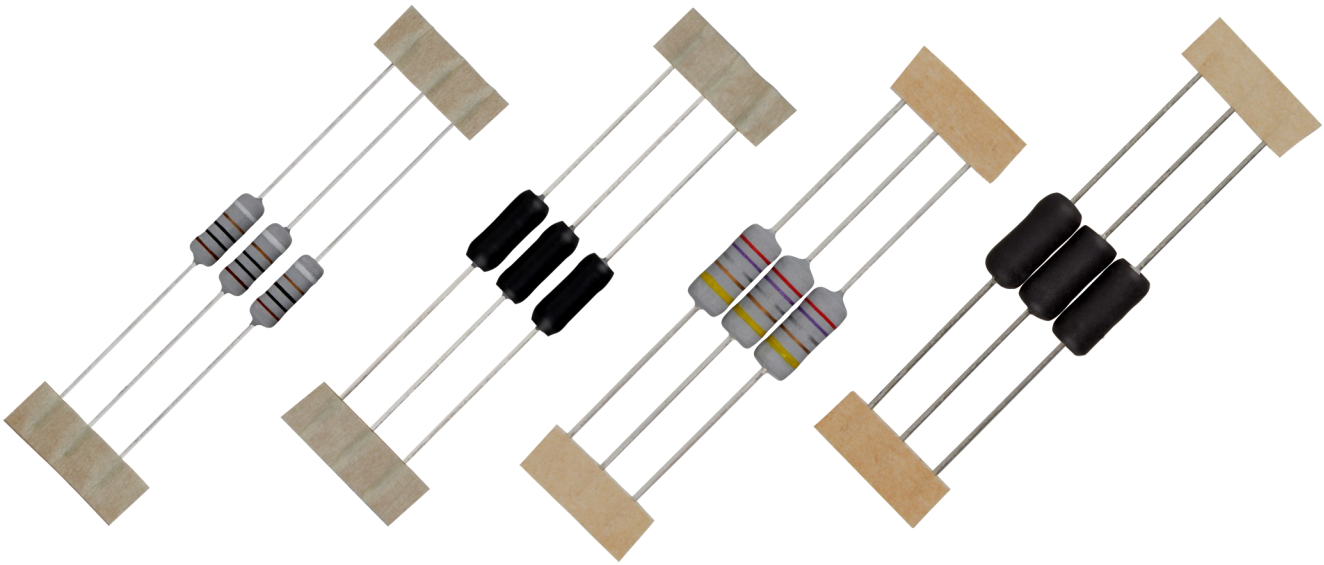


SET safe | SET fuse

Providing a Total Solution for High Standard Safety Circuit Protection

RXF

Fusible Wirewound Resistor



RXF

Features

- Over Current Protection
- Surge Protection
- Inrush Current Protection
- Small Fault Current Protection
- Miniaturized Product
- RoHS & REACH Complaint

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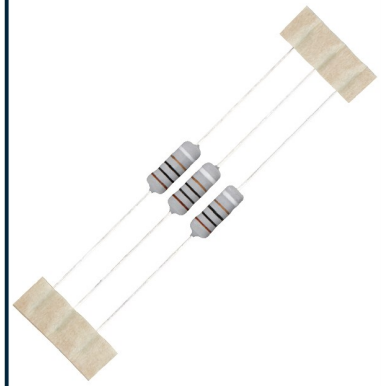
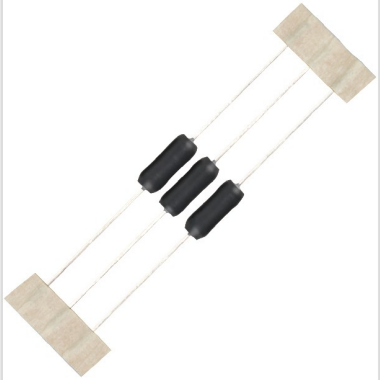
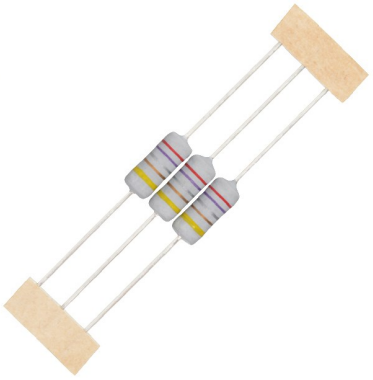
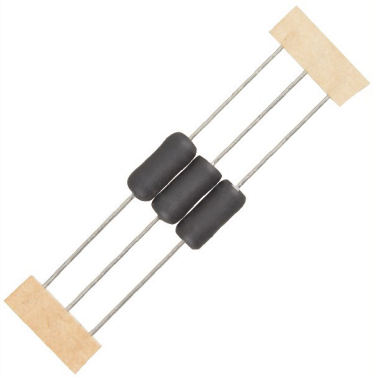
Fusible Wirewound Resistor (RXF) Features Overview

Page				
Shape				
Structure	Coating	With Tube	Coating	With Tube
R Resistance Range	0.47 Ω - 800 Ω		0.27 Ω - 1000 Ω	
	According to IEC60063-2015, resistance can be customized.			
P Power Type	1 W		2 W	
Dimensions	Φ3.5 mm × 9.0 mm	Φ3.8 mm × 10 mm	Φ4.5 mm × 11 mm	Φ4.8 mm × 12 mm
	The forming modes can be customized.			

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SET safe | SET fuse

RXF

Fusible Wirewound Resistor

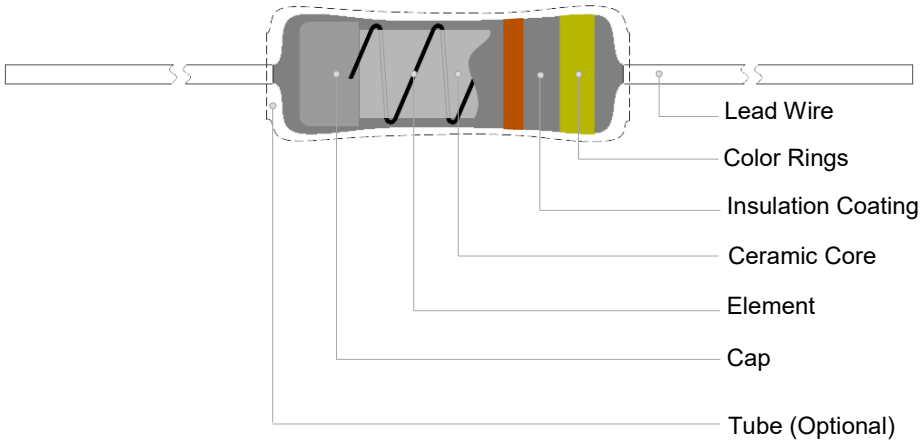
Description

Fusible Wirewound Resistor (RXF) is a power resistor, which is made by winding a resistive element on a ceramic core, and the core is coated by insulation coating. As a Protective Component, RXF works as a fixed resistor in normal operation, and is designed to open the circuit under the overload condition. SETsafe | SETfuse RXF is attractive owing to its Miniaturized Size and Superior Properties and it has already been approved by UL, cUL, CQC, VDE. It also complies with RoHS, REACH.

Applications

- Power Supply
- General Lighting
- Power Strip
- Personal Care Application
- Smart Home
- Security & Protection

Structure



Note: The color of schematic diagram is for reference only

Product Number System

RXF21	SC	4R7	J	-	T	60	M
Type	Rated Power (W)	Rated Resistance (Ω)	Resistance Tolerance (%)		Packaging	Total Length (mm)	TCR (10^{-6}/°C)
	SB: 1	R47=0.47	J: ±5		T: Taping	60	M: ± 350
	SC: 2	4R7=4.7	K: ±10		B: Bulk	72	T: 800 ~ 5000
		47R=47					

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RXF
Fusible Wirewound Resistor

Marking

Color		The First Number	The Second Number	Multiple	Resistance Tolerance	Power (W) [a]
	Black	0	0	10^0	N/A	CP wire
	Brown	1	1	10^1	N/A	N/A
	Red	2	2	10^2	N/A	N/A
	Orange	3	3	10^3	N/A	N/A
	Yellow	4	4	10^4	N/A	2
	Green	5	5	10^5	N/A	N/A
	Blue	6	6	10^6	N/A	N/A
	Purple	7	7	10^7	N/A	N/A
	Grey	8	8	10^8	N/A	N/A
	White	9	9	10^9	N/A	1
	Gold	N/A	N/A	10^{-1}	J: ± 5%	N/A
	Silver	N/A	N/A	10^{-2}	K: ± 10%	N/A

[a]: When the lead is CP wire, the last color ring is black.

Agency Approvals

Agency Information		Standards	No.
c UL us E324712	cURus	UL1412	E324712
VDE REG E012	VDE	IEC 62368-1	40035527
cqc V019518	CQC	SJ 2865	CQC10001049758 CQC10001049759 CQC10001049760

Design to Standards

Standards	Standards Name
IEC 60115-1	Fixed Resistors for Use in Electronic Equipment
IEC 62368-1	Audio/Video, Information and Communication Technology Equipment-Part 1: Safety Requirements
UL1412	Fusing Resistors and Temperature-Limited Resistors for Radio- and Television-Type Appliances
SJ 2865	Detail Specification for Electronic Components
GB/T 17626.5	Electromagnetic Compatibility-Testing and Measurement Techniques-Surge Immunity Test
GB/T 5729	Fixed Resistors for Use in Electronic Equipment

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Glossary

Item	Description
R	**Rated Resistance** Resistance value for which the resistor has been designed, and which is generally used for denomination of the resistor. — (IEC60115-1)
U_N	**Rated Voltage** The d.c. or a.c. r.m.s. voltage calculated from the square root of the product of the rated resistance and the rated dissipation. — (IEC60115-1)
TCR	**Temp. Coefficient of Resistance** Relative variation of resistance between two given temp. divided by the difference in the temp. producing it. — (IEC60115-1)

Performance Test

Mechanical Performance Test

Item	Test Condition	Criterion
Tensile Test	A pin withstand 10 N × 60 s	No Visible Damage ΔR ≤ ± (1%R + 0.05 Ω)
Twist Test	A pin 2 mm away from body, bent 90°, twist 180° × 2 times.	No Visible Damage ΔR ≤ ± (1%R + 0.05 Ω)

Environmental Test

Item	Test Condition	Criterion
Temp. Cycle	1. - 55 °C × 30 minutes 2. Room Temp. × (10 ~ 15) minutes 3. 85 °C × 30 minutes 4. Room Temp. × (10 ~ 15) minutes 5. 5 Cycles from Step 1 to Step 4	ΔR ≤ ± (2%R + 0.05 Ω)
Endurance at 25 °C	Rated Voltage 1.5 hours ON, 0.5 hours OFF at 25 °C ± 2 °C, total for 1,000 hours.	Legible Marking, No Visible Damage. ΔR ≤ ± (5%R + 0.1 Ω)

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Electrical Performance Test

Item	Test Condition	Criterion
TCR	$TCR=\frac{(R_2-R_1)}{R_1(T_2-T_1)}\times 10^6$ R_1: Resistance Value at 25 °C R_2: Resistance Value at 125 °C T_1: 25 °C, T_2: 125 °C	Within Specified Value
Short-Time Overload	$2.5U_N$ × 5 s	No Visible Damage ΔR ≤ ± (2%R + 0.05 Ω)
Insulation Resistance	Foil Method: Apply 500 VDC between both terminations of the resistor connected together as one pole and the metal foil as the other pole.	Insulation Resistance ≥ 1,000 MΩ
Voltage Proof	Foil Method: Apply 250 VAC × 1 minute (CP wire type) or 350 VAC × 1 minute (coating type) or 900 VAC × 1 minute (with tube) between terminations and the metal foil.	No Breakdown or Flashover
Fusing Test	Apply specified test current to the resistor (constant current source)	Fusing Time ≤ 60 s
Solderability	Solder Bath (non-activated flux) Scaling Powder: 25% Rosin Alcohol Bath Temp.: (255 ± 5) °C Depth of Immersion (From the seating plane or component body): (1.5 to 2.0) mm Time of Immersion: (2.5 ± 0.5) s	Soldering Area ≥ 95%
Surge Test	Combination Wave Generator (1.2/50 μs, 8/20 μs, 2 Ω), apply open-circuit voltage 1.0 kV (R ≤ 10 Ω) or 2.0 kV (R > 10 Ω) to the resistor, 10 pulses test at 1 minute Interval.	Resistor shall not open after the test

RXF

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ATTENTION

Cold Resistance Test

1. If product TCR is not less than 350 (10^{-6}/°C), the measured resistance value shall be corrected as the relative resistance value under 25 °C according to TCR formula.
2. Resistance Measurement (4-terminal test).

Usage

1. Do not touch the resistor body or pins directly when power is on, to avoid burn or electric shock.
2. When air pressure is from 80 kPa to 106 kPa, the relative altitude shall be 2000 m to - 500 m.

Replacement

As RXF is a non-resettable product, for safety sake, please use the same type of RXF for replacement.

Storage

1. Please store RXF with ambient temp. 10 °C to 30 °C and relative humidity 30% to 75%.
2. Do not store the RXF at the high temp., high humidity or corrosive gas environment, avoid influencing the solderability of the pins, please use them up within 1 year after receiving the goods.

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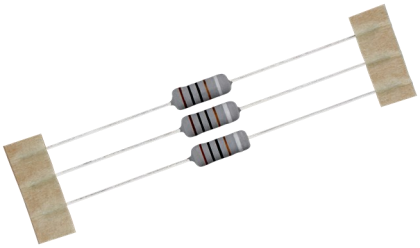
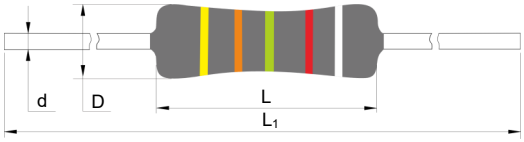
RXF
Fusible Wirewound Resistor

RXF21SB Series

Coating

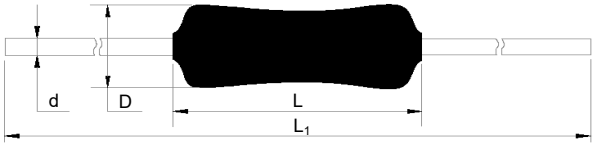


Dimensions (mm)



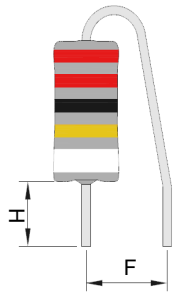
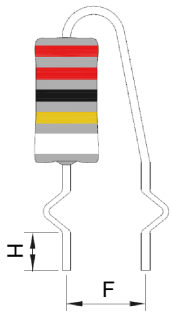
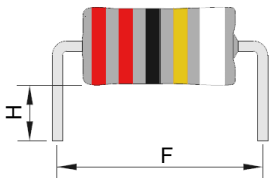
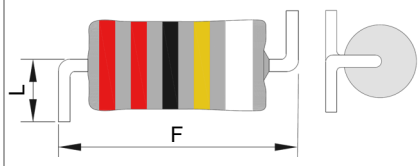
L	L_1	D	d
9.0 ± 1.0	60.0 ± 2.0	Φ3.5 ± 0.5	Φ0.56 / Φ0.50 ± 0.05

With Tube



L	L_1	D	d
10.0 ± 1.0	60.0 ± 2.0	Φ3.8 ± 0.5	Φ0.56 / Φ0.50 ± 0.05

Leads Forming Types

Type A		Type B		Type C		Type D	
							
H (mm)	F (mm)	H (mm)	F (mm)	H (mm)	F (mm)	L (mm)	F (mm)
3.5 ± 0.5	5.0 / 7.5 ± 0.5	3.5 ± 0.5	5.0 / 7.5 ± 0.5	3.5 ± 0.5	(14.0 ~ 18.0) ± 0.5	3.0 ± 0.5	13 ± 1
The forming modes and length of lead wires can be customized							

Electrical Characteristics

Item	Parameter
Rated Power (***P***)	1 W
Rated Resistance (***R***)	(0.27 ~ 800) Ω
Resistance Tolerance	5% (E24) , 10% (E12)
Rated Current (I_N)	$I_N = \sqrt{P / R}$
Rated Voltage (U_N)	$U_N = \sqrt{P \times R}$
Surge（For Reference Only）	2.0 kV (R > 10 Ω)
	1.0 kV (R ≤ 10 Ω)

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RXF

Specifications

Series	Rated Power	Resistance Range	Resistance Tolerance	Operating Temp. Range	Agency Approvals			Environmental Status	
					c UL us E324712	CQC V019518	VDE REG E012	RoHS	REACH
	(W)	(Ω)	(%)	(℃)	cURus	CQC	VDE		
RXF21SB	1	0.47 ~ 51	± 5, ± 10	- 55 ~ 155	●	●	●	●	●
		0.27 ~ 800			●	N/A	●	●	●

Non-inductive resistor can be customized as required

Resistance Selection Table (According to IEC60063-2015, blue font is SETsafe | SETfuse common resistance)

Rated Resistance	Code	Rated Resistance	Code	Rated Resistance	Code	Rated Resistance	Code
(Ω)		(Ω)		(Ω)		(Ω)	
0.10	R10	1.0	1R0	10	10R	100	100R
0.11	R11	1.1	1R1	11	11R	110	110R
0.12	R12	1.2	1R2	12	12R	120	120R
0.13	R13	1.3	1R3	13	13R	130	130R
0.15	R15	1.5	1R5	15	15R	150	150R
0.16	R16	1.6	1R6	16	16R	160	160R
0.18	R18	1.8	1R8	18	18R	180	180R
0.20	R20	2.0	2R0	20	20R	200	200R
0.22	R22	2.2	2R2	22	22R	220	220R
0.24	R24	2.4	2R4	24	24R	240	240R
0.27	R27	2.7	2R7	27	27R	270	270R
0.30	R30	3.0	3R0	30	30R	300	300R
0.33	R33	3.3	3R3	33	33R	330	330R
0.36	R36	3.6	3R6	36	36R	360	360R
0.39	R39	3.9	3R9	39	39R	390	390R
0.43	R43	4.3	4R3	43	43R	430	430R
0.47	R47	4.7	4R7	47	47R	470	470R
0.51	R51	5.1	5R1	51	51R	510	510R
0.56	R56	5.6	5R6	56	56R	560	560R
0.62	R62	6.2	6R2	62	62R	620	620R
0.68	R68	6.8	6R8	68	68R	680	680R
0.75	R75	7.5	7R5	75	75R	750	750R
0.82	R82	8.2	8R2	82	82R	N/A	N/A
0.91	R91	9.1	9R1	91	91R	N/A	N/A

RXF

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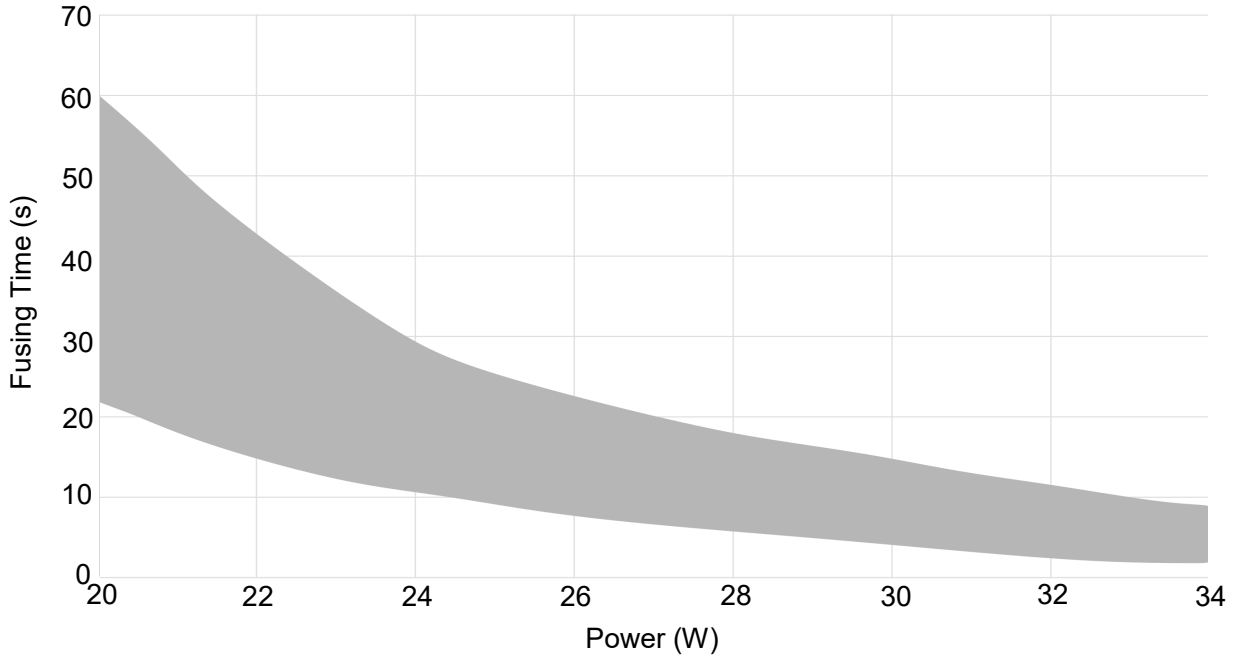
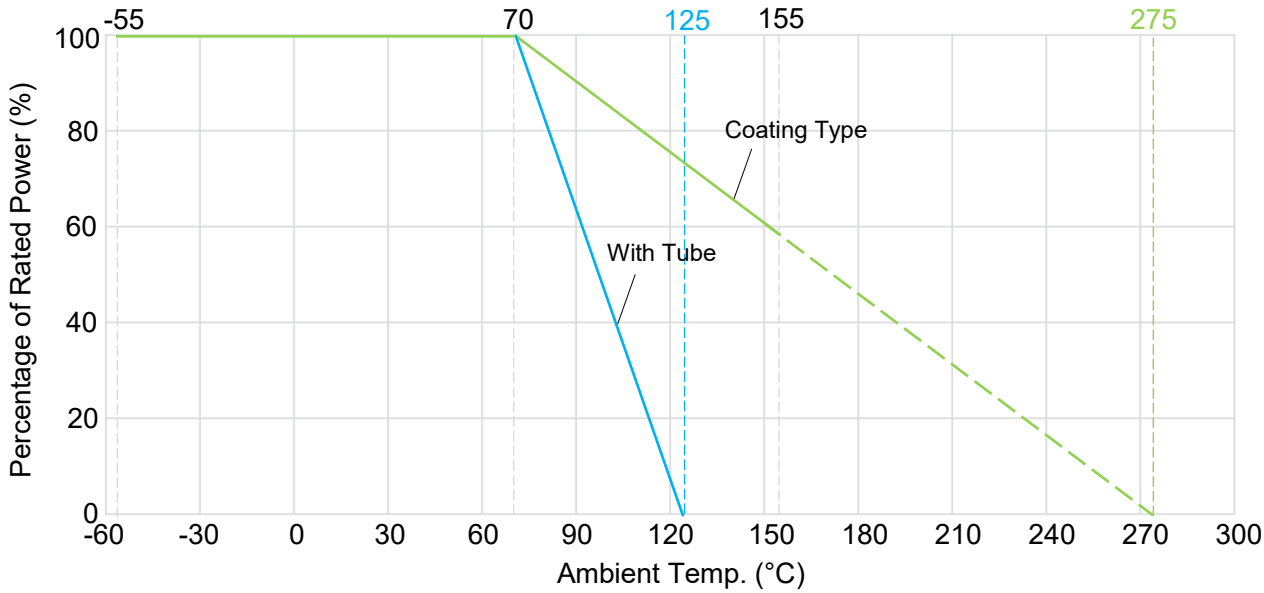
Fusing Time Curve (For Reference Only)

Power & Time curve, showing fusing time at multi-times rated power (ambient temp.: 25 °C ± 2 °C).



Rated Power Derating Curve (For Reference Only)

When the ambient temp. exceeds 25 ºC, the rated power value declines as the following curve.
(The Max. working temp. of polyolefin tube is 125 °C)



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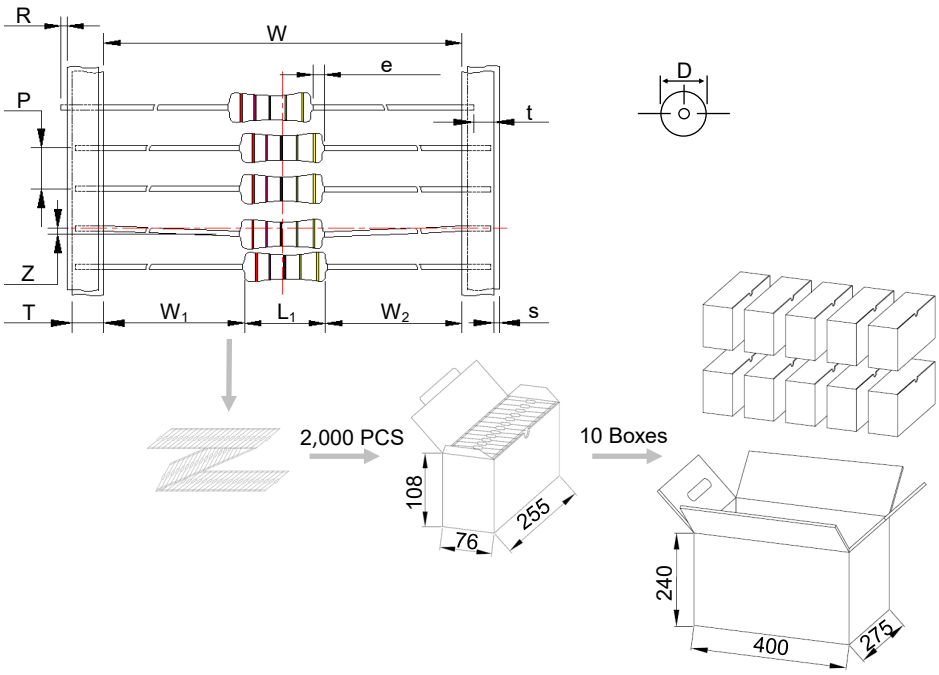
Packaging Information

Taping



Symbol	Dimensions (mm)
L_1	9.0 ± 1.0
W	52 ± 2
D	Φ3.5 ± 0.5
P	5.0 ± 0.5
$\lvert W_1 - W_2 \rvert$	2.0 Max.
T	6.0 ± 0.5
Z	1.2 Max.
R	0.5 Max.
t	4.0 Max.
e	2.0 Max.
s	0.8 Max.

Item	Box	Carton
Dimensions (mm)	255 × 76 × 108	400 × 275 × 240
Quantity (PCS)	2,000	20,000
Gross Weight (kg)		8.4 ± 10%

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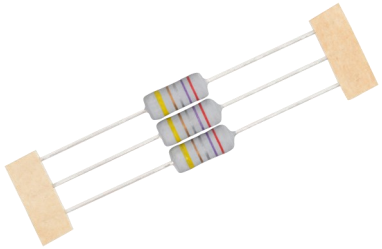
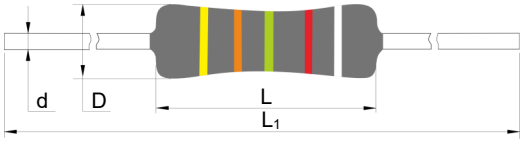
Coating

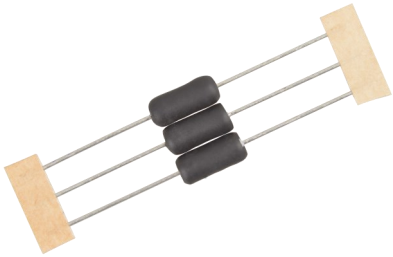


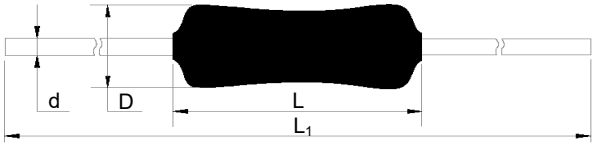
Dimensions (mm)



L	L_1	D	d
11.0 ± 1.0	60.0 / 72.0 ± 2.0	Φ4.5 ± 0.5	Φ0.70 / Φ0.60 ± 0.05

With Tube

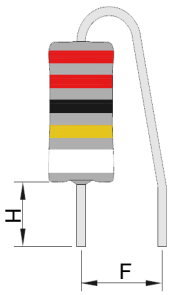
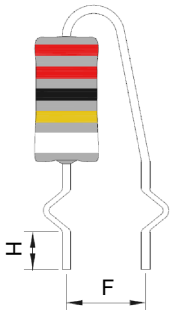
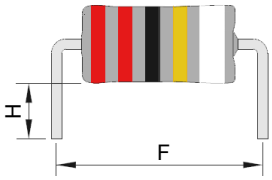
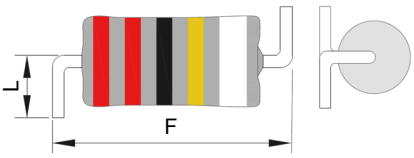




L	L_1	D	d
12.0 ± 1.0	60.0 / 72.0 ± 2.0	Φ4.8 ± 0.5	Φ0.70 / Φ0.60 ± 0.05

Blue font is SETsafe | SETfuse common length

Leads Forming Types

Type A		Type B		Type C		Type D	
							
H (mm)	F (mm)	H (mm)	F (mm)	H (mm)	F (mm)	L (mm)	F (mm)
3.5 ± 0.5	5.0 / 7.5 ± 0.5	3.5 ± 0.5	5.0 / 7.5 ± 0.5	3.5 ± 0.5	(14.0 ~ 18.0) ± 0.5	3.0 ± 0.5	13 ± 1
The forming modes and length of lead wires can be customized							

Electrical Characteristics

Item	Parameter
Rated Power (***P***)	2 W
Rated Resistance (***R***)	(0.27 ~ 1000) Ω
Resistance Tolerance	5% (E24) , 10% (E12)
Rated Current (I_N)	$I_N = \sqrt{P / R}$
Rated Voltage (U_N)	$U_N = \sqrt{P \times R}$
Surge（For Reference Only）	2.0 kV (R > 10 Ω)
	1.0 kV (R ≤ 10 Ω)

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RXF

Specifications

Series	Rated Power	Resistance Range	Resistance Tolerance	Operating Temp. Range	Agency Approvals			Environmental Status	
					c UL us E324712	CQC V019518	VDE REG E012	RoHS	REACH
	(W)	(Ω)	(%)	(℃)	cURus	CQC	VDE		
RXF21SC	2	3 ~ 68	± 5, ± 10	- 55 ~ 155	●	●	●	●	●
		0.27 ~ 1000			●	N/A	●	●	●

Non-inductive resistor can be customized as required

Resistance Selection Table (According to IEC60063-2015, blue font is SETsafe | SETfuse common resistance)

Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code	Rated Resistance (Ω)	Code
0.10	R10	1.0	1R0	10	10R	100	100R
0.11	R11	1.1	1R1	11	11R	110	110R
0.12	R12	1.2	1R2	12	12R	120	120R
0.13	R13	1.3	1R3	13	13R	130	130R
0.15	R15	1.5	1R5	15	15R	150	150R
0.16	R16	1.6	1R6	16	16R	160	160R
0.18	R18	1.8	1R8	18	18R	180	180R
0.20	R20	2.0	2R0	20	20R	200	200R
0.22	R22	2.2	2R2	22	22R	220	220R
0.24	R24	2.4	2R4	24	24R	240	240R
0.27	R27	2.7	2R7	27	27R	270	270R
0.30	R30	3.0	3R0	30	30R	300	300R
0.33	R33	3.3	3R3	33	33R	330	330R
0.36	R36	3.6	3R6	36	36R	360	360R
0.39	R39	3.9	3R9	39	39R	390	390R
0.43	R43	4.3	4R3	43	43R	430	430R
0.47	R47	4.7	4R7	47	47R	470	470R
0.51	R51	5.1	5R1	51	51R	510	510R
0.56	R56	5.6	5R6	56	56R	560	560R
0.62	R62	6.2	6R2	62	62R	620	620R
0.68	R68	6.8	6R8	68	68R	680	680R
0.75	R75	7.5	7R5	75	75R	750	750R
0.82	R82	8.2	8R2	82	82R	820	820R
0.91	R91	9.1	9R1	91	91R	910	910R

RXF

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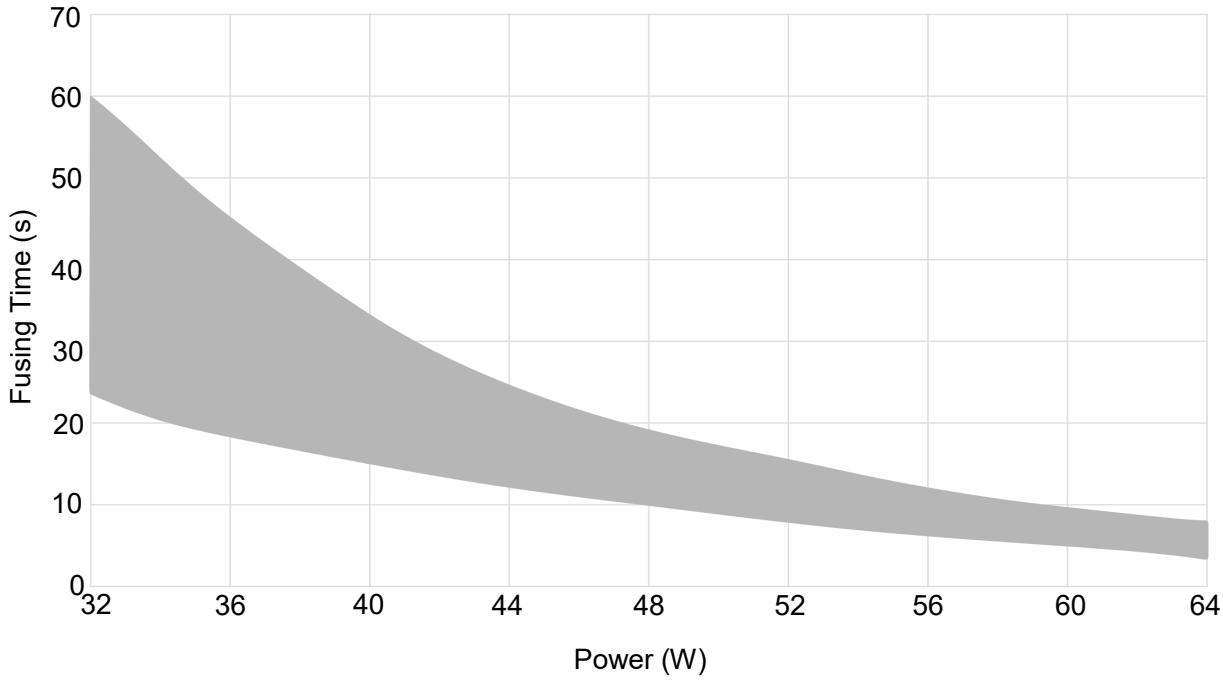
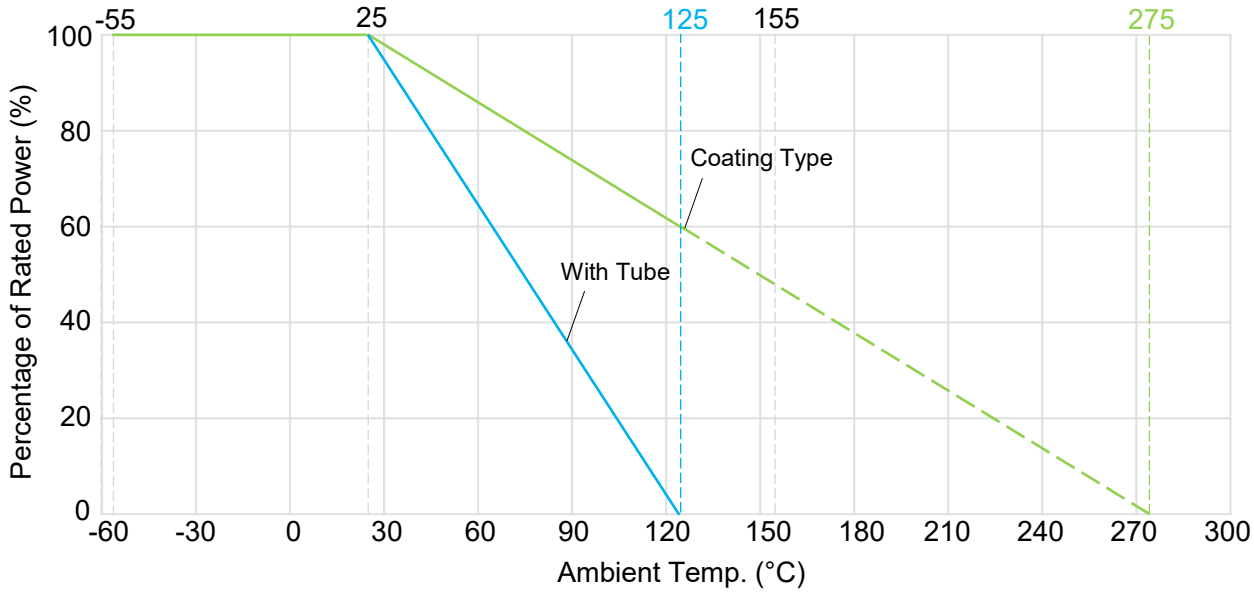
Fusing Time Curve (For Reference Only)

Power & Time curve, showing fusing time at multi-times rated power (ambient temp.: 25 °C ± 2 °C).



Rated Power Derating Curve (For Reference Only)

When the ambient temp. exceeds 25 ºC, the rated power value declines as the following curve.
(The Max. working temp. of polyolefin tube is 125 °C)



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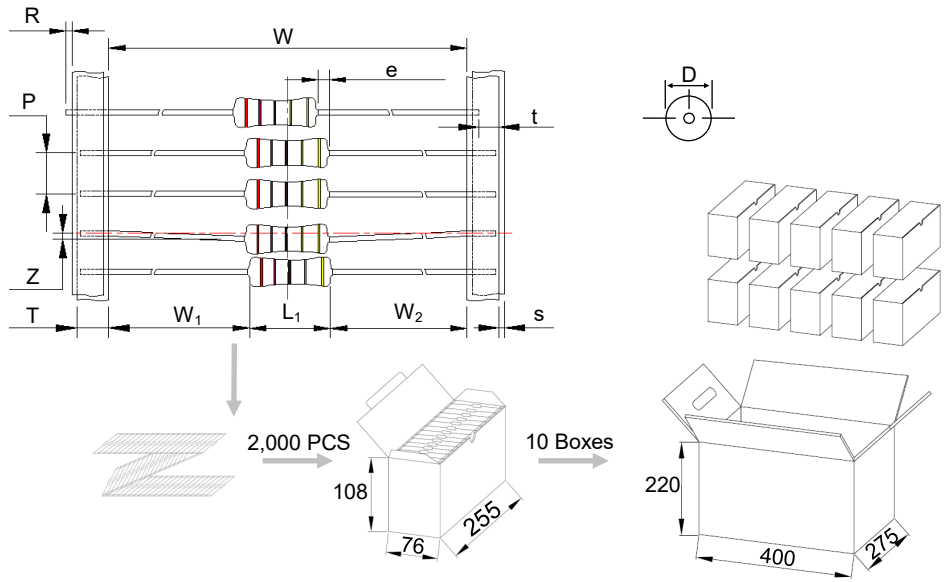
Packaging Information

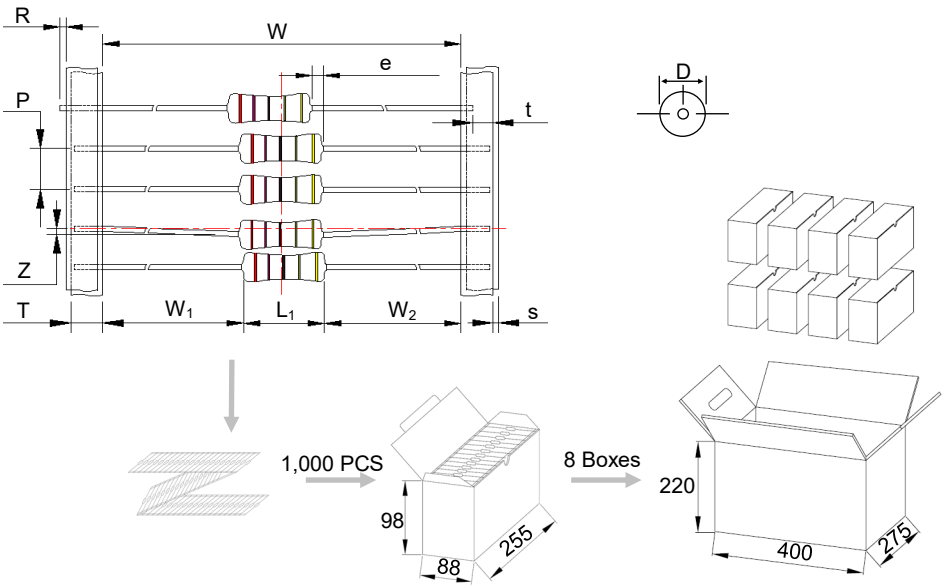
Taping（Total length：60 mm）



Symbol	Dimensions (mm)
L_1	11.0 ± 1.0
W	52 ± 2
D	Φ4.5 ± 0.5
P	5.0 ± 0.5
$\lvert W_1 - W_2 \rvert$	2.0 Max.
T	6.0 ± 0.5
Z	1.2 Max.
R	0.5 Max.
t	4.0 Max.
e	2.0 Max.
s	0.8 Max.

Item	Box	Carton
Dimensions (mm)	255 × 76 × 108	400 × 275 × 220
Quantity (PCS)	1,000	10,000
Gross Weight (kg)		8.2 ± 10%

Taping（Total length：72 mm）



Symbol	Dimensions (mm)
L_1	11.0 ± 1.0
W	63 ± 2
D	Φ4.5 ± 0.5
P	5.0 ± 0.5
$\lvert W_1 - W_2 \rvert$	2.0 Max.
T	6.0 ± 0.5
Z	1.2 Max.
R	0.5 Max.
t	4.0 Max.
e	2.0 Max.
s	0.8 Max.

Item	Box	Carton
Dimensions (mm)	255 × 88 × 98	400 × 275 × 220
Quantity (PCS)	1,000	8,000
Gross Weight (kg)		7.2 ± 10%

RXF

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