

规格承认书

Specification for approval

产品名称: **KNPM MFM CFM MOFM 无脚 MELF SMD 贴片**
绕线电阻金属皮膜电阻

Product Type: KNPM MFM CFM MOFM Leadless MELF
SMD Fusible Wirewound Resistor Metal Film Resistor

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1. Scope

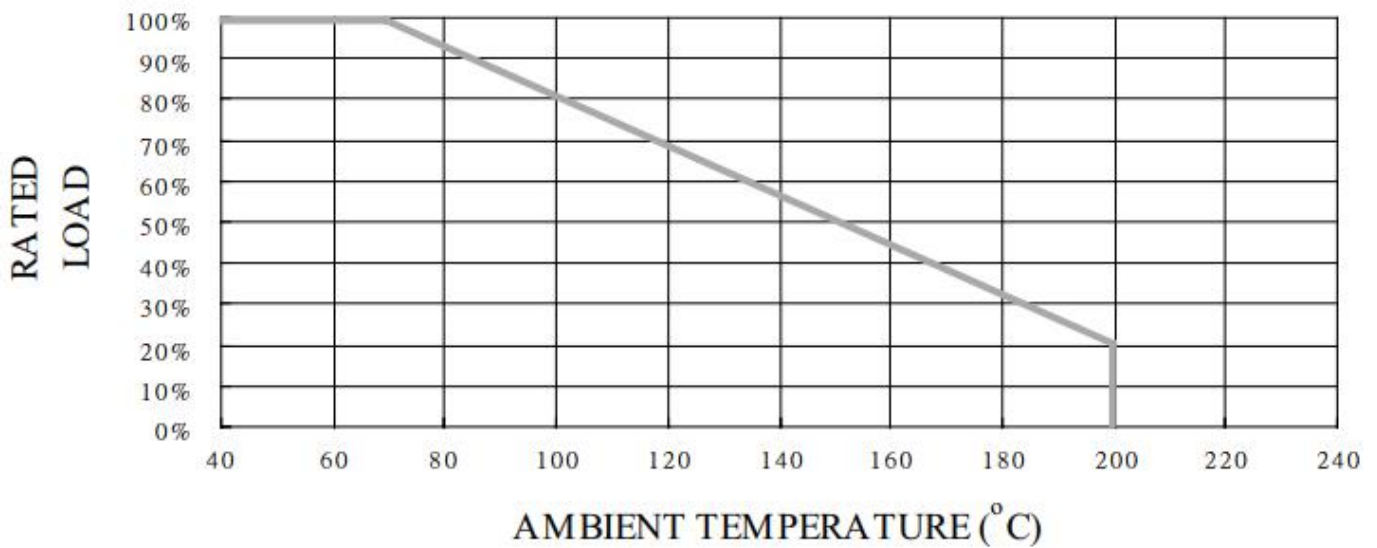
This standard applies to electric light sources, switching power supplies, chargers, communication equipment, medical electronic equipment, test and measurement equipment, automobiles.

Replacing plug-in resistors in electronic equipment such as electronics, industrial products, and household appliances.

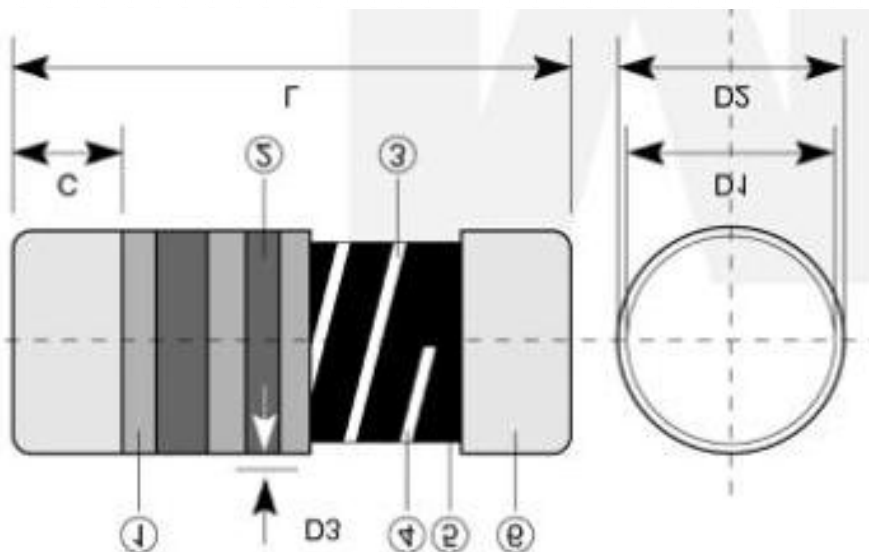
2. Features

- 1) Use non-combustible / epoxy resin coatings with safety features of non-combustible and insulating;
- 2) Miniaturization for high-density placement;
- 3) Meet the requirements of lead-free (Pb) and lead-containing soldering processes;
- 4) Can be used in automatic surface mount (SMD) assembly systems. Suitable for automatic welding by wave soldering and reflow soldering;

3. Power Derating curve



4. Structure dimension



Size	Dimension(mm)		
	L	D1	D2 Max.
0204	3.5±0.2	1.1±0.1	1.4±0.2
0207	5.9±0.2	1.7±0.1	2.1±0.2
0309	Single cap 8.5±0.2 Double cap 8.7±0.2	2.5±0.1	Single cap 3.1±0.2 Double cap 3.0±0.2

5. Material list

Code	Name	Material
1	Coating	Non-combustible / epoxy resin coating
2	Color ring	Flame retardant coating
3	Cuting wire	--
4	Fuse element	Alloy wire
5	Magnetic bar	Alumina ceramic body / resistive film
6	Cap	Tinned iron cap

6. Part Numbering

KNPM	1	100	J	S	0309
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KNPM : Series name

1 : Power Rating -- 0.125W,0.25W,0.5W,1W,2W.

100 : Resistance value -- E24 norminal resistance

J : Resistance tolerance -- F=±1%,G=±2%,J=±5%

S : Size code -- It is normal size without code; S- small size ; X-Ultra-small size.

7. Electrical Performances

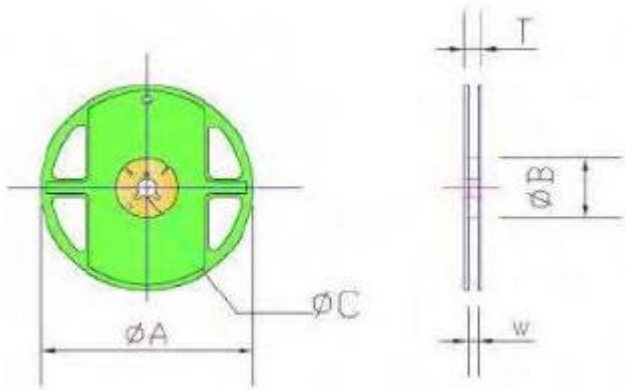
Size	Type	Power range(70C)	Temperature range °C	Insulation voltage V	Resistance range(Ω)
					±1%、±2%、±5%
0204	0.125W 0.25WS 0.5W-X	-55 ~ 155	200	MFM 0.1~2.2M CFM 1~10M MOFM 1~10K	
0207	0.25W 0.5W-S 1W-X	-55 ~ 155	250	KNPM 0.22~100 MFM 0.1~10M CFM 1~10M MOFM 1~10K	
0309	0.5W 1W-S 2W-X	-55 ~ 155	350	KNPM 0.22~300 MFM 0.1~10M CFM 1~10M MOFM 1~10K	

8. General datas

Nominal resistance tolerance	± 5%
Climate category	55/155/21
Low air pressure	8.5kpa
Stability level	5%
Resistance change	Limit value
Long-term test	± (5%R+0.1Ω)
Short-term test	± (1% R + 0.05 Ω)
Rated current	I2(A)=P(W)/R(Ω)

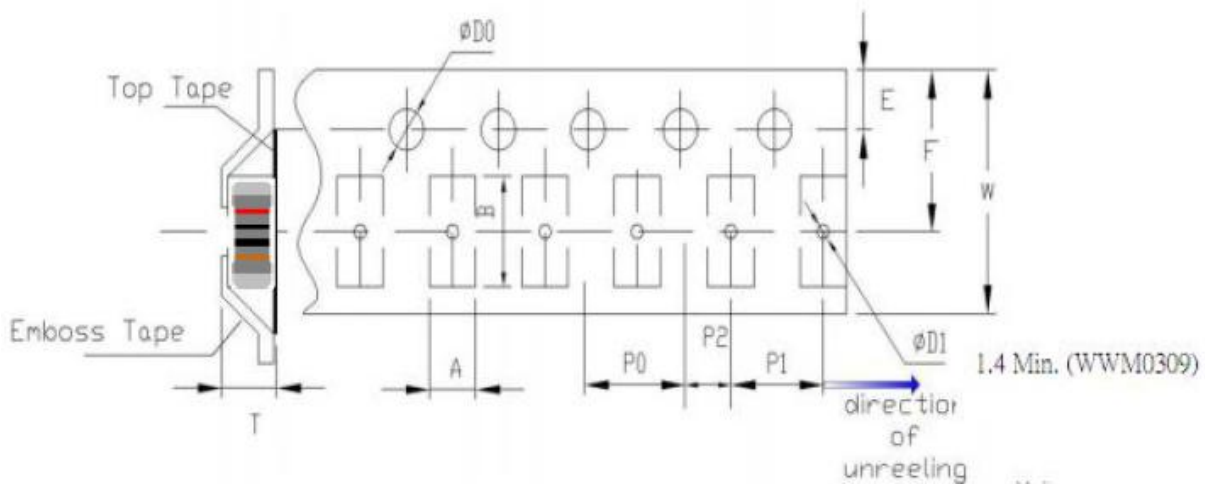
9. Package quantity & size

9.1 Tape Size



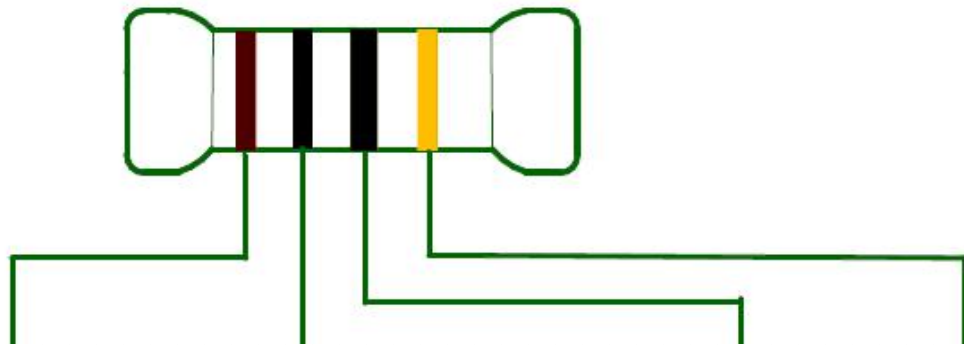
Size	ϕA (mm)	ϕB (mm)	ϕC (mm)	W	T	QTY(pcs)
0204	179±2	60±2	13±0.5	9±1	12±0.5	3000
0207	179/330±2	90±2	13±0.5	10±1	14.5±1	2000/5000
0309	330±2	90±2	13±0.5	16±1	19.5±1	2500

9.2 Paper size



Size	Dimension(mm)				
	A	B	W	E	F
0204	1.6±0.2	3.8±0.2	8.0±0.2	1.75±0.1	5.25±0.1
0207	2.4±0.2	6.0±0.2	12.0±0.2	1.75±0.1	7.25±0.1
0309	3.6±0.2	8.9±0.2	16.0±0.2	1.75±0.1	9.25±0.1
	P0	P1	P2	D0	T
0204	4.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	1.65±0.1
0207	4.0±0.1	4.0±0.1	2.0±0.1	1.5±0.1	2.5±0.1
0309	4.0±0.1	8.0±0.1	2.0±0.1	1.5±0.1	3.5±0.1

10. Color marking



Color	First digit	Second digit	Third digit	Malutiplier	Tolerance
Black	0	0	0	10 ⁰	-
Brown	1	1	1	10 ¹	±1
Red	2	2	2	10 ²	±2
Orange	3	3	3	10 ³	-
Yellow	4	4	4	10 ⁴	-
Green	5	5	5	10 ⁵	±0.5
Blue	6	6	6	10 ⁶	±0.25
Violet	7	7	7	10 ⁷	±0.1
Gray	8	8	8	10 ⁸	-
White	9	9	9	10 ⁹	-
Gold	-	-	-	10 ⁻¹	±5
Sliver	-	-	-	10 ⁻²	±10
Plain	-	-	-	-	-

11. Performance Specifications

Characteristics	Test Conditions	Limits
Short Time Over Load	IEC 60115-1 4.13 5 seconds 2.5x rated voltage (not over max. overload voltage)	±2%
Load Life In Humidity	IEC 60115-1 4.24 56 days rated load (not over max. working voltage) at (40±2)°C and (93±3)% relative humidity	
Load Life 1,000 hours	IEC 60115-1 4.25.1 Rated load (not over max. working voltage) with 1.5 hours ON, 0.5 hours OFF, at (70±2)°C	±5%
Resistance To Soldering Heat	IEC 60115-1 4.18.2 Dip the resistor into a solder bath measured (260±5)°C and hold	±1%

	it for a 10±1 seconds	
Solderability	IEC 60115-1 4.17.2 Solder area covered after (230±3)°C/(2±0.2) seconds with flux applied	95% Min.
Vibration	IEC 60115 4.22 Six hours in each parallel and axial direction with a simple harmonic motion having an amplitude of 0.75mm and 10 to 500 Hz.	±1%
Thermal Endurance	IEC 60115-1 4.25.3 1000 hours at 200°C without load	±1%
Thermal Shock	IEC 60115-1 4.19 -55°C 30minutes, +155°C 30minutes, 5 cycles	±3%
Surge Test	Surge voltage = $\sqrt{(12,000 PR)}$ DC P is power rating, R is resistance value, surge voltage is not more than listed at right. Surge spec = 1.2/50µs Period = 60 sec Number of surges = 100	±5%