

## MFM 0102 series Metal Film MELF Resistors( lead-free)

### ◆ Features

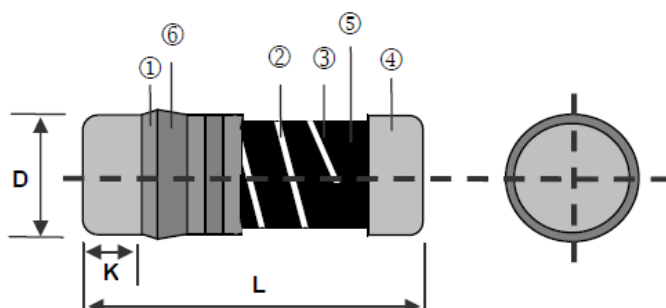
- » Excellent overall stability
- » Extremely low TCR down to  $\pm 10$  PPM/ $^{\circ}\text{C}$
- » Tight tolerance down to  $\pm 0.1\%$ .



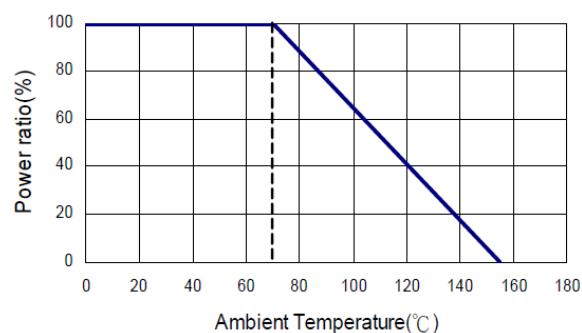
### ◆ Application

- » Telecommunication
- » Medical Equipment
- » Measurement/Testing Equipment

### ◆ Dimension



### ◆ Derating Curve



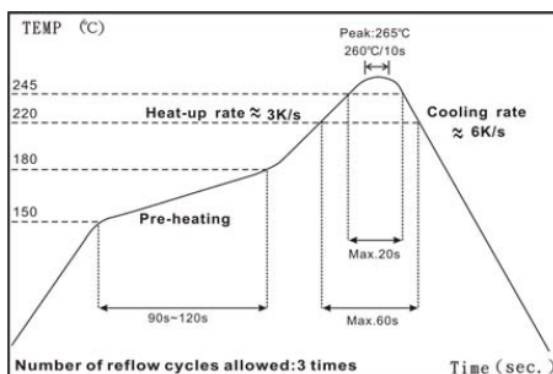
①	Insulation Coating	④	Electrode Cap
②	Trimming Line	⑤	Resistor Layer
③	Ceramic Rod	⑥	Marking

Type	DIMENSION(mm)				
	L		ØD	K	Weight(1Kpcs)
0102	2	+0.1 -0.1	1.3 $\pm$ 0.05	0.5	7.2g

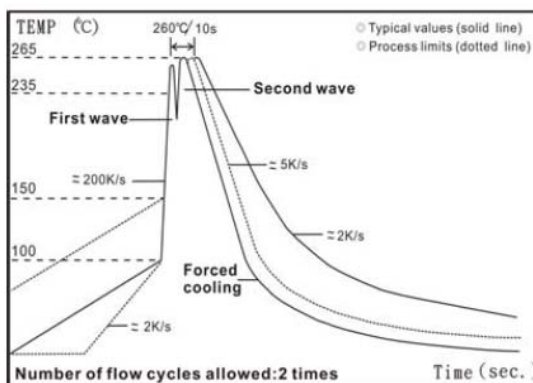
## ◆ Part Number

MFM	A	20	F	C2	R	-	1K
<b>Type</b>	<b>Size</b>	<b>Watt</b>	<b>Tolerance</b>	<b>TCR Value</b>	<b>Packing</b>		<b>R value</b>
MFM	A=0102	1/8W = 12 1/5W = 20	J = ± 5% F = ± 1% D = ± 0.5% C = ± 0.25% B = ± 0.1%	C1=100ppm C2=50ppm C3=25ppm C4=15ppm	R = Taping Reel B = Bulk		1KΩ = 1K 100Ω = 100R

## ◆ Soldering Condition



IR Reflow Soldering



Wave Soldering (Flow Soldering)

- (1) Time of IR reflow soldering at maximum temperature point 260°C : 10s
- (2) Time of wave soldering at maximum temperature point 260°C : 10s
- (3) Time of soldering iron at maximum temperature point 410°C : 5s

## ◆ Standard Electrical Characteristics

Size	Power rating at 70℃	Resistance					Operating Temp. Range	Max. Working Voltage	Max. Overload Voltage	TCR (PPM/℃)
		±0.1%	±0.25%	±0.5%	±1%	±5%				
0102	1/8W	100Ω-56KΩ					-55℃ to +155℃	150V	300V	±15
		100Ω-100KΩ								±25
		-		1Ω-1MΩ						±50
		-			0.22Ω-2MΩ					±100

## ◆ High Power Rating Electrical Characteristics

Size	Power rating at 70°C	Resistance					Operating Temp. Range	Max. Working Voltage	Max. Overload Voltage	TCR (PPM/°C)
		±0.1%	±0.25%	±0.5%	±1%	±5%				
0102	1/5W	100Ω-56KΩ					-55°C to +155°C	200V	400V	±15
		100Ω-100KΩ								±25
		-		1Ω-1MΩ						±50
		-			0.5Ω-2MΩ					±100

Operating Voltage= $\sqrt{P \cdot R}$  or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$  or Max. overload voltage listed above, whichever is lower.

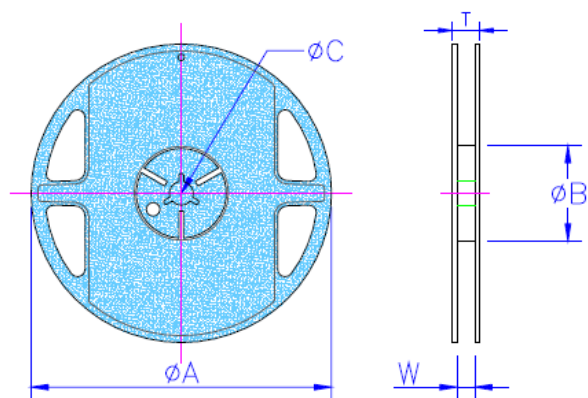
Faithfullink is capable of manufacturing the optional spec based on customer's requirement.

## ◆ Environmental Characteristics

Performance test	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec	<b>JIS-C-5201-1 4.8</b> <b>IEC-60115-1 4.8</b> -55°C~+125°C, 25°C is the reference temperature
Short Time Overload	0102: $\pm(0.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.13</b> <b>IEC-60115-1 4.13</b> RCWV*2.5 or Max. Overload voltage whichever is lower for 5 seconds
Insulation Resistance	$\geq 10G$	<b>JIS-C-5201-1 4.6</b> <b>IEC-60115-1 4.6</b> Max. Overload voltage for 1 minute
Endurance	0102: $\pm(1.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.25</b> <b>IEC-60115-1 4.25.1</b> 70 $\pm$ 2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	0102: $\pm(1.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.24</b> 40 $\pm$ 2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Dry Heat	0102: $\pm(1.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.23</b> <b>IEC-60115-1 2.23.2</b> at +155°C for 1000 hrs
Bending Strength	$\pm(0.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.33</b> <b>IEC-60115-1 4.33</b> Bending once for 5 seconds with 2mm
Solderability	95% min. coverage	<b>JIS-C-5201-1 4.17</b> <b>IEC-60115-1 4.17</b> 245 $\pm$ 5°C for 3 seconds
Resistance to Soldering Heat	$\pm(0.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.18</b> <b>IEC-60115-1 4.18</b> 260 $\pm$ 5°C for 10 seconds
Voltage Proof	No breakdown or flashover	<b>JIS-C-5201-1 4.7</b> <b>IEC-60115-1 4.7</b> 1.42 times Max. Operating Voltage for 1 minute
Leaching	Individual leaching area $\leq 5\%$ Total leaching area $\leq 10\%$	<b>JIS-C-5201-1 4.18</b> <b>IEC-60068-2-58 8.2.1</b> 260 $\pm$ 5°C for 30 seconds
Rapid Change of Temperature	$\pm(0.5\%+0.05\Omega)$	<b>JIS-C-5201-1 4.18</b> <b>IEC-60115-1 4.18</b> -55°C to +155°C, 5 cycles

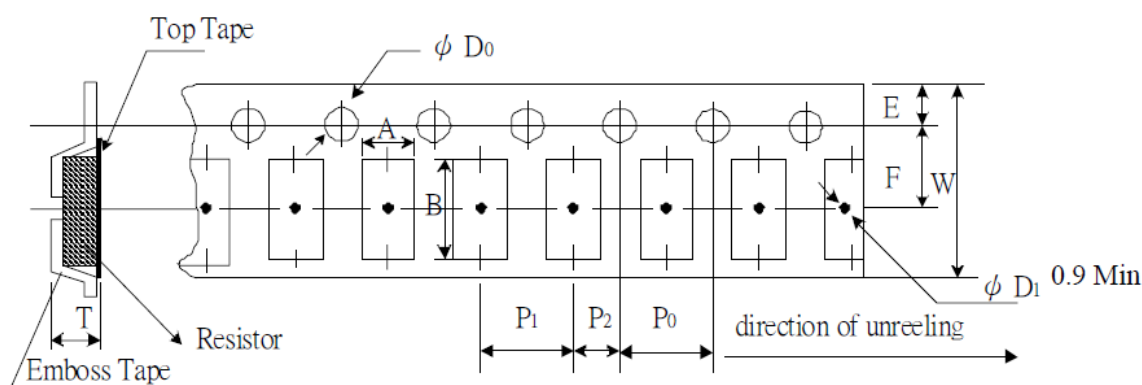
1. RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$  or Max. Operating voltage whichever is lower.
2. Storage Temperature: 25 $\pm$ 3°C; Humidity <80%RH

## ◆ Packing



(mm)

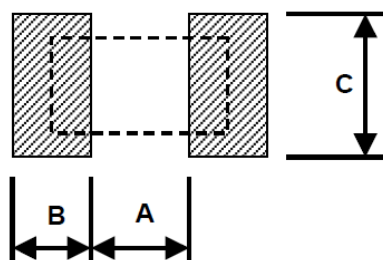
Size	Reel	A	B	C	W	T	Emboss plastic Tape (pcs)
0102	7 inch	178.5±1.5	60.0±1.0	13.0±0.2	9.0±0.5	12.5±0.5	3,000



(mm)

Size	A	B	W	E	F	P0	P1	P2	D	T
0102	1.50±0.10	2.30±0.10	8.0±0.10	1.75±0.10	3.50±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.50±0.10	1.70±0.10

## ◆ Recommend Land Pattern



(mm)

Size	A	B	C
0102	1.0	0.8	1.5