FEATURES

- Resistances from 10Ohms to 10MOhms
- Power Rating to 3Watts
- Resistance Tolerances to ±0.05%
- TCR's to ±5ppm/K
- Convenient RN Type Package Styles

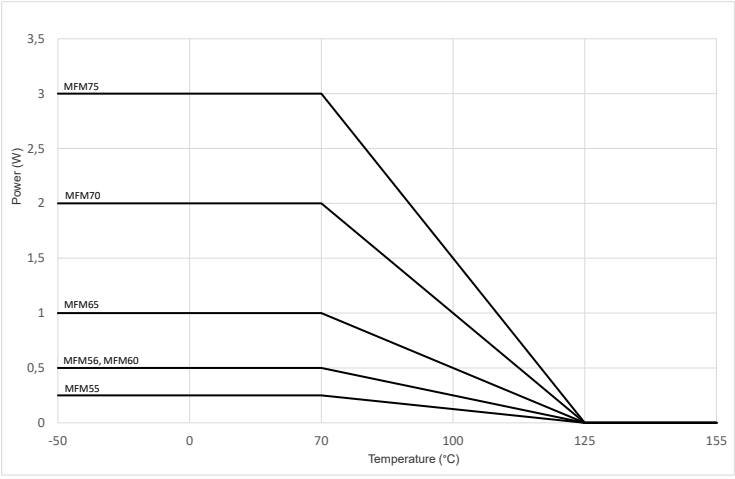
Pb-free Available

RoHS* COMPLIANT

TABLE 1—SPECIFICATIONS

Type	MFM55	MFM56	MFM60	MFM65	MFM70	MFM75
precision type	high	standard	high	standard	standard	
DIN	0204		0207		0411	0516
CECC	RC3715M		RC 6123M		RC8633	
Resistance Range	10 Ohms to 10MOhms 0.1Ohms to 10Ohms and 10MOhms to 22MOhms upon request					
Power rating (70°C)	0.25W	0.50W	0.50W	1.0W	2.0W	3.0W
Tolerances	0.05% / 0.1% / 0.25% / 0.5% / 1% / 5%					
Temperature Coefficient (TCR)	5 / 10 / 15 / 25 / 50ppm/K					
Operating Voltage (Umax)	250V	300V	300V	350V	400V	450V
Operating Temperature Range	-55 to 125°C					
Insulation Resistance	>1G					
Insulation Voltage	300V	500V	600V	700V	800V	900V

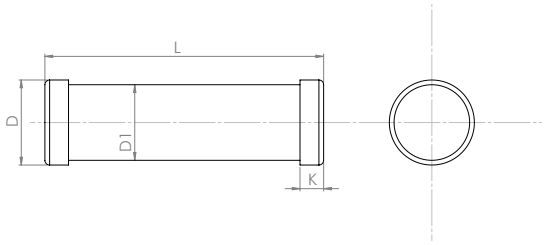
FIGURE 2—DERATING



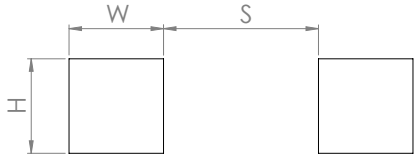
ORDERING INFORMATION

Part Number - Resistance - Tolerance - TCR
MFM55 100 kOhms 0.5% 50ppm

FIGURE 3—DIMENSIONS



Type	Dimension (mm) / Tolerance (mm)			
	L	D	K	D1
MFM55	3.50/ (0.2)	1.30/ (0.2)	≥0.6	≥D-0.2
MFM56	3.50/ (0.2)	1.30/ (0.2)	≥0.6	≥D-0.2
MFM60	5.70/ (0.2)	2.10/ (0.2)	≥0.6	≥D-0.3
MFM65	6.00/ (0.2)	2.10/ (0.2)	≥0.6	≥D-0.3
MFM70	8.70/ (0.2)	3.10/ (0.2)	≥0.8	≥D-0.4
MFM75	11.80/ (0.2)	3.60/ (0.2)	≥1.0	≥D-0.4



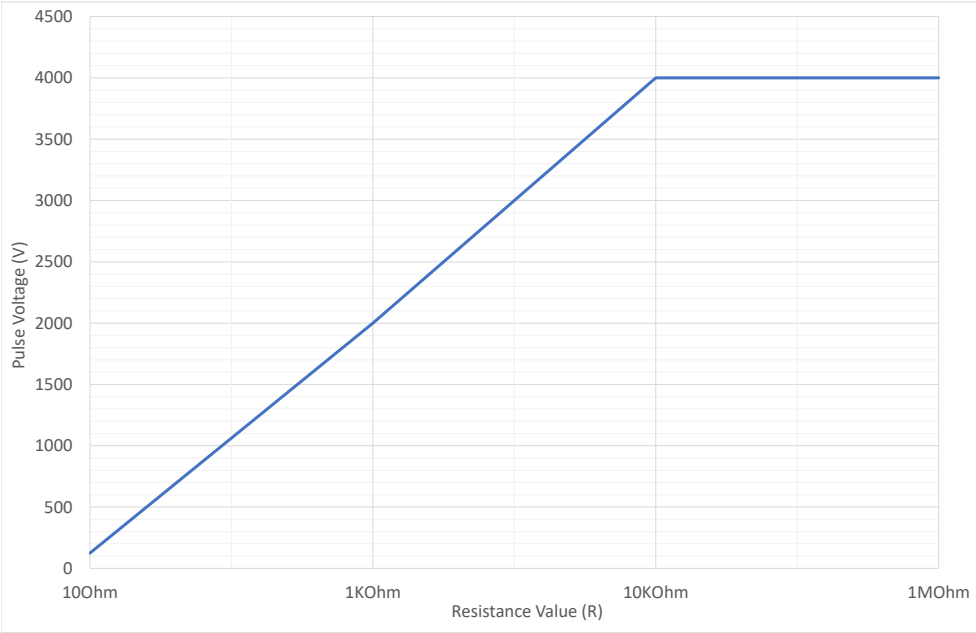
Type	recommended Dimension (mm) for soldering bath		
	W	S	H
MFM55	2.5	2.0	2.5
MFM56	2.8	2.0	2.8
MFM60	3.2	2.9	3.2
MFM65	3.6	3.2	3.5
MFM70	4.5	5.6	4.5
MFM75	5.0	8.2	5.0

FIGURE 4—TEST PROCEDURE AND REQUIREMENTS

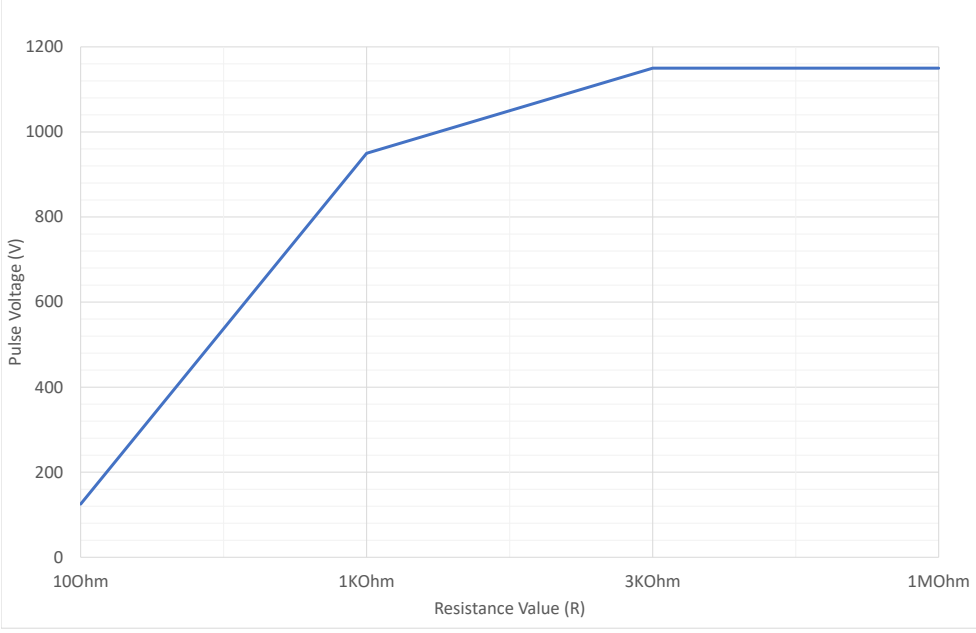
IEC 60115-1 Clause	TEST	PROCEDURE	REQUIREMENTS PERMISSIBLE CHANGE (Δ R/R)		
	type		MFM55, MFM60	MFM56, MFM65	MFM70, MFM75
	resistance range		10Ω to 332kΩ		
4.5	tolerance	(%)	0.05 / 0.10 / 0.25 / 0.50 / 1.00 / 5.00		
4.8	temperature coefficient	at 25 / 85 / 25°C or under request at 25 / -55 / 25°C or at 25 / 125 / 25°C	±5ppm/°C; ±10ppm/°C; ±15ppm/°C; ±25ppm/°C; ±50ppm/°C; ±100ppm/°C		
4.13	short time overload	room temperature; $U = 2.5 \times \sqrt{(P_{70} \times R)} \leq 2U_{max}$; 5s	±0.10%+0.10Ω	±0.10%+0.10Ω	±0.10%+0.10Ω
4.17	solderability	solder bath method; 235°C; 5s ± 1s	good tinning (≥95% covered); no visible damage		
4.18	resistance to soldering heat	solder bath method; 260 ±5°C; 5s ± 1s	±0.15%+0.10Ω	±0.15%+0.10Ω	±0.15%+0.10Ω
4.19	rapid change of temperature	30 minutes at LCT-55°C; 30 minutes at UCT+155°C; 5 cycles	±0.25%+0.10Ω	±0.25%+0.10Ω	±0.25%+0.10Ω
4.24	damp heat, steady state	40±2°C; 56 days 93 +2/-3% RH	±0.25%+0.10Ω for high precision	±0.50%+0.10Ω	±0.50%+0.10Ω
4.25	endurance; standard operation mode	U= √ P70 × R ≤ Umax; 1.5 h on; 0.5h off; 70°C;1000 h	±0.25%+0.10Ω for high precision	±0.50%+0.10Ω	±0.50%+0.10Ω
4.25.3	endurance at upper category temperature	125 °C for 1000h	±0.25%+0.10Ω for high precision	±0.50%+0.10Ω	±0.50%+0.10Ω
4.26	accidental overload test	4 times RCWV or 2 times the maximum working voltage whichever is lower for 1 Minute	No evidence of flaming or arcing		
4.29	component solvent resistance	isopropyl alcohol; +23°C; toothbruch method	marking legible; no visible damage		
4.30	solvent resistance of marking	isopropyl alcohol; 50 °C; toothbrush method	marking legible; no visible damage		
4.35	flammability	needle flame test; 10 s	No burning after 30 seconds		
4.37	damp heat, steady state, accelerated	(85 ± 2)°C, (85 ± 5)% RH; U = 0.3 x RCWV or U = 0.3 x Umax or 100V whichever is lower for 1000 hours	±0.25%+0.10Ω for high precision	±1.00%+0.10Ω	±1.00%+0.10Ω
4.38	electrostatic discharge (Human Body Model)	MFM55: 1.5kV MFM60: 2.0kV MFM65: 3.0kV MFM70: 6.0kV MFM75: 6.0kV	±0.50%+0.10Ω		

Remark
Unliss otherwise specified, all values are tested at the following condition:
Temperature: 21°C to 25°C; Relative humidity: 45% to 60%
For a resistance range from 10Ωto 332kΩ, limits for change of resistance at test acc. to EN 140401-803

FIGURE 5 — PULSE LOAD CAPABILITY



Pulse load rating in accordance with IEC 60115-1,4.27; 1.2 µs / 50 µs;
5 pulse loaded, for permissible resistance change <±(0.5%+0.05Ohm)



Pulse load rating in accordance with IEC 60115-1,4.27; 10 µs / 700 µs;
10 pulse loaded, for permissible resistance change <±(0.5%+0.05Ohm)

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