

# SM POWER RESISTORS, 1/2W - 5W, .0005Ω - 1MΩ WIREWOUND, FILM, & METAL PLATE

## MWM SERIES


 Term.W is  
RoHS  
compliant  
& 260°C  
compatible


- Widest selection in the industry!
- Tolerance to  $\pm 0.01\%$ , T.C. to  $\pm 5\text{ppm}/^\circ\text{C}$
- Available on exclusive **SWIFT™** delivery program!

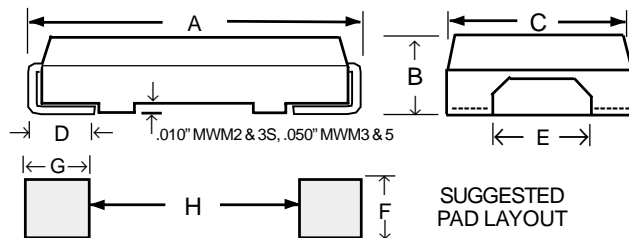
### OPTIONS

- Option X: Non-inductive (refer to application note below)
- Option P: Increased Pulse Capability
- Option M: Power metal film element
- Option L: Low profile non-inductive metal plate design
- Option E: Low thermal EMF design
- Special marking, high current, flame retardant, fusible, temp.sensitive, hi-rel screening/burn-in, fusible, SnPb, etc.

Exceptional performance and reliability is achieved via highest grade materials and processing. An all-welded wirewound construction is standard, featuring premium-grade wire for superior stability and surge capability. Opt. L low profile models feature a non-inductive metal plate element. The power film version (Opt.M) achieves values as high as 1MΩ and is inherently low inductance thereby enabling stable operation at high frequencies.

PERFORMANCE (Typ)	WW & Opt. L Metal Plate	Opt. M Film Element
Load Life (1000 hrs)	$\pm 1\%$ (MWM2S,3S,27=2%)	$\pm 1\%$
Moisture Resistance	$\pm 0.25\%$	0.5%
Temperature Cycling	$\pm 0.2\%$	0.5%
Short Time Overload	5 x rated W for 5 Sec	5 x rated W for .5 Sec
Temp. Coefficient	Standard    Optional	Standard    Optional
R0005-R024	400ppm    100, 200	n/a        n/a
R025-R049	300ppm    100, 200	n/a        n/a
R050-R099	200ppm    50, 100	n/a        n/a
R100-R990	90ppm     20,30,50	350ppm    200
1R00-9R90	50ppm     10,20,30	200ppm    100
10R0 & above	30ppm     5,10,20	100ppm    25,50
Dielectric Strength <sup>1</sup>	500V Min. <sup>1</sup> , 1KV avail.	500V Min. (1KV avail.)
Solderability <sup>2</sup>	95% coverage	95% coverage
Operating Temp.	-55 to +175°C (+275° avail)	-55°C to +175°C
Available Resis. Tol.	0.01% to 10%	0.5% to 5%

<sup>1</sup> Dielectric strength for low profile Opt. L is 100V (300V avail)    <sup>2</sup> Tested within .032" [8mm] of pcb surface



RCD TYPE	Wattage Rating	Max Voltage* [Current]	Std Resis Range	Opt M Resis Range	Opt M Max. Voltage	DIMENSIONS Inch [mm]							
						A	B (Max)	C	D (Min)	E	F	G	H
MWM1/2	0.5W	33V [10A]	.01Ω - 2K	5Ω - 1M	200V*	.204±.02 [5.2±.5]	.111 [2.82]	.125±.01 [3.2±.25]	.025 [.63]	.045±.015 [1.14±.4]	.080 [2.0]	.100 [2.5]	.08 [2]
MWM1	1W	58V [20A]	.001Ω-10K	.1Ω - 1M	200V*	.258±.02 [6.55±.5]	.125 [3.17]	.150±.015 [3.8±.4]	.032 [0.8]	.060±.015 [1.50±.4]	.100 [2.5]	.125 [3.2]	.12 [3]
MWM2	2W	120V [30A]	.002Ω-25K	.1Ω - 1M	250V*	.449±.032 [11.4±.8]	.208 [5.28]	.225±.015 [5.7±.4]	.060 [1.5]	.070±.020 [1.78±.5]	.160 [4.0]	.157 [4.0]	.20 [5]
MWM2S	2W	80V [25A]	.1Ω - 200Ω	1Ω - 1M	250V*	.297 ±.020 [7.5 ±.5]	.165 [4.19]	.150±.015 [3.8±.4]	.044 [1.1]	.050±.016 [1.27±.4]	.100 [2.5]	.125 [3.2]	.14 [3.6]
MWM27	2.7W	180V [30A]	.005Ω - 20K	1Ω - 1M	250V*	.480±.032 [12.2±.8]	.230 [5.84]	.228±.016 [5.8±.4]	.05 [1.27]	.070±.020 [1.78±.5]	.160 [4.0]	.18 [4.57]	.20 [5]
MWM3S	3W	200V [30A]	.005Ω - 25K	1Ω - 1M	300V*	.625±.032 [15.9±.8]	.270 [6.86]	.275±.015 [7±.38]	.05 [1.27]	.085±.016 [2.16±.4]	.160 [4.0]	.175 [4.5]	.40 [10]
MWM3	3.5W	250V [30A]	.005Ω - 50K	1Ω - 1M	350V*	.811±.020 [20.6±.5]	.295 [7.49]	.273±.02 [6.9 ±.5]	.063 [1.6]	.102±.028 [2.6 ±.7]	.200 [5.0]	.200 [5.0]	.60 [15]
MWM5	5W	300V [32A]	.005Ω-100K	n/a	n/a	.811±.020 [20.6±.5]	.295 [7.49]	.273±.02 [6.9 ±.5]	.063 [1.6]	.102±.028 [2.6 ±.7]	.250 [6.4]	.250 [6.4]	.60 [15]

### LOW PROFILE METAL PLATE MODELS

RCD TYPE	Wattage Rating	Max Voltage* [Current]	Std Resis Range	Opt M Resis Range	Opt M Max. Voltage	A	B (Max)	C	D (Min)	E	F	G	H
MWM1/2L	0.5W	√(PR) [12A]	.003Ω-.05Ω	n/a	n/a	.200 ±.012 [5.1 ±.3]	.053 [1.35]	.100±.01 [2.54±.25]	.025 [.63]	.060 [1.5] min	.080 [2.0]	.100 [2.5]	.08 [2]
MWM1L	1W	√(PR) [25A]	.001Ω-0.1Ω	n/a	n/a	.250 ±.012 [6.3 ±.3]	.057 [1.45]	.126 ±.012 [3.2 ±.3]	.025 [.63]	.070 [1.8] min	.150 [3.8]	.125 [3.2]	.120 [3]
MWM2L	2W	√(PR) [30A]	.002Ω-0.2Ω	n/a	n/a	.330±.012 [8.38±.3]	.057 [1.45]	.157 ±.012 [4.0 ±.3]	.032 [0.8]	.100 [2.5] min	.197 [5.0]	.157 [4.0]	.157 [4]
MWM2LS	2W	√(PR) [45A]	.0005 - .005Ω	n/a	n/a	.250 ±.012 [6.3 ±.3]	.079 [2.0]	.126 ±.012 [3.2 ±.3]	.032 [0.8]	.080[.20] min	.150[3.8]	.125[3.2]	.120[.3]

\*Voltage determined by  $E = \sqrt{PR}$ , E not to exceed maximum voltage rating. Increased ratings available. Multiply by 0.7 for Opt. X

### APPLICATION NOTES:

- Power Rating:** Resistors may be operated up to full rated power with consideration of mounting density, pad & trace geometry, PCB material, and ambient temperature. Standard parts should be derated (W&V) by .67%/°C when ambient exceeds 25°C, low profile parts by 1%/°C above 70 °C
- Inductance:** Standard wound parts are 1 - 20uH typ. For "non-inductive" design, specify Opt.X (0.2uH max  $\leq 50\Omega$ , .37uH  $> 50\Omega$ , 50nH avail). Opt. L (metal plate element) and Opt.M (power film element) are inherently low inductance (1 to 10nH typ). Consult factory for assistance.
- Pulse Capability:** standard MWM (wirewound) and Opt. L (metal plate) offer excellent overload capability greatly exceeding that of film resistors. The overload level can often be economically enhanced by a factor of 50% or more via special processing (Opt.P). Pulse capability is highly dependent on size & resistance (available up to 50 joules). Consult factory for assistance.

### P/N DESIGNATION:

**MWM2** □ - **1001** - **F** **T** □ **W**

**RCD Type** \_\_\_\_\_  
**Options:** X,P,M,L,F,E (leave blank if std)  
**Resis.Code .01%-1%:** 3 signif. figures & multiplier, e.g. R010=0.01Ω, R100=0.1Ω, 1R00=1Ω, 1000=100Ω, 1001=1K.  
**Resis.Code 2%-10%:** 2 signif. figures & multiplier, R01=0.01Ω, R10=0.1Ω, 1R0=1Ω, 100=10Ω, 101=100Ω, 102=1K.  
 Use extra digits as needed: R005, R0075, R012, etc.  
**Tolerance Code:** K=10%, J=5%, H=3%, G=2%, F=1%, D=0.5%, C=0.25%, B=0.1%, A=0.05%, Q=0.02%, T=0.01%  
**Packaging:** B = Bulk, T = Tape & Reel  
**TC** (leave blank if standard): 5 = 5ppm, 10 = 10ppm, 20=20ppm, 30=30ppm,50=50ppm, 101=100ppm, 201=200ppm, 301=300ppm  
**Termination:** W= Lead-free, Q= Tin/Lead. Leave blank if either is acceptable (RCD will select based on lowest price and quickest delivery).