

- Features:**
- WWS offers miniature size at higher power rating
 - High performance for low cost
 - High power to size ratio
 - MWW/NMWW – completely molded construction with welded terminations
 - Complete welded terminations
 - Tinned copper leads
 - Available in non-inductive styles
 - High temperature silicone coating
 - RoHS compliant
 - Higher operating temperatures available
 - "B" packaging code denotes bulk packaging - contact Stackpole for package quantities



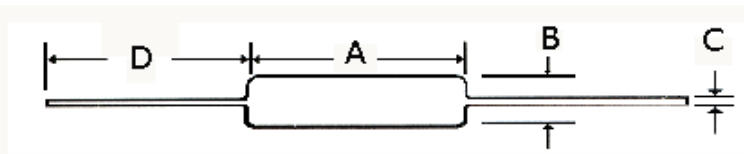
Electrical Specifications									
Type / Code	MIL-R-26 Ref.	Power Rating (W) @ 125°C	Power Rating (W) @ 70°C	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance (*)				
					0.1%	0.5%	1%	5%	
WW12	-	0.4 W	0.5 W	$< 1\Omega = \pm 90\text{ppm}/^\circ\text{C}$ $1\Omega \text{ to } 10\Omega = \pm 50\text{ppm}/^\circ\text{C}$ $> 10\Omega = \pm 20\text{ppm}/^\circ\text{C}$	5 - 2K	3 - 2K	5 - 2K		
WW1	-	1 W	1.1 W		2 - 3K				
WW1A	RW-70	1 W	1.3 W		1 - 5K				
WW2	RW-69	1.5 W	2.1 W		1 - 10K	0.5 - 10K			
WW2S	-	2.5 W	2.6 W		1 - 10K	0.5 - 10K			
WW2A	-	2.5 W	2.6 W		1 - 10K	0.5 - 10K			
WW3	RW-79	3 W	3.2 W		1 - 22K	0.5 - 22K			
WWS3	-	3 W	3.2 W		3 - 10K	1 - 10K			
WW3A	-	3 W	3.4 W		1 - 30K	0.5 - 30K			
WW4	-	4 W	4.3 W		1 - 40K	0.5 - 40K			
WWS4	RW-79	4 W	4.3 W		1 - 22K	0.5 - 22K			
WW5	RW-67, RW-74	5 W	5.1 W		1 - 50K	0.5 - 50K			
WWS5	-	5 W	5.1 W		1 - 40K	0.5 - 40K			
WW7	-	6.5 W	7.2 W		1 - 70K	0.5 - 70K			
WWS7	RW-67, RW-74	6.5 W	7.2 W		1 - 50K	0.5 - 50K			
WW7B	-	7 W	7.7 W		1 - 70K	0.5 - 70K			
WW10	RW-78	10 W	11 W		1 - 100K	0.5 - 100K			
WWS10	-	10 W	11 W		1 - 70K	0.5 - 70K			
NWW12	-	0.4 W	0.5 W		$< 1\Omega = \pm 90\text{ppm}/^\circ\text{C}$ $1\Omega \text{ to } 10\Omega = \pm 50\text{ppm}/^\circ\text{C}$ $> 10\Omega = \pm 20\text{ppm}/^\circ\text{C}$	10 - 1K			
NWW1	-	1 W	1.1 W			4 - 1.5K	2 - 1.5K		
NWW1A	RW-70	1 W	1.3 W			2 - 2.5K	1 - 2.5K		
NWW2	RW-69	1.5 W	2.1 W			2 - 5K	1 - 5K		
NWWS2	-	2.5 W	2.6 W			2 - 5K	1 - 5K		
NWW2A	-	2.5 W	2.6 W			2 - 5K	1 - 5K		
NWW3	RW-79	3 W	3.2 W			2 - 11K	1 - 11K		
NWWS3	-	3 W	3.2 W			5 - 5K	3 - 5K		
NWW3A	-	3 W	3.4 W			2 - 15K	1 - 15K		
NWW4	-	4 W	4.3 W			2 - 20K	1 - 20K		
NWWS4	RW-79	4 W	4.3 W		2 - 11K	1 - 11K			
NWW5	RW-67, RW-74	5 W	5.1 W		2 - 25K	1 - 25K			
NWWS5	-	5 W	5.1 W		2 - 20K	1 - 20K			
NWW7	-	6.5 W	7.2 W		2 - 35K	1 - 35K			
NWWS7	RW-67, RW-74	6.5 W	7.2 W		2 - 25K	1 - 25K			
NWW7B	-	7 W	7.7 W		2 - 35K	1 - 35K			
NWW10	RW-78	10 W	11 W		2 - 50K	1 - 50K			
NWWS10	-	10 W	11 W		2 - 35K	1 - 35K			
MWW1	RW-70	1 W	1.3 W		5 - 2K				
MWW3	RW-79	3 W	3.2 W		3 - 20K				
MWW5	RW-67, RW-74	5 W	5.5 W		2 - 40K				
MWW10	RW-68, RW-74	10 W	11 W		2 - 80K				
NMWW1	RW-70	1 W	1.3 W	10 - 1K	5 - 1K				
NMWW3	RW-79	3 W	3.2 W	5 - 10K	3 - 10K				
NMWW5	RW-67, RW-74	5 W	5.5 W	3 - 20K	2 - 20K				
NMWW10	RW-68, RW-74	10 W	11 W	3 - 40K	2 - 40K				

(*) Other resistance values available - contact factory for details.

Performance Characteristics		
Test	Test Condition	Result
Moisture Resistance	1000 hours, 95% R.H., 40°C	1% max
Load Life	1000 hours, cycled power 1.5 hours ON, 0.5 hours OFF, 25°C	1%
Temperature Cycling	5 cycles, -55°C to 200°C	0.5%
Short Time Overload	5 times rated power for 5 seconds	1%
Dielectric Withstand Voltage	Resistor leads are grounded and high potential probe is touched to the resistor body	500V for (N)WW12, 1, 1A and 2S. 1000V for all others

Operating Temperature Range: -55°C to +350°C

Mechanical Specifications

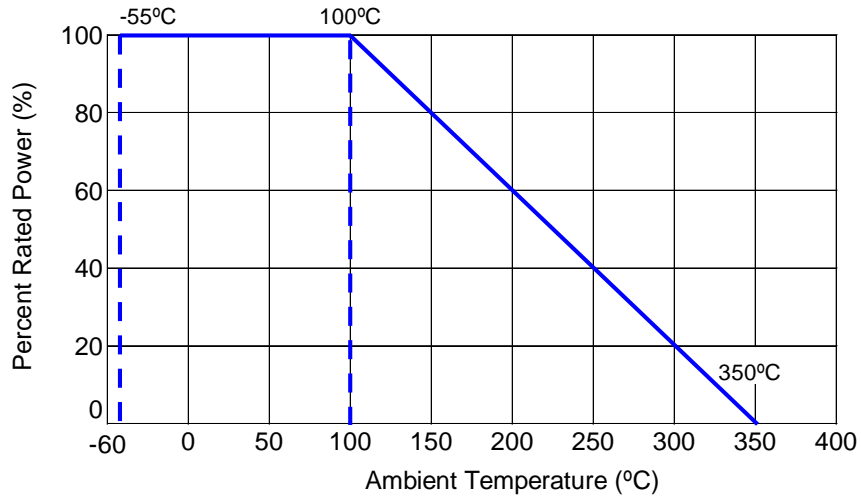


Type / Code	A	B	C	D (Bulk) ⁽¹⁾	Unit
WW12 / NWW12	0.312 ± 0.062 7.92 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW1, WWS2 / NWW1, NWWS2	0.375 ± 0.062 9.53 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW1A / NWW1A	0.420 ± 0.062 10.67 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW2, WWS3 / NWW2, NWWS3	0.370 ± 0.062 9.40 ± 1.57	0.156 ± 0.031 3.96 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW2A / NWW2A	0.550 ± 0.062 13.97 ± 1.57	0.156 ± 0.031 3.96 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW3, WWS4 / NWW3, NWWS4	0.560 ± 0.062 14.22 ± 1.57	0.187 ± 0.031 4.75 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW3A / NWW3A	0.500 ± 0.062 12.70 ± 1.57	0.218 ± 0.031 5.54 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW4, WWS5 / NWW4, NWWS5	0.700 ± 0.062 17.78 ± 1.57	0.270 ± 0.031 6.86 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW5, WWS7 / NWW5, NWWS7	0.875 ± 0.062 22.23 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW7 / NWW7	1.000 ± 0.062 25.40 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW7B, WWS10 / NWW7B, NWWS10	1.200 ± 0.062 30.48 ± 1.57	0.312 ± 0.031 7.92 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW10 / NWW10	1.780 ± 0.062 45.21 ± 1.57	0.375 ± 0.031 9.53 ± 0.79	0.040 ± 0.002 ⁽²⁾ 1.02 ± 0.05 ⁽²⁾	1.500 typ. 38.10 typ.	inches mm
MWW1 / NMWW1	0.385 ± 0.062 9.78 ± 1.57	0.135 ± 0.031 3.43 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
MWW3 / NMWW3	0.560 ± 0.062 14.22 ± 1.57	0.205 ± 0.031 5.21 ± 0.79	0.032 ± 0.002 0.81 ± 0.05	1.500 typ. 38.10 typ.	inches mm
MWW5 / NMWW5	0.925 ± 0.062 23.50 ± 1.57	0.330 ± 0.031 8.38 ± 0.79	0.036 ± 0.002 0.91 ± 0.05	1.500 typ. 38.10 typ.	inches mm
MWW10 / NMWW10	1.965 ± 0.062 49.91 ± 1.57	0.480 ± 0.031 12.19 ± 0.79	0.040 ± 0.002 1.02 ± 0.05	1.500 typ. 38.10 typ.	inches mm

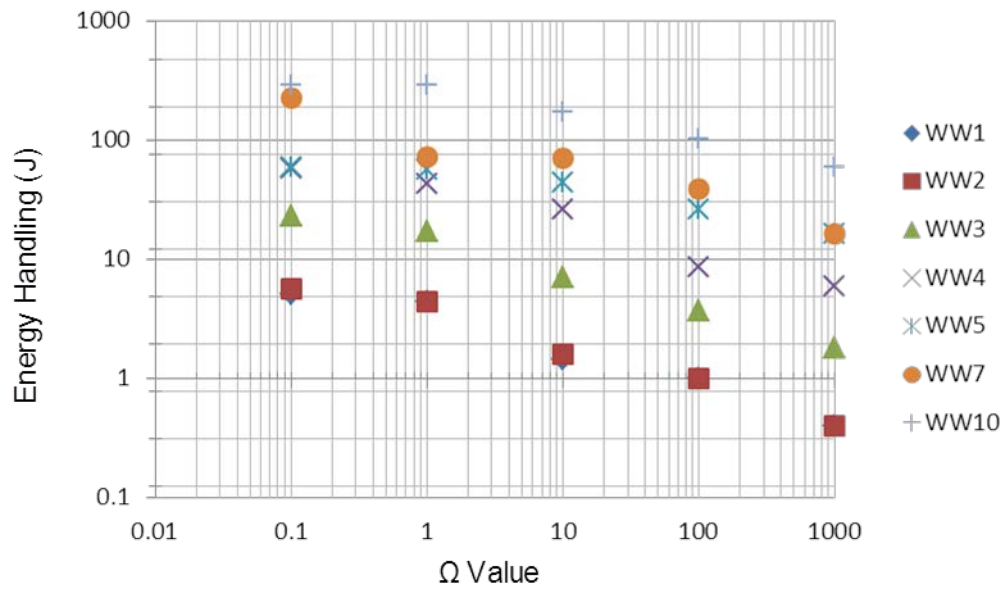
(1) See "Resistor Packaging Specification Document" for lead length dimension for tape and reel packaged product

(2) Available in 0.036" / 0.91mm

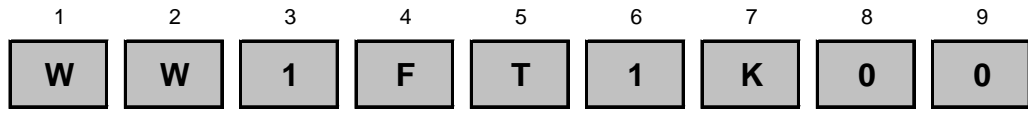
Power Derating Curve:



Energy Handling Capability:
 (Typical performance - for reference only.)



How to Order



Product Series		Type/Code	Power Rating		Tolerance		Packaging				Resistance Value
WW	Standard		@ 125°C	@ 70°C	Code	Tol	Code	Description	Size	Quantity	
WWS	Mini	WW12 / NWW12	0.4W	0.5 W	B	0.1%	T	11" Tape and Reel	WW12 / NWW12	2,500	Four characters with the multiplier used as the decimal holder. 0.5 ohm = R500 1 ohm = 1R00 10 Kohm = 10K0
MWW	Molded	WW1 / NWW1	1W	1.1 W	D	0.5%			WW1 / NWW1		
NWW	Non-Inductive	WW1A / NWW1A	1W	1.3 W	F	1%			WWS2 / NWS2		
NWWS	Mini	WW2 / NWW2	1.5W	2.1 W	J	5%			WW1A / NWW1A		
NWWS	Non-Inductive	WWS2 / NWWS2	2.5W	2.6 W					MWW1 / NMWW1		
NMWW	Non-Inductive Molded	WW2A / NWW2A	2.5W	2.6 W					WW2 / NWW2	2,000	
		WW3 / NWW3	3W	3.2 W					WWS3 / NWWS3		
		WWS3 / NWWS3	3W	3.2 W					WW2A / NWW2A		
		WW3A / NWW3A	3W	3.4 W					WW3 / NWW3		
		WW4 / NWW4	4W	4.3 W					WWS4 / NWWS4		
		WWS4 / NWWS4	4W	4.3 W					MWW3 / NMWW3	500	
		WW5 / NWW5	5W	5.1 W					WW3A / NWW3A		
		WWS5 / NWWS5	5W	5.1 W					WW4 / NWW4		
		WW7 / NWW7	6.5W	7.2 W					WWS5 / NWWS5		
		WWS7 / NWWS7	6.5W	7.2 W					WW5 / NWW5		
		WW7B / NWW7B	7W	7.7 W					WWS7 / NWWS7	250	
		WW10 / NWW10	10W	11.0 W					WW7 / NWW7		
		WWS10 / NWWS10	10W	11.0 W					WW7B / NWW7B		
		MWW1 / NMWW1	1W	1.3 W					WWS10 / NWWS10		
		MWW3 / NMWW3	3W	3.2 W					MWW5 / NMWW5		
		MWW5 / NMWW5	5W	5.5 W			WW10 / NWW10				
		MWW10 / NMWW10	10W	11.0 W			MWW10 / NMWW10				
B	Bulk							Contact Stackpole for package quantities.			