

- Features:**
- WWS offers miniature size at higher power rating
 - High performance for low cost
 - High power to size ratio
 - MWW – 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

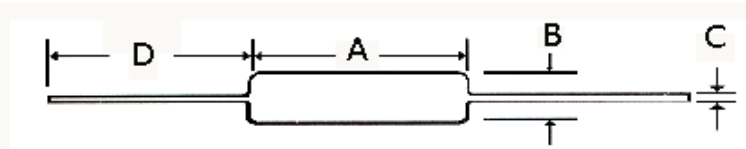


Electrical Specifications								
Type / Code	MIL-R-26 Ref.	Power Rating (W) @ 125°C	Power Rating (W) @ 70°C	TCR (ppm/°C)	Ohmic Range (Ω) and Tolerance (*)			
					0.1%	0.5%	1%	5%
WW12	-	0.4 W	0.5 W	$< 1\Omega = \pm 90\text{ppm}/^\circ\text{C}$ $1\Omega \text{ to } 10\Omega = \pm 50\text{ppm}/^\circ\text{C}$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

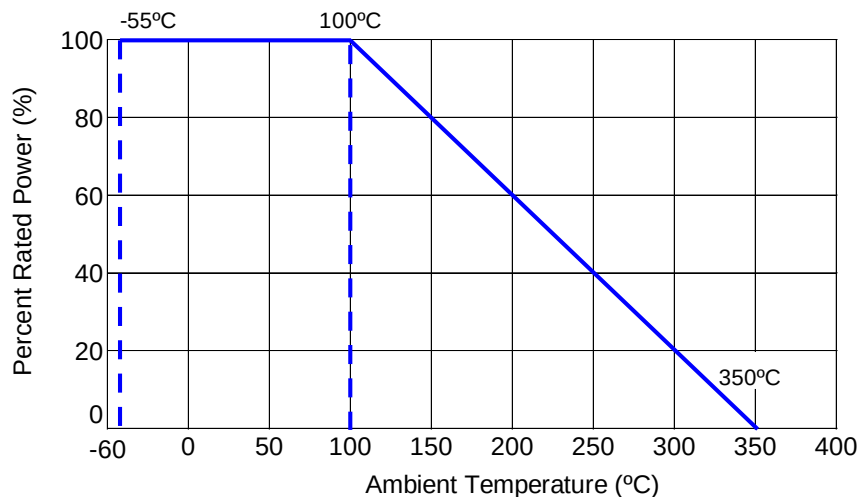


Mechanical Specifications					
Type / Code	A	B	C	D (Bulk) (1)	Unit
WW12 / NWW12	0.312 ± 0.062 7.92 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 38.10 typ.	inches mm
WW1, WWS2 / NWW1, NWWS2	0.375 ± 0.062 9.53 ± 1.57	0.110 ± 0.031 2.79 ± 0.79	0.025 ± 0.002 0.64 ± 0.05	1.500 typ. 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:



How to Order

		1	2	3	4	5	6	7	8	9			
		W	W	1	F	T	1	K	0	0			
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 WW1 / NWW1 WWS2 / NWS2 WW1A / NWW1A MWW1 / NMWW1	2,500	Four characters with the multiplier used as the decimal holder.		
MWW	Molded	WW1 / NWW1	1W	1.1 W	D	0.5%			WW2 / NWW2 WWS3 / NWS3 WW2A / NWW2A WW3 / NWW3 WWS4 / NWS4 MWW3 / NMWW3	2,000		0.5 ohm = R500 1 ohm = 1R00 10 Kohm = 10K0	
NWW	Non-Inductive	WW1A / NWW1A	1W	1.3 W	F	1%			WW3A / NWW3A WW4 / NWW4 WWS5 / NWS5 WW5 / NWW5 WWS7 / NWS7 WW7 / NWW7 WW7B / NWW7B WWS10 / NWS10 MWW5 / NMWW5	500			
NWS	Mini	WW2 / NWW2	1.5W	2.1 W	J	5%			WW10 / NWW10 MWW10 / NMWW10	250			
Non-Inductive		WWS2 / NWS2	2.5W	2.6 W									
		WW2A / NWW2A	2.5W	2.6 W									
		WW3 / NWW3	3W	3.2 W									
		WWS3 / NWS3	3W	3.2 W									
		WW3A / NWW3A	3W	3.4 W									
		WW4 / NWW4	4W	4.3 W									
		WWS4 / NWS4	4W	4.3 W									
		WW5 / NWW5	5W	5.1 W									
		WWS5 / NWS5	5W	5.1 W									
		WW7 / NWW7	6.5W	7.2 W									
		WWS7 / NWS7	6.5W	7.2 W									
		WW7B / NWW7B	7W	7.7 W									
		WW10 / NWW10	10W	11.0 W									
		WWS10 / NWS10	10W	11.0 W									
		MWW1 / NMWW1	1W	1.3 W									
		MWW3 / NMWW3	3W	3.2 W									
		MWW5 / NMWW5	5W	5.5 W									
		MWW10 / NMWW10	10W	11.0 W									