

- 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
  - Bulk packaging available - contact Stackpole for package quantities



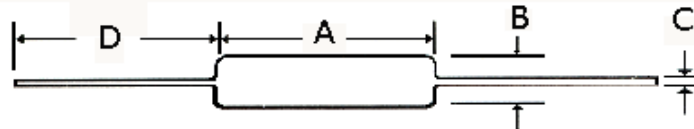
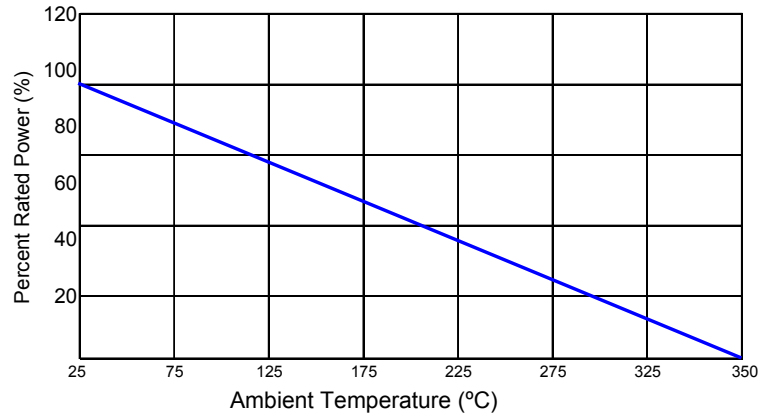
Electrical Specifications							
Type / Code	MIL-R-26 Ref.	Dielectric Strength (V) (1)	Power Rating (Watts) @ 125°C	Power Rating (Watts) @ 70°C	TCR (ppm/°C)	Ohmic Range(Ω) and Tolerance 0.1%, 0.5%, 1% & 5%	
						Standard	Non-Inductive
WW12 / NWW12	-	500V	0.4W	0.5 W	< 1Ω = ±90ppm/°C	0.1 - 2K	0.1 - 1K
WW1 / NWW1	-	500V	1W	1.1 W		0.1 - 3K	0.1 - 1.5K
WW1A / NWW1A	RW-70	500V	1W	1.3 W		0.1 - 7K	0.1 - 3.5K
WW2 / NWW2	RW-69	1,000V	1.5W	2.1 W		0.1 - 10K	0.1 - 5K
WWS2 / NWS2	-	500V	2.5W	2.6 W		0.1 - 3K	0.1 - 1.5K
WW2A / NWW2A	-	1,000V	2.5W	2.6 W		0.1 - 15K	0.1 - 7.5K
WW3 / NWW3	RW-79	1,000V	3W	3.2 W		0.1 - 22K	0.1 - 11K
WWS3 / NWS3	-	1,000V	3W	3.2 W		0.1 - 10K	0.1 - 5K
WW3A / NWW3A	-	1,000V	3W	3.4 W		0.1 - 30K	0.1 - 15K
WW4 / NWW4	-	1,000V	4W	4.3 W		0.1 - 40K	0.1 - 20K
WWS4 / NWS4	RW-79	1,000V	4W	4.3 W	1Ω to 10Ω = ±50ppm/°C	0.1 - 22K	0.1 - 11K
WW5 / NWW5	RW-67, RW-74	1,000V	5W	5.1 W		0.1 - 50K	0.1 - 25K
WWS5 / NWS5	-	1,000V	5W	5.1 W		0.1 - 40K	0.1 - 20K
WW7 / NWW7	-	1,000V	6.5W	7.2 W		0.1 - 70K	0.1 - 35K
WWS7 / NWS7	RW-67, RW-74	1,000V	6.5W	7.2 W		0.1 - 50K	0.1 - 25K
WW7B / NWW7B	-	1,000V	7W	7.7 W		0.1 - 100K	0.1 - 50K
WW10 / NWW10	RW-78	1,000V	10W	11.0 W		0.1 - 150K	0.1 - 75K
WWS10 / NWS10	-	1,000V	10W	11.0 W	>10Ω = ±20ppm/°C	0.1 - 100K	0.1 - 50K
MWW1 / NMWW1	RW-70	1,000V	1W	1.3 W		0.1 - 2K	-
MWW3 / NMWW3	RW-79	1,000V	3W	3.2 W		0.1 - 20K	-
MWW5 / NMWW5	RW-67, RW-74	1,000V	5W	5.5 W		0.1 - 40K	-
MWW10 / NMWW10	RW-68, RW-74	1,000V	10W	11.0 W		0.1 - 150K	-

(1) Lesser of √PR or maximum working voltage

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%

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

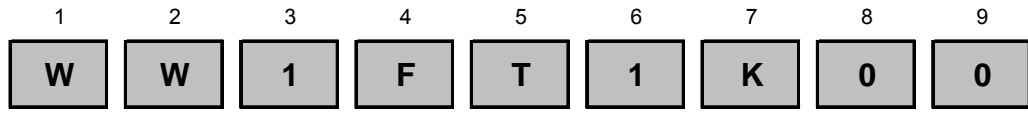
Power Derating Curve:



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

**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. 0.1 ohm = R100 2 Kohm = 2K00
MWW	Molded	WW1 / NWW1	1W	1.1 W	D	0.5%			WWS2 / NWS2		
NWW	Non-Inductive	WW1A / NWW1A	1W	1.3 W	F	1%			WW1A / NWW1A		
NWWS	Mini Non-Inductive	WW2 / NWW2	1.5W	2.1 W	J	5%			MWW1 / NMWW1		
		WWS2 / NWWS2	2.5W	2.6 W					WW2 / NWW2	2,000	
		WW2A / NWW2A	2.5W	2.6 W					WWS3 / NWWS3		
		WW3 / NWW3	3W	3.2 W					WW2A / NWW2A		
		WWS3 / NWWS3	3W	3.2 W					WW3 / NWW3		
		WW3A / NWW3A	3W	3.4 W					WWS4 / NWWS4	500	
		WW4 / NWW4	4W	4.3 W					MWW3 / NMWW3		
		WWS4 / NWWS4	4W	4.3 W					WW3A / NWW3A		
		WW5 / NWW5	5W	5.1 W					WW4 / NWW4		
		WWS5 / NWWS5	5W	5.1 W					WWS5 / NWWS5	250	
		WW7 / NWW7	6.5W	7.2 W					WW5 / NWW5		
		WWS7 / NWWS7	6.5W	7.2 W					WWS7 / NWWS7		
		WW7B / NWW7B	7W	7.7 W					WW7 / NWW7		
		WW10 / NWW10	10W	11.0 W					WW7B / NWW7B		
		WWS10 / NWWS10	10W	11.0 W					WWS10 / NWWS10		
		MWW1 / NMWW1	1W	1.3 W					MWW5 / NMWW5		
		MWW3 / NMWW3	3W	3.2 W					WW10 / NWW10		
		MWW5 / NMWW5	5W	5.5 W			MWW10 / NMWW10				
		MWW10 / NMWW10	10W	11.0 W							

Legacy Part Number (before January 3, 2011):

SEI Type	Code	Nominal Resistance	Tolerance	Packaging
<b>WW</b>	<b>1</b>	<b>10K</b>	<b>1%</b>	<b>R</b>

Type	Description	Tolerance	Types	Qty	Description	Code
WW	Standard	0.1%	WW12, NWW12, WW1, NWW1, WWS2, NWWS2	2,500	11" reel tape	R
WWS	Mini	0.5%	WW1A, NWW1A, MWW1, NMWW1			
MWW	Molded	1%	WW2, NWW2, WWS3, NWWS3, WW2A, NWW2A	2,000		
NWW	Non-Inductive	5%	WW3, NWW3, WWS4, NWWS4, MWW3, NMWW3			
NWWS	Mini Non-Inductive		WW3A, NWW3A, WW4, NWW4, WWS5, NWWS5	500		
			WW5, NWW5, WWS7, NWWS7, WW7, NWW7			
			WW7B, NWW7B, WWS10, NWWS10			
			MWW5, NMWW5			
			WW10, NWW10, MWW10, NMWW10	250		

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