

## Wirewound Resistor, Ultra Precision, High Stability, Epoxy Molded, Axial Lead


**FEATURES**

- Stability of  $\pm 20$  ppm/year
- Resistance values up to  $6\text{ M}\Omega$
- Resistance tolerances down to  $\pm 0.005\%$
- Tighter tolerances and lower resistance values available, please contact factory
- Temperature coefficients down to  $\pm 2$  ppm/ $^{\circ}\text{C}$ , and up to  $6000$  ppm/ $^{\circ}\text{C}$
- Matched resistance sets available in tolerances down to  $\pm 0.001\%$ , and in temperature coefficients down to  $\pm 0.5$  ppm/ $^{\circ}\text{C}$ , please contact factory
- Custom design capability available, please contact factory
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

**STANDARD ELECTRICAL SPECIFICATIONS**

GLOBAL MODEL	POWER RATING W <sup>(1)</sup>	RESISTANCE RANGE $\Omega$		RESISTANCE RANGE $\Omega$		RESISTANCE RANGE $\Omega$		RESISTANCE RANGE $\Omega$		MAXIMUM WORKING VOLTAGE V <sup>(2)</sup>
		$\pm 0.1\%$ , $\pm 0.25\%$ , $\pm 0.5\%$ , $\pm 1\%$	$\pm 0.05\%$ , $\pm 0.1\%$ , $\pm 0.25\%$ , $\pm 0.5\%$ , $\pm 1\%$	$\pm 0.01\%$ , $\pm 0.05\%$ , $\pm 0.1\%$ , $\pm 0.25\%$ , $\pm 0.5\%$ , $\pm 1\%$	$\pm 0.005\%$ , $\pm 0.01\%$ , $\pm 0.05\%$ , $\pm 0.1\%$ , $\pm 0.25\%$ , $\pm 0.5\%$ , $\pm 1\%$					
MR301	0.120	1 to 400K	5 to 400K	50 to 400K	1K to 400K	150				
MR302	0.175	1 to 750K	5 to 750K	50 to 750K	1K to 750K	200				
MR303	0.200	1 to 750K	5 to 750K	50 to 750K	1K to 750K	200				
MR304	0.150	1 to 500K	5 to 500K	50 to 500K	1K to 500K	100				
MR305	0.200	1 to 1.0M	5 to 1.0M	50 to 1.0M	1K to 1.0M	200				
MR306	0.250	1 to 1.2M	5 to 1.2M	50 to 1.2M	1K to 1.2M	300				
MR307	0.330	1 to 2.5M	5 to 2.5M	50 to 2.5M	1K to 2.5M	400				
MR308	0.400	1 to 3.8M	5 to 3.8M	50 to 3.8M	1K to 3.8M	300				
MR310	0.500	1 to 3.8 M	5 to 3.8 M	50 to 3.8 M	1K to 3.8 M	400				
MR311	0.500	1 to 3.8M	5 to 3.8M	50 to 3.8M	1K to 3.8M	400				
MR312	0.750	1 to 6.0M	5 to 6.0M	50 to 6.0M	1K to 6.0M	600				
MR314	1.000	1 to 6.0M	5 to 6.0M	50 to 6.0M	1K to 6.0M	800				
MR315	1.500	1 to 6.0M	5 to 6.0M	50 to 6.0M	1K to 6.0M	900				
MR316	2.000	1 to 6.0M	5 to 6.0M	50 to 6.0M	1K to 6.0M	1000				

**Notes**

<sup>(1)</sup> Power rating is based on tolerance, please see derating chart.

<sup>(2)</sup> The maximum working voltage is the highest voltage that can be applied to the resistor. Below this value, the maximum voltage that can continuously be applied is given by  $(P \times R)^{1/2}$ .

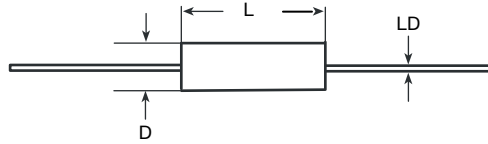
**GLOBAL PART NUMBER INFORMATION**

Global Part Numbering example: **MR30615K000QE66** (visit [www.vishay.net](http://www.vishay.net) SAP parts manual for all options)

M	R	3	0	6	1	5	K	0	0	0	Q	A	E	6	6		
GLOBAL MODEL (5 digits)  (see Standard Electrical Specifications Global Model column for options)					VALUE (6 digits)  R = decimal K = thousand M = million 1R5000 = 1.5 $\Omega$ 1K5000 = 1.5 k $\Omega$ 1M0000 = 1 M $\Omega$			TOLERANCE (1 digit)  S = $\pm 0.005\%$ T = $\pm 0.01\%$ Q = $\pm 0.02\%$ A = $\pm 0.05\%$ B = $\pm 0.1\%$ C = $\pm 0.25\%$ D = $\pm 0.5\%$ F = $\pm 1.0\%$			TC (1 digits)  A = standard, 10 to 30 (W) B = 3900 (Q) C = 4500 (M) D = 6000 (N) E = 3500 (P) Y = 10 ( $\geq 1\%$ ) G = 5 ( $\geq 10\%$ ) J = 2 ( $\geq 100\%$ )		PACKAGING CODE (3 digits)  E66 = lead (Pb)-free bulk pack		SPECIAL (up to 2 digits)  (dash number) from 1 to 99 as applicable S = 0.025" terminal		

Historical Part Number example: **MR306W15K0Q**

MR306	W = STANDARD	15 k $\Omega$	0.02 %
HISTORICAL MODEL	TC	RESISTANCE VALUE	TOLERANCE

**DIMENSIONS** in inches [millimeters]


MODEL	DIMENSIONS in inches [millimeters]		
	$L \pm 0.025$ [0.635]	$D \pm 0.005$ [0.127]	$LD \pm 0.002$ [0.051]
MR301	0.250 [6.35]	0.187 [4.75]	0.025 [0.635]
MR302	0.375 [9.52]	0.187 [4.75]	0.025 [0.635]
MR303	0.450 [11.43]	0.187 [4.75]	0.025 [0.635]
MR304	0.250 [6.35]	0.250 [6.35]	0.025 [0.635]
MR305	0.375 [9.52]	0.250 [6.35]	0.032 [0.813] <sup>(1)</sup>
MR306	0.500 [12.70]	0.250 [6.35]	0.032 [0.813] <sup>(1)</sup>
MR307	0.750 [19.05]	0.250 [6.35]	0.032 [0.813] <sup>(1)</sup>
MR308	0.500 [12.70]	0.375 [9.52]	0.032 [0.813]
MR310	0.750 [19.05]	0.375 [9.52]	0.032 [0.813]
MR311	0.750 [19.05]	0.375 [9.52]	0.032 [0.813]
MR312	1.000 [25.40]	0.375 [9.52]	0.032 [0.813]
MR314	1.000 [25.40]	0.500 [12.70]	0.032 [0.813]
MR315	1.500 [38.10]	0.500 [12.70]	0.032 [0.813]
MR316	2.000 [50.80]	0.500 [12.70]	0.032 [0.813]

**Note**

<sup>(1)</sup> 0.025" [0.635] available, this is called out by putting an "S" in the SPECIAL section of the part number.

**MATERIAL SPECIFICATIONS**

**Element:** nickel-chrome alloy, other materials available depending on TC requirements

**Core:** molded epoxy

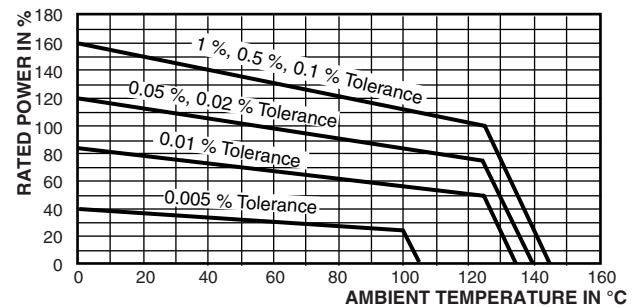
**Encapsulant:** epoxy

**Standard Terminals:** 100 % matte tinned copper

**Part Marking:** MILLS, model, value, tolerance, date code

**Note**

- Due to resistor size limitations some resistors will have minimal information marked on parts.

**DERATING**


TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	MR300 RESISTOR CHARACTERISTICS
Temperature Coefficient	ppm/°C	$\pm 10$ for $> 100 \Omega$ ; $\pm 20$ for $10 \Omega$ to $100 \Omega$ ; $\pm 30$ for $< 10 \Omega$
Terminal Strength	lb	4.5
Dielectric Withstanding Voltage	$V_{AC}$	750
Operating Temperature Range	°C	-55 to +145 (see derating chart)



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