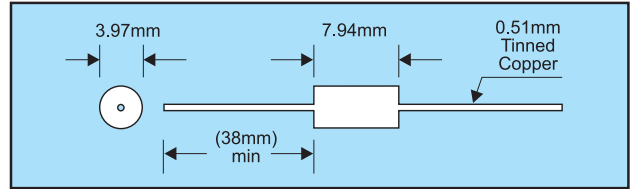
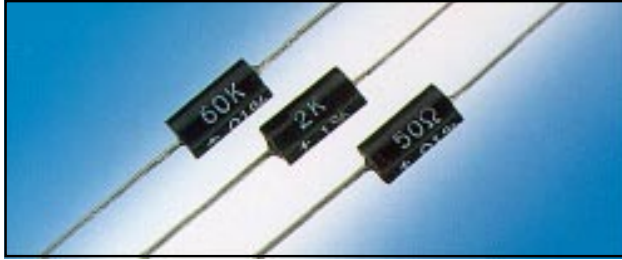


## MINIOHM (5E10) Precision Wirewound Resistor



Miniohms are only 7.94mm long with a diameter of 3.97mm, yet they incorporate advanced design and manufacturing features which provide unsurpassed accuracy, stability, load life and reliability. Each Miniohm undergoes three separate complete tests during manufacture including an accelerated ageing thermal shock procedure.

### FEATURES

- ◆ Miniature size
- ◆ Temperature co-efficient  $\pm 3\text{ppm}/^\circ\text{C}$
- ◆ Full load stability  $\pm 50\text{ppm}$  maximum after three years
- ◆ Tolerance  $\pm 0.01\%$  and  $\pm 0.1\%$

### OHMIC VALUES

Miniohms are available in 78 standard values from  $10\Omega$  to  $100\text{K}\Omega$  and in any 'non-standard' value from  $10\Omega$  to  $200\text{k}\Omega$ .

### CONSTRUCTION

Miniohms are made in an identical way to Econistors, incorporating the same all-welded construction. For a full description please refer to the notes and diagrams on the previous page.

### SPECIFICATIONS

- Temperature Co-efficient:**  
 $\pm 3\text{ppm}/^\circ\text{C}$  typical over  $0^\circ\text{C}$  to  $+85^\circ\text{C}$   
 $\pm 5\text{ppm}$  maximum over  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$
- Tolerance at  $25^\circ\text{C}$ :**  
 $\pm 0.01\%$ ,  $\pm 0.1\%$
- Full Load Stability:**  
 $\pm 35\text{ppm}/10,000\text{hours}$   
 $\pm 50\text{ppm}/26,000\text{hours}$
- No Load Stability:**  
 $\pm 25\text{ppm}/10,000\text{hours}$   
 $\pm 35\text{ppm}/26,000\text{hours}$  } over full temperature range;  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$
- Power Rating:**  
 0.2 watt ( $+85^\circ\text{C}$ )  
 0.14 watt ( $+110^\circ\text{C}$ )  
 measurable
- Noise:**  
 Essentially non-measurable
- Maximum Voltage:**  
 175V DC or AC peak
- Encapsulation:**  
 Moulded epoxy
- Thermal EMF:**  
 $< 0.4\mu\text{V}/^\circ\text{C}$  typical
- Leads:**  
 24 AWG tinned copper
- Windings:**  
 Balanced multiple  $\pi$  for low reactance. Exclusive 'air cushion' technique provides virtually stressless elements for improved performance. Non-inductively wound. Direction of winding reversed at half turns point.

### Thermal EMFs

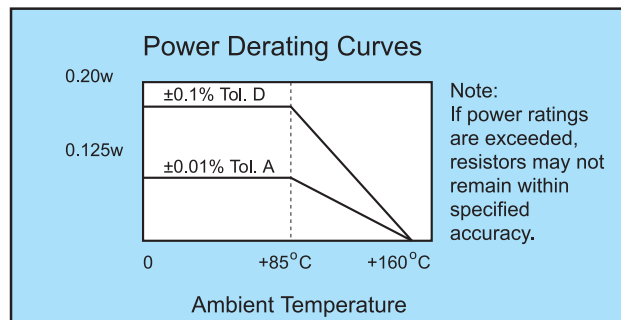
The temperature difference between the two copper to resistance wire joints is the critical factor. If the two junctions are at the same temperature, then the effect of thermal EMFs is minimised.

The construction of Miniohms is such that the two junctions are not more than 2mm apart, thus reducing any possibility of temperature difference almost to zero. This largely negates the effect of thermal EMFs in Miniohms.

The thermal EMF of the resistance material to copper join for Miniohms is typically  $< 0.4\mu\text{V}/^\circ\text{C}$ .

Stocked in $\pm 0.1\%$ and $\pm 0.01\%$ in listed values shown below					
10 $\Omega$	180 $\Omega^*$	680 $\Omega^*$	3.3K *	12K *	60K
20 $\Omega$	200 $\Omega$	700 $\Omega$	3.9K *	15K *	68K *
30 $\Omega$	220 $\Omega^*$	800 $\Omega$	4.0K *	18K *	70K
40 $\Omega$	250 $\Omega$	820 $\Omega^*$	4.7K *	20K	80K
50 $\Omega$	270 $\Omega^*$	900 $\Omega$	5.0K	22K *	82K *
60 $\Omega$	300 $\Omega$	1.0 K	5.6K *	25K	90K
62.5 $\Omega^*$	330 $\Omega^*$	1.2 K*	6.0K	27K *	99K *
70 $\Omega$	350 $\Omega$	1.5 K	6.8K *	30K	100K
80 $\Omega$	390 $\Omega^*$	1.8 K*	7.0K	33K *	Any non-listed value from 10 $\Omega$ to 200K $\Omega$ available to order
90 $\Omega$	400 $\Omega$	2.0 K	8.0K	39K	
100 $\Omega$	470 $\Omega^*$	2.2 K*	8.2K *	40K	
120 $\Omega$	500 $\Omega$	2.5 K	9.0K	47K *	
125 $\Omega^*$	560 $\Omega^*$	2.7 K*	9.9K *	50K	
150 $\Omega^*$	600 $\Omega$	3.0 K	10.0K	56K *	

\* Stocked in  $\pm 0.1\%$  tolerance only.



**ORDERING PROCEDURE EXAMPLE:**

<b>5 E 10</b>	<b>A</b>	<b>10 K</b>
Style and general specifications	Tolerance A = 0.01% D = 0.1%	R value in Ohms

Matched pairs and ratio matched resistors are available against specific enquiries.