

**598-112 TO 185**

MINIOHMS are only 5/16" long with a diameter of 5/32" 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 aging thermal shock procedure.

**MINIOHM**

**FEATURES:** Miniature size. Temperature co-efficient  $\pm 3$  ppm per deg.C. Full load stability  $\pm 50$  ppm max. after 3 years. Tolerance  $\pm 0.01\%$ ,  $\pm 0.025\%$  and  $\pm 0.1\%$ .

**SPECIFICATIONS**

**Tolerance at 25 deg. C:**

$\pm 0.01\%$ ,  $\pm 0.025\%$ ,  $\pm 0.1\%$

**Temperature Coefficient:**

$\pm 3$  ppm/deg.C typical over 0 deg.C to +85 deg.C  
 $\pm 5$  ppm max. over -55 deg.C to +125 deg.C

**Full Load Stability:**

$\pm 35$  ppm/10,000 hrs.  $\pm 50$  ppm/26,000 hrs.

**No Load Stability:**

$\pm 25$  ppm/10,000 hrs.) over full temp. range  
 $\pm 35$  ppm/26,000 hrs.) -55 deg.C to +125 deg.C

**Power Rating:**

0.2 watt (+85 deg.C)  
 0.14 watt (+110 deg.C)

**Max. Voltage:**

175V d.c. or a.c. peak

**Noise:** Essentially non-measurable

**Thermal e.m.f.**

$< 0.2\mu\text{V}/\text{deg. C}$

**Encapsulation:**

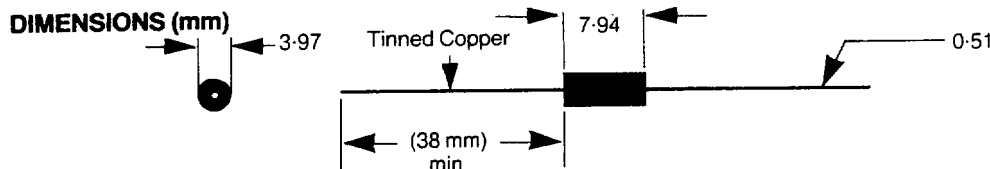
Moulded epoxy

**Leads:** 24 a.w.g. tinned copper

**Windings:**

Balanced multiple  $\pi$  for low reactance. Exclusive 'air cushion' technique provides virtually stressless elements for improved electrical performance. Non-inductively wound, direction of winding reversed at half turns point.

STOCKED IN $\pm 0.1\%$ & $\pm 0.01\%$ IN LISTED VALUES BELOW					
10 Ohms	180* Ohms	680* Ohms	3.3K*	12K*	60K
20 Ohms	200 Ohms	700 Ohms	3.9K*	15K*	68K*
30 Ohms	220* Ohms	800 Ohms	4K	18K*	70K
40 Ohms	250 Ohms	820* Ohms	4.7K*	20K	80K
50 Ohms	270* Ohms	900 Ohms	5K	22K*	82K*
60 Ohms	300 Ohms	1K	5.6K*	25K	90K
62.5* Ohms	330* Ohms	1.2K*	6K	27K*	99K*
70 Ohms	350 Ohms	1.5K	6.8K*	30K	100K
80 Ohms	390* Ohms	1.8K*	7K	33K*	
90 Ohms	400 Ohms	2K	8K	39K*	Any value
100 Ohms	470* Ohms	2.2K*	8.2K*	40K	from 10 $\Omega$
120 Ohms	500 Ohms	2.5K	9K	47K*	to 200K available
125* Ohms	560* Ohms	2.7K*	9.9K*	50K	to order.
150* Ohms	600 Ohms	3K	10K	56K*	



\* stocked in  $\pm 0.1\%$  tol. only.

## MINIOHM

### CONSTRUCTION

MINIOHMS are wound on a proprietary multi-section bobbin with the termination wires moulded deep into the body of the bobbin. Each copper to resistance-wire join is thus positioned near to the centre of the resistor and spaced apart from each other by only 2 mm. This is an important in minimizing the effect of thermal e.m.f.s. (See separate note on thermal e.m.f.s.) This method of construction also effectively isolates the fine resistance wire mechanically from the termination wires. To minimize inductance the direction of winding is reversed at the half turns point.

During the manufacturing process each resistor undergoes an ageing process for a minimum of 1 week in a temperature controlled oven in order to completely stabilize the

winding prior to calibration.

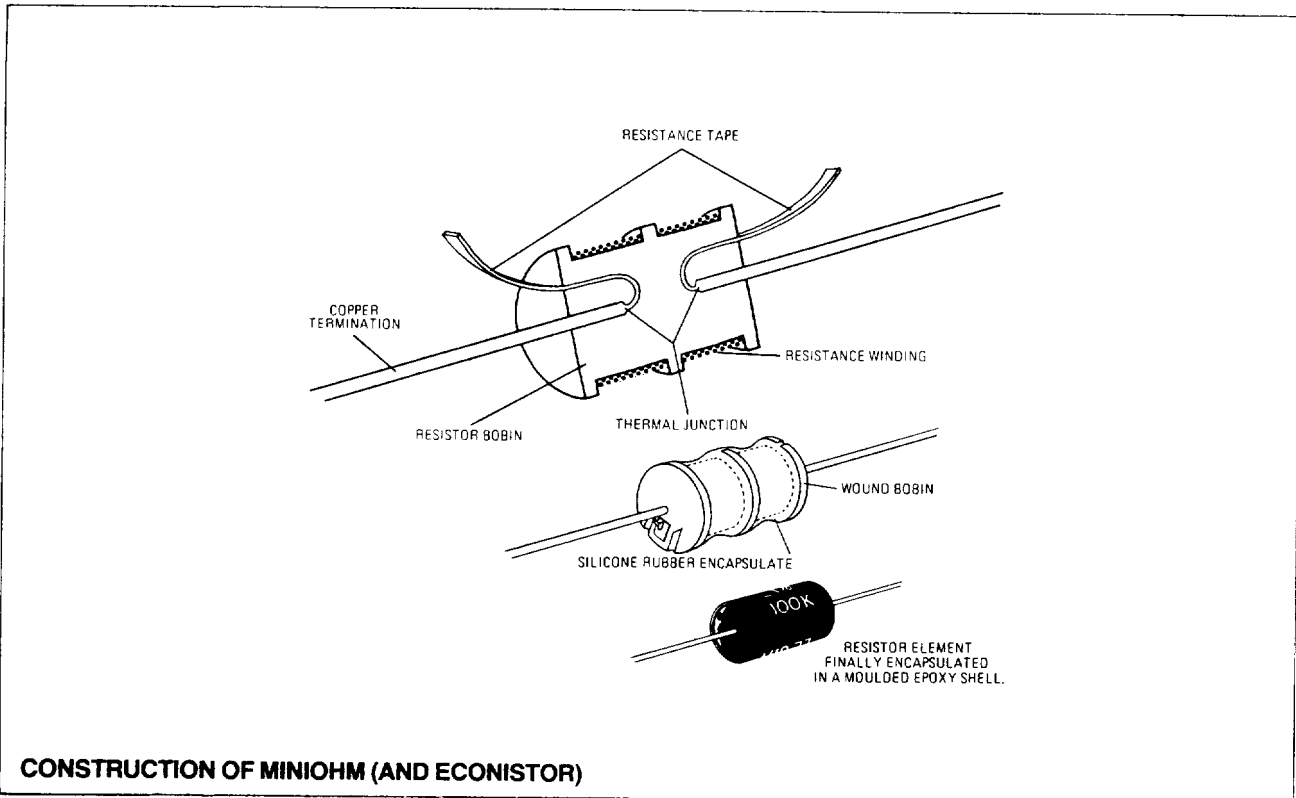
MINIOHMS are encapsulated in a moulded epoxy shell which fully seals the winding.

### THERMAL E.M.F.s

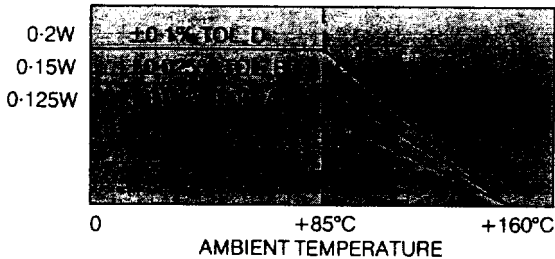
The temperature difference between the two copper to resistance wire joins is the critical factor. If the two junctions are at the same temperature, then the effect of thermal e.m.f.s. is minimized.

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

The thermal e.m.f. of the resistance material to copper join for MINIOHMS is  $<0.2\mu\text{V}/\text{deg. C.}$



### POWER DERATING CURVES



NOTE: If power ratings are exceeded, resistors may not remain within specified accuracy.

### ORDERING PROCEDURE

Example: 5E10 A 10K 10K

5E10	A	10K
Style and Gen. Specs.	Tolerance	R value in Ohms
	A = 0.01%	
	B = 0.025%	
	C = 0.1%	

Matched pairs and ratio matched resistors are available against specific enquiries