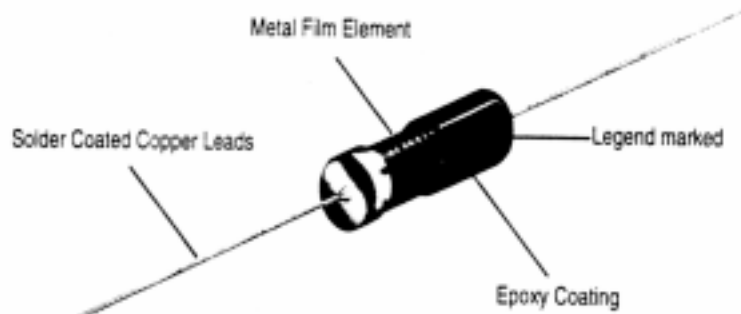


# ULTRA PRECISION METAL FILM RESISTOR

## CAR SERIES

- High reliability
- Ultra low temperature coefficient
- Low noise
- Superior moisture performance
- Non standard value available
- Highest stability metal film available
- Matched sets and networks



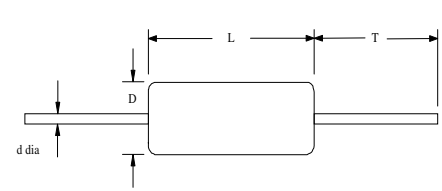
### ELECTRICAL DATA

Commercial	CAR5	CAR6	CAR7
Power rating @ 70°C	0.25 Watt	0.33 Watt	0.50 Watt
Power rating @ 85°C	0.125 Watt	0.25 Watt	0.25 Watt
Resistance range	10R0-3M00	10R0-5M00	10R0-10M0
Limiting element voltage	250	350	500
TCR (-20 to +85°C)PPM/°C	5 (V), 10 (T), 15 (Y), 25 (D), 50 (C)		
Resistance tolerance	0.01 (L), 0.02 (P), 0.05 (W), 0.10 (B), 0.25 (C), 0.50 (D), 1.0 (F)		
Thermal impedance	110°C/Watt	70°C/Watt	55°C/Watt
Ambient temperature range	-55 to +155	-55 to +155	-55 to +155

### BEST TOLERANCE/TCR COMBINATION

TC of R PPM/C	CAR5			CAR6			CAR7		
	0.01-0.02%	0.05%	0.10-0.1%	0.01-0.02%	0.05%	0.10-0.1%	0.01-0.2%	0.5%	0.10-1.0%
5	50R-250K	10R-250K	10R-300K	50R-500K	10R-500K	10R-500K	50R-1M0	10R-1M0	10R-1M0
10	50R-250K	10R-250K	10R-350K	50R-500K	10R-500K	10R-700K	50R-1M0	10R-1M0	10R-1M5
15	50R-250K	10R-250K	10R-500K	50R-500K	10R-500K	10R-1M0	50R-1M0	10R-1M0	10R-3M5
25	50R-250K	10R-250K	10R-1M5	50R-500K	10R-500K	10R-3M0	50R-1M0	10R-1M0	10R-5M0
50	50R-250K	10R-250K	10R-3M0	50R-500K	10R-500K	10R-5M0	50R-1M0	10R-1M0	10R-10M

### PHYSICAL DATA:

DIMENSIONS (mm) & WEIGHT (g)								
Type	L max	D max	T min	d nom	PCB mounting centers	Min Bend Radius	Wt nom	
CAR5	7.2	2.5	30	0.6	10.2	0.6	0.24	
CAR6	10.0	3.7	30	0.6	12.7	0.6	0.40	
CAR7	15.5	5.5	30	0.8	18.4	1.2	1.15	

## PERFORMANCE DATA

	CAR 5 & 6 <500K		CAR 5 & 6 >500K	
	CAR 7 <1M00		CAR 7 >1M00	
	MAXIMUM	TYPICAL	MAXIMUM	TYPICAL
<b>1000 Hour Load Life</b>				
<b>0.125 Watt at 85 C</b>	0.05%	0.02%	0.25%	0.05%
<b>0.250 Watt at 70 C</b>	0.05%	0.02%	0.25%	0.05%
<b>Short Time Over Load</b>	0.01%	0.001%	0.08%	0.01%
<b>Resistance to Solder Heat</b>	0.02%	0.003%	0.05%	0.005%
<b>High Temp Expose</b>		0.08%		0.2%
<b>Power Derating</b>	ZERO @ 155°C		ZERO @ 155°C	
<b>Thermal Shock</b>	0.04%	0.02%	0.25%	0.05%
<b>Noise</b>		0.03uV/V		0.1 uV/V
<b>Voltage Coefficient</b>		<0.05 ppm/V		<0.1 ppm/V
<b>Moisture</b>	0.04%	0.02%	0.20%	0.05%
<b>Vibration</b>	0.02%	0.002%	0.06%	0.02%
<b>Climatic Category</b>	55/155/56		55/155/56	
<b>Shelf Life (12 Month)</b>		0.003%		0.02%

### MATCHED SETS AND NETWORKS

IRC has many years of experience in the supply of matched sets of precision resistors.

Refer to application notes for more details

**ENQUIRIES WELCOME**

## APPLICATION NOTES

Resistors can be supplied matched for tolerance and TCR down to  $\pm 0.005\%$  and  $\pm 1\text{ppm}/^\circ\text{C}$ , either as separate resistors or pre-assembled and encapsulated within a plastic box.

The individual resistors within a set or module can be manufactured with a tolerance of  $\pm 0.01\%$  and a TCR of  $\pm 5\text{ppm}/^\circ\text{C}$ .

## PACKAGING

The standard packaging is loose in boxes. Taped resistors (on reel or in ammo pack) can also be supplied by special request. In case the usable length is reduced by the width of the tape. A detail taping specification is available on request.

### STANDARD QUANTITIES PER PACKAGE

TYPE	CAR 5	CAR 6	CAR 7
<b>BULK</b>	250	125	50
<b>AMMO</b>	1000	1000	N/A
<b>REEL</b>	1000	2500	N/A

## ORDERING PROCEDURE

Specify type reference etc. as indicated in this example of CARS 6.8K ohms 0.1% 50ppm/ $^\circ\text{C}$ .

