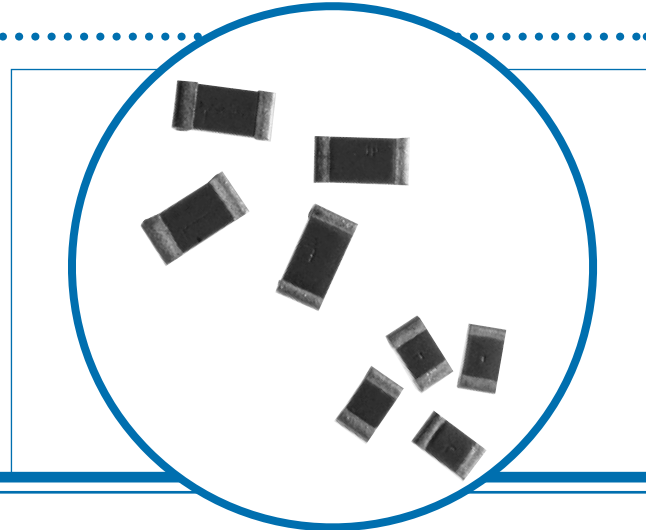


# High Precision Thick Film Surface Mounted Resistors

## PCR Series

- Tolerance down to 0.1%
- Excellent load stability
- Termination available for wire bonding or soldering
- Resistance range 10 ohms to 1M ohms
- Any resistance value available within specified range



## Electrical Data

		PCR0805	PCR1005	PCR1206	Notes
Power rating at 70°C	watts	0.1	0.125	0.25	
Resistance range	ohms	10R to 1M			
Limiting element voltage	volts	100	150	200	
TCR -55°C to +155°C	ppm/°C	100			
TCR +20°C to +70°C	ppm/°C	50			
Resistance tolerance	%	0.1, 0.25, 0.5, 1			
Values		E24 & E96 preferred			Any value to order
Thermal impedance	°C/watt	360	290	200	For 10 devices mounted on a 50 x 25 mm p.c.b. area
Ambient temperature range*	°C	-55 to 155			

\*See Application Notes

## Physical Data

Dimensions of standard styles (mm) & Weight (g)							
Style	L	W	T	Wrap around		planar	Wt
				A	B*	C	
0805	2.0 ± 0.3	1.25 ± 0.2	0.6	0.3 ± 0.15	0.9min	0.3 ± 0.1	0.009
1005	2.5 ± 0.3	1.25 ± 0.2	0.7	Not available		0.4 ± 0.15	0.015
1206	3.2 ± 0.4	1.6 ± 0.2	0.7	0.4 ± 0.2	1.7min	0.4 0.15	0.020

\*This dimension determines the number of conductors which may pass under the surface mounted device.

### Construction

Thick film resistor material, overglaze and organic protection are screen printed on a 96% alumina substrate.

### Adjustment

The components are adjusted to final value using a specially developed technique, which assures optimum load stability performance.

### Terminations

Planar (or single-sided) termination is gold and suitable for wire-bonding; wrap around is suitable for soldering.

### Solderability

Wrap-around terminations have an electroplated nickel barrier and solder coating, this ensures excellent 'leach' resistance properties and solderability. They will withstand immersion in solder at 260°C for 30 seconds.

### General Note

Welwyn Components reserves the right to make changes in product specification without notice or liability. All information is subject to Welwyn's own data and is considered accurate at time of going to print.

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Issue D · 08.04

## Performance Data

		Maximum	Typical
Load at rated power: 1000 hours at 70°C	ΔR%	10 - 25k: 0.10 >25k - 1M: 0.4	10 - 25k: 0.05 >25k - 1M: 0.2
Load at rated power: 8000 hours at 70°C	ΔR%	10 - 25k: 0.20 >25k - 1M: 0.80	10 - 25k: 0.10 >25k - 1M: 0.4
Load at 50% rated power: 1000 hours at 70°C	ΔR%	10 - 1M: 0.10	10 - 1M: 0.03
Load at 50% rated power: 8000 hours at 70°C	ΔR%	10 - 1M: 0.20	10 - 1M: 0.06
Shelf life: 12 months at room temperature	ΔR%	0.05	0.01
Derating from rated power at 70°C		Zero at 155°C	
Overload	ΔR%		0.04
Dry heat: 1000 hours at 155°C	ΔR%	0.1	0.04
Long term damp heat	ΔR%	0.1	0.04
Temperature rapid change	ΔR%	0.03	0.01
Resistance to solder heat	ΔR%	0.10	0.02
Voltage proof	volts	500	

## Value Ranges

Size/Tol. %	1	0.5	0.25	0.1
<b>PCR0805</b>	10 to 1M	10 to 1M	100 to 1M	100 to 1M
<b>PCR1005</b>	10 to 1M	10 to 1M	100 to 1M	100 to 1M
<b>PCR1206</b>	10 to 1M	10 to 1M	100 to 1M	100 to 1M

## Application Notes

### Operating Temperature Range

The chips can operate at a maximum temperature of 155°C (see Performance Data). For soldered chips, the joint temperature should not exceed 110°C. This condition is met when the stated power levels at 70°C are used.

### Mounting

This chip resistor is ideally suited for handling by automatic methods due to its rectangular shape and the small dimensional tolerances. Electrical connection to a ceramic substrate or to a printed circuit board can be made by wire bonding (eg suffix 'G' in PCR0805G) or by reflow soldering of wrap-around terminations (eg suffix 'F' in PCR0805F). The 'F' terminations provide good leach properties and ensure reliable contact. Due to the robust construction the resistor chip can be immersed in the solder bath for 30 seconds at 260°C. This enables the resistor to be mounted on one side of a printed circuit and other wire-leaded components on the other side.

### Packaging

Resistor chips are supplied taped and reeled on standard 8mm tape to IEC 286-3.

Quantity per reel 3000 max.

### Planar Terminations

Resistor chips are supplied in waffle packs.

## Ordering Procedure

Specify type reference, value and tolerance as shown in this example of PCR1206 1M0 0.1%:

Type ..... **1206** **1M0** **B**

Resistance value .....  
(IEC62 code)

Tolerance .....  
(IEC62 code)

B	0.1%
C	0.25%
D	0.5%