

Precision Metal Film Resistors

RCP Series

OBSOLETE
(RC70P ONLY)



Features:

- Precision resistors with uprated power
- Low TCRs over a wide resistance range
- Tolerance down to 0.05%
- Low noise and negligible voltage coefficient
- Options for Pb-free and Pb-bearing wire finishes



All Pb-free parts comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

Electrical Data

		RC55P	RC65P	RC70P
Power rating @70°C	W	0.5	1.0	1.5
Resistance range	ohms	1R0 – 4M0		1R0 – 10M
Limiting element voltage	V	350	500	
Isolation voltage	V	500		700
TCR (20 - 70°C) ¹	ppm/°C	5, 10, 15, 25, 50, 100		
Resistance tolerance ¹	%	0.05, 0.1, 0.25, 0.5		
Standard values ²		E24 & E96 preferred		
Thermal impedance	°C/W	110	70	60
Ambient temperature range	°C	-55 to 155		

Note 1: See table of resistance restrictions.

Note 2: Non-standard values may be requested.

Physical Data

Dimensions in mm and weight in g								
Type	L max ¹	D max	f min ²	d nom	PCB mounting centres	Min. bend radius	Wt. nom	
RC55P	7.2	2.5	30	0.6	10.2	0.6	0.24	
RC65P	10	3.7	30	0.6	12.7	0.6	0.4	
RC70P	15.5	5.5	30	0.8	18.4	1.2	1.15	

Note 1: Coating may extend up to 2mm along each lead.

Note 2: Dimension relates only to bulk packed products.

Construction

A metal film is deposited onto a high quality ceramic rod. Nickel-plated steel caps are force fitted to the rod and termination wires are welded to the caps. The resistor is adjusted to value by a helical cut in the film and the body is protected with a specially formulated epoxy coating.

Marking

Type reference, TCR code, resistance value and tolerance code are legend marked. The resistance values conform to IEC 62.

Terminations

Material Copper wire with Sn or SnPb finish.

Strength The terminations meet the requirements of IEC 68.2.21.

Solderability The terminations meet the requirements of IEC 115-1, clause 4.17.3.2.

Solvent Resistance

The body protection and marking are resistant to all normal industrial cleaning solvents suitable for printed circuit boards.

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.

All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Performance Data

(RC70P ONLY)

		RC55P Values $\geq 10R$ & $\leq 100K$		Other Values / Sizes	
		Maximum	Typical	Maximum ¹	Typical
Load at rated power: P_r for 1000 hours at 70°C	$\pm\Delta R\%$	0.1	0.03	0.5	0.1
Dry heat: No load, 1000 hours at 155°C	$\pm\Delta R\%$	0.3	0.1	1	0.15
Shelf-life test: 12 months at room temperature	$\pm\Delta R\%$	0.015	0.003	0.1	0.03
Derating from rated power at 70°C		Zero @155°C			
Short term overload: Lesser of $6.25 \times P_r$ or $2.5 \times LEV$ for 5s	$\pm\Delta R\%$	0.5	0.005	0.1	0.02
Climatic	$\pm\Delta R\%$	0.25	0.05	0.3	0.1
Climatic category		55/155/56			
Long term damp heat	$\pm\Delta R\%$	0.25	0.05	0.5	0.1
Temperature rapid change	$\pm\Delta R\%$	0.04	0.02	0.2	0.05
Resistance to solder heat	$\pm\Delta R\%$	0.02	0.003	0.06	0.03
Vibration	$\pm\Delta R\%$	0.2	0.002	0.06	0.02
Bump	$\pm\Delta R\%$	0.2	0.002	0.06	0.02
Noise in a decade of frequency	$\mu V/V$	0.1	0.03	1	0.1
Voltage coefficient of resistance	ppm/V	-	<1	-	<1

Note 1: Apply an ohmic addition of R01 for values <10R.

Table of Resistance Restrictions

	Tolerance %								
TCR ppm/°C	RC55P			RC65P			RC70P		
	0.05	0.1 - 0.25	0.5 ³	0.05	0.1 - 0.25	0.5 ³	0.05	0.1 - 0.25	0.5 ³
5 ¹	10R to 500K		1R0 to 500K	10R to 500K		1R0 to 500K	10R to 750K		
10	10R to 1M0	10R to 1M0	1R0 to 1M0	10R to 1M0	10R to 1M0	1R0 to 1M0	10R to 1M0	10R to 1M0	1R0 to 1M0
15					5R0 to 1M0			10R to 2M0	1R0 to 2M0
25		10R to 2M0	1R0 to 2M0		5R0 to 2M0	1R0 to 2M0		10R to 5M0	1R0 to 5M0
50 ²			1R0 to 4M0		1R0 to 2M0	1R0 to 4M0		5R0 to 10M	1R0 to 10M
100 ²								1R0 to 10M	

Note 1: Based on sampling. 100% screened product is available.

Note 2: For maximum availability, where the ohmic value permits, 25ppm/°C is preferred to 50 or 100ppm/°C.

Note 3: For maximum availability, where the ohmic value permits, 0.25% is preferred to 0.5%.

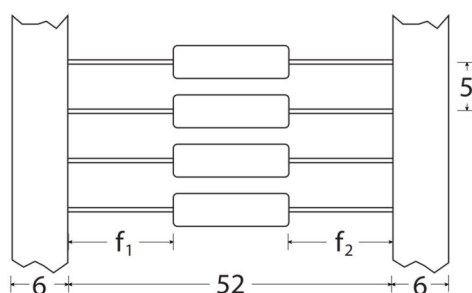
Application Notes

Matched Sets

TT Electronics has many years' experience in the supply of matched sets of precision resistors. Resistors can be supplied matched for tolerance and TCR down to $\pm 0.02\%$ and $\pm 2\text{ppm}/^\circ\text{C}$.

Packaging

RC55P and RC65P standard packing is in tape, as shown below, whilst RC70P is bulk packed. Taped resistors on reel or loose packed components can also be supplied by special request.

Body location $f_1 - f_2 \leq 1.4 \text{ mm}$

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Ordering Procedure

(RC70P ONLY)

Example: RC55PV-31K6BI (RC55P with TCR $\pm 5\text{ppm}/^\circ\text{C}$ at 31.6 kilohms $\pm 0.1\%$, Pb-free)

R	C	5	5	P	V	-	3	1	K	6	B	I	
1		2	3			4	5						

1 Type	2 TCR (ppm/°C)	3 Value	4 Tolerance	5 Finish, Screening & Packing	
RC55P	V = ± 5	E24 = 3/4 characters	W = $\pm 0.05\%$	I	Pb-free (RoHS)
RC65P	T = ± 10	E96 = 3/4 characters	B = $\pm 0.1\%$	SC	Pb-free with screened TCR (5ppm only)
RC70P	Y = ± 15	R = ohms	C = $\pm 0.25\%$	PB	Sn(95)Pb(5) finish
	D = ± 25	K = kilohms	D = $\pm 0.5\%$	All above in Standard Packing	
	C = ± 50	M = megohms		RC55P	Up to 5000/box
	Z = ± 100			RC65P	Up to 2500/box
				RC70P	250/box