

# TC05 Series Thin Film Resistors



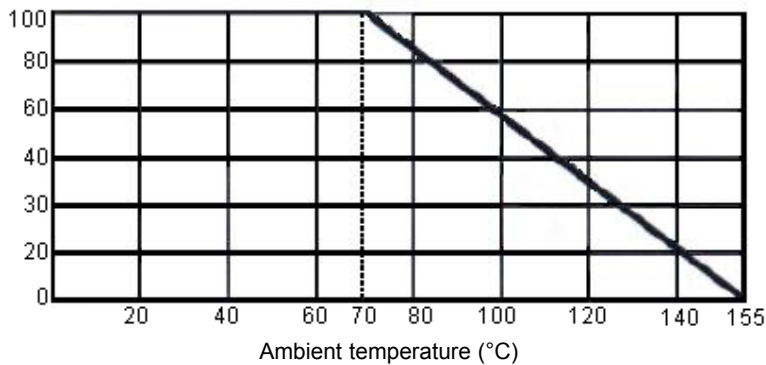
## Specification Table

Type	Power Rating (W)	Maximum Working Voltage (V)	Maximum Overload Voltage (V)	Temperature Range (°C)	Ambient Temperature (°C)	Resistors Range (Special Low) ( $\Omega$ )	Resistors Range ( $\Omega$ )	Resistors Range (Special High) ( $\Omega$ )
RMC TC05	0.10 (1/10)	100	200	-55 to +155	70	4.7 to 9.76	10 to 1M	1.1M to 2M

### Power Rating:

Resistors shall have a power rating based on continuous load operation at an ambient temperature of 70°C. For temperature in excess of 70°C, The load shall be derate.

### Derating Curve



### Nominal Resistance

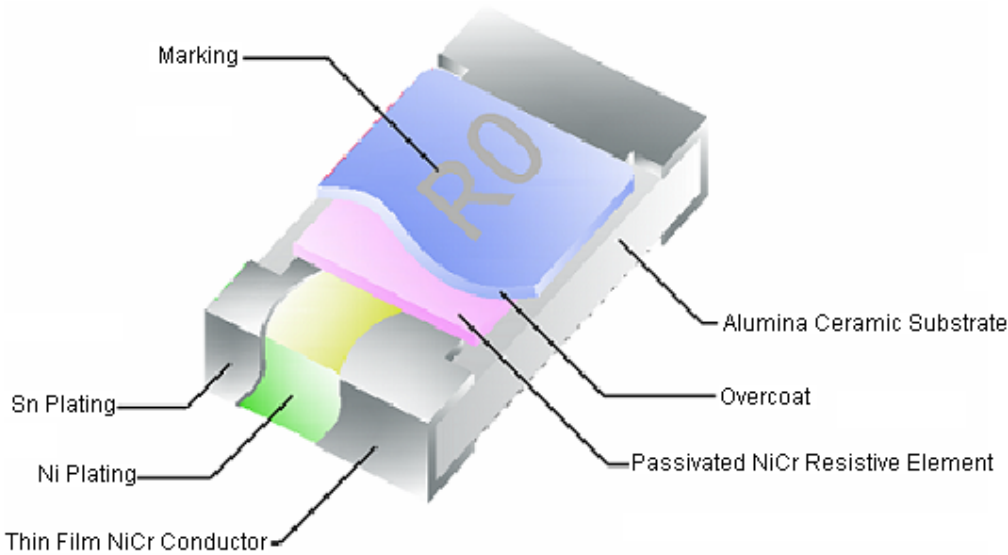
Effective figures of nominal resistance shall be in accordance with E-24, E-96 and E-192 series. E-96 for 1%, E-24 series for 2%, 5%, 10% and E-192 for 0.5%, 0.25%, 0.1% .



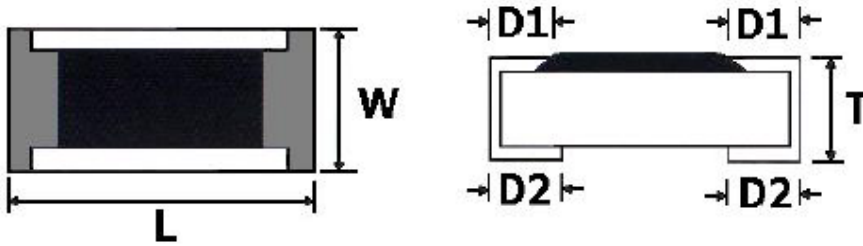
# TC05 Series Thin Film Resistors



## Construction:



## Power Rating and Dimensions



Dimensions : Millimetres

## Dimensions

Type	L $\pm 0.15$	W + 0.15 - 0.10	T $\pm 0.10$	D1 $\pm 0.20$	D2 $\pm 0.25$
TC05	2.00	1.25	0.55	0.40	0.40

Dimensions : Millimetres

## Power Rating

Type	Power Rating at 70°C (W)	Tolerance %	Resistance Range (Special Low) ( $\Omega$ )	Resistance Range ( $\Omega$ )	Resistance Range (Special High) (M $\Omega$ )	Standard Series	PPM/°C
TC05	0.10 (1/10)	$\pm 0.1$	4.7 to 9.76	10 to 1M	1.1 to 2	E-192	25

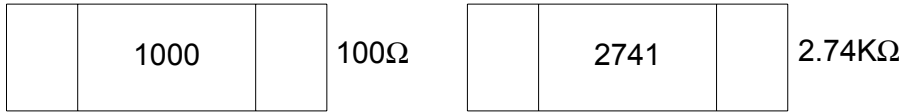


# TC05 Series Thin Film Resistors



## Marking on the Resistors:

±0.1% Tolerance : 4 Digits, the first three digits are significant figures of resistance and the fourth digit denoted number of zeros. Letter "R" is for decimal point.



## Performance specifications

Characteristics	Limits	Test Methods (JIS C 5201-1)
Temperature coefficient	4.7Ω to 2MΩ ±25 PPM/°C	Natural resistance change per temperature degree centigrade $R_2 - R_1 / R_1 (t_2 - t_1) \times 10^6$ (PPM/°C) R <sub>1</sub> : Resistance value at room temperature (t <sub>1</sub> ) R <sub>2</sub> : Resistance value at room temperature plus 100°C (t <sub>2</sub> ).
Short time overload	Resistance change rate is ±(0.5% + 0.05Ω)	Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds.
Insulation resistance	>1,000MΩ	Apply 100V DC between protective coating and termination for 1 minimum, then measure
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation break down.	Apply maximum. overload voltage for 1 minute.
Terminal bending	±(0.2% + 0.05Ω)	Twist of test board : Y/X = 5/90mm for 10 seconds.
Soldering heat	Resistance change rate is ±(0.2% + 0.05Ω)	Dip the resistor into a solder bath having a temperature of 260°C ±5°C and hold it for 10 ±1 seconds
Load life in humidity	Resistance change rate is ±(0.3% + 0.05Ω)	Resistance change after 1000 hours (1.5 hours "on", 0.5 hour "off" ) at RCWV in a humidity chamber controlled at 40°C ±2°C and 90 to 95% relative humidity
Load Life	Resistance change rate is ±(0.2% + 0.05Ω) >7KΩ ±(0.5% + 0.05Ω)	Permanent resistance change after 1000 hours operating at RCWV, with duty cycle of (1.5 hours "on", 0.5 hour "off") at 70°C ±2°C ambient.
Solderability	95% coverage minimum	Test temperature of solder : 260°C ±5°C Dipping them solder : 2 ±0.5 seconds.

# TC05 Series Thin Film Resistors



## Resistance Preferred Value Range

E6	E12	E24	E96	E6	E12	E24	E96	E6	E12	E24	E96
10	10	10	10.0				21.5				46.4
			10.2	22	22	22	22.1	47	47	47	47.5
			10.5				22.6				48.7
			10.7				23.2				49.9
		11	11.0				23.7			51	51.1
			11.3			24	24.3				52.3
			11.5				24.9				53.6
			11.8				25.5				54.9
	12	12	12.1				26.1	56	56	56	56.2
			12.4				27.7				57.6
			12.7		27	27	27.4				59.0
		13	13.0				28.0				60.4
			13.3				28.7			62	61.9
			13.7				29.4				63.4
			14.0			30	30.1				64.9
			14.3				30.9				66.5
			14.7				31.6	68	68	68	68.1
			15.0				32.4				69.8
15	15	15	15.4	33	33	33	33.2				71.5
			15.8				34.0				73.2
		16	16.2				34.8			75	75.0
			16.5				35.7				76.8
			16.9			36	36.5				78.7
			17.4				37.4				80.6
			17.8				38.3	82	82	82	82.5
	18	18	18.2		39	39	39.2				84.5
			18.7				40.2				86.6
			19.1				41.2				88.7
			19.6				42.2			91	90.9
		20	20.0			43	43.2				93.1
			20.5				44.2				95.3
			21.0				45.3				97.6

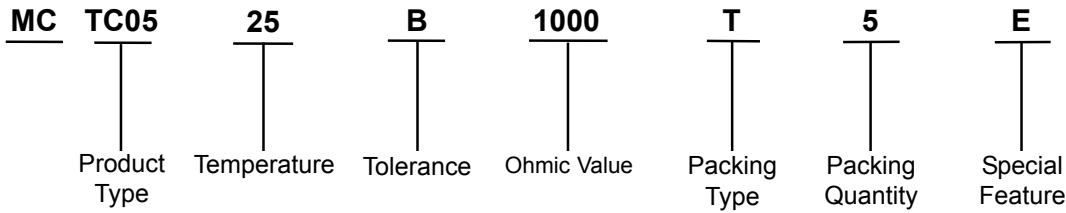
Above values in accordance with IEC Publication 63 (1963) and BS2488



# TC05 Series Thin Film Resistors



## Part Number Explanation:



- Product Type** : TC05 = 0805.
- Temperature** : 25 = 25PPM.
- Tolerance** : B =  $\pm 0.1\%$ .
- Ohmic Value** : Where R = Ohms =  $\Omega$ .  
 K = Kiloohms =  $K\Omega$ .  
 M = Megaohms =  $M\Omega$ .  
 And replaces the decimal point.  
 eg: 1R5 =  $1.5\Omega$ .  
 4K7 =  $4.7K\Omega$ .  
 6M8 =  $6.8M\Omega$ .
- Packing Type** : T = T/R Packing.
- Packing Quantity** : 5 = 5000 pieces.
- Special Feature** : E = Lead free plating type.

## Stocked Values

Tolerance	Wattage (W)	Preferred Value Range	Range Value
1%	0.063	E96	1R5 - 1M
1%	0.1	E24	1R5 - 1M
1%	0.125	E24	10R - 1M



# TC05 Series Thin Film Resistors



## Notes:

## International Sales Offices:



**AUSTRALIA - Farnell**  
Tel No: ++61 1300 361 005  
Fax No: ++61 1300 361 225



**FINLAND - Farnell**  
Tel No: ++358 9 560 7780  
Fax No: ++358 9 345 5411



**ITALY - Farnell**  
Tel No: ++39 02 93 995 200  
Fax No: ++39 02 93 995 300



**SPAIN - Farnell**  
Tel No: 901 20 20 80  
Fax No: 901 20 20 90



**AUSTRIA - Farnell**  
Tel No: ++43 662 2180 680  
Fax No: ++43 662 2180 670



**FRANCE - Farnell**  
Tel No: ++33 474 68 99 99  
Fax No: ++33 474 68 99 90



**MALAYSIA - Farnell-Newark**  
Tel No: ++60 3 7873 8000  
Fax No: ++60 3 7873 7000



**SWEDEN - Farnell**  
Tel No: ++46 8 730 50 00  
Fax No: ++46 8 83 52 62



**BELGIUM - Farnell**  
Tel No: ++32 3 475 2810  
Fax No: ++32 3 227 3648



**GERMANY - Farnell**  
Tel No: ++49 89 61 39 39 39  
Fax No: ++49 89 613 59 01



**NETHERLANDS - Farnell**  
Tel No: ++31 30 241 7373  
Fax No: ++31 30 241 7333



**SWITZERLAND - Farnell**  
Tel No: ++44 204 64 64  
Fax No: ++44 204 64 54



**BRAZIL - Farnell-Newark**  
Tel No: ++55 11 4066 9400  
Fax No: ++55 11 4066 9410



**HONG KONG - Farnell-Newark**  
Tel No: ++852 2268 9888  
Fax No: ++852 2268 9899



**NEW ZEALAND - Farnell**  
Tel No: 0800 90 80 80  
Fax No: 0800 90 80 81



**UK - Farnell**  
Tel No: ++44 8701 200 200  
Fax No: ++44 8701 200 201



**CHINA - Farnell-Newark**  
Tel No: ++86 10 6238 5152  
Fax No: ++86 10 6238 5022



**HUNGARY - Farnell**  
Tel No: ++44 870 1200 208  
Fax No: ++44 870 1200 209



**NORWAY - Farnell**  
Tel No: 800 146 70  
Fax No: 800 146 76



**UK - CPC**  
++44 8701 202 530  
++44 8701 202 531



**CZECH REPUBLIC - Farnell**  
Tel No: ++44 870 1200 208  
Fax No: ++44 870 1200 209



**INDIA - Farnell**  
Tel No: ++44 870 1200 208  
Fax No: ++44 870 1200 209



**PORTUGAL - Farnell**  
Tel No: ++34 93 475 8804  
Fax No: ++34 93 474 5288



**USA - Newark**  
Tel No: 800 463 9275



**DENMARK - Farnell**  
Tel No: ++45 44 53 66 44  
Fax No: ++45 44 53 66 06



**IRELAND - Farnell**  
Tel No: ++353 1 830 9277  
Fax No: ++353 1 830 9016



**RUSSIA - Farnell**  
Tel No: ++44 870 1200 208  
Fax No: ++44 870 1200 209



**EXPORT - Farnell**  
Tel No: ++44 8701 200 208  
Fax No: ++44 8701 200 209

For enquiries from all other markets



**ESTONIA - Farnell**  
Tel No: ++358 9 560 7780  
Fax No: ++358 9 345 5411



**ISRAEL - Farnell**  
Tel No: ++180 937 0015  
Fax No: ++180 937 0014



**SINGAPORE - Farnell-Newark**  
Tel No: ++65 6788 0200  
Fax No: ++65 6788 0300

<http://www.farnell.com>  
<http://www.newark.com>  
<http://www.cpc.co.uk>

**Disclaimer** This data sheet and its contents (the "Information") belong to the Premier Farnell Group (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. SPC Multicomp is the registered trademark of the Group. © Premier Farnell plc 2008.

