

# **Type TE Series**

Up to 2500W Power rating in free air

**Key Features** 

Flameproof construction – UL94V coating

**RoHS compliant** 

Custom terminations / leads available

#### Applications

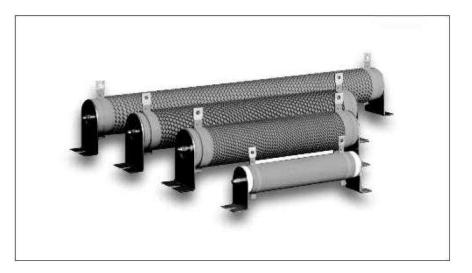
Large electrical and production machinery

Load test simulation

Motor start / stop cycles

Dynamic braking

Equipment discharge



TE Connectivity is a leading supplier of standard and custom-designed power resistors for industrial, control and general- purpose applications.

The TE range of flameproof coated tubular ceramic core resistors use both standard and edge wound (corrugated) winding methods to improve power handling capability. Designed for heavy duty machinery, electrical equipment, motor control etc. requiring stability and reliability.

Characteristics – Electrical

Power rating @70°C in free air	50W – 2500W (see table)
Resistance range	See table
Selection series	E12
Tolerance	±5% ±10%
Temperature Coefficient of	<20Ω ±400PPM/°C
resistance	≥20Ω ±300PPM/°C
Operating temperature range	-55 ~ +155°C
Short term overload	3 x rated power / 5 seconds
Dielectric strength	2500VAC Min.
Insulation resistance	DC500V 20MΩ min.

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Dimensions in millimetres unless otherwise specified Dimensions Shown for reference purposes only. Specifications subject to change



Specifications – Electrical
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Power	Resistance Value	Tolerance	Appearance
Rating			
50W	R10 ~ 2K7	±5% ±10%	Smooth
60W	R10 ~ 2K7	±5% ±10%	Smooth
80W	R10 ~ 2K7	±5% ±10%	Smooth
100W	1R0 ~ 2K7	±5% ±10%	Smooth
120W	1R0 ~ 2K7	±5% ±10%	Smooth
150W	1R0 ~ 2K7	±5% ±10%	Smooth
200W	1R0~9R1	±5% ±10%	Ribbed
20070	10R ~ 2K7	±5% ±10%	Smooth
300W	1R0~9R1	±5% ±10%	Ribbed
30070	10R ~ 2K7	±5% ±10%	Smooth
400W	1R0 ~ 15R	±5% ±10%	Ribbed
400 W	16R ~ 2K7	±5% ±10%	Smooth
500W	1R0 ~ 20R	±5% ±10%	Ribbed
50000	21R ~ 2K7	±5% ±10%	Smooth
600W	1R0 ~ 20R	±5% ±10%	Ribbed
00000	21R ~ 2K7	±5% ±10%	Smooth
750W	1R0 ~ 75R	±5% ±10%	Ribbed
	76R ~ 2K7	±5% ±10%	Smooth
1000W	1R0 ~ 100R	±5% ±10%	Ribbed
1000	101R ~ 2K7	±5% ±10%	Smooth
1200W	1R0 ~ 100R	±5% ±10%	Ribbed
120070	101R ~ 2K7	±5% ±10%	Smooth
1500W	1R0 ~ 120R	±5% ±10%	Ribbed
120044	121R ~ 2K7	±5% ±10%	Smooth
20001	1R0 ~ 120R	±5% ±10%	Ribbed
2000W	121R ~ 2K7	±5% ±10%	Smooth
250014	1R0 ~ 120R	±5% ±10%	Ribbed
2500W	121R ~ 2K7	±5% ±10%	Smooth

## Voltage rating:

Resistors shall have a rated direct-current (DC) continuous working voltage or an approximate sine-wave root-mean-square (RMS) alternating-current (AC) continuous working voltage at commercial line frequency and waveform corresponding to the power rating, as determined from the following formula:

 $RCWV = VP \times R$ 

Where : RCWV = Rated DC or RMS AC continuous working voltage at commercial-line frequency and waveform (volt)

- P = Power Rating (watt)
- R = Nominal Resistance (ohm)

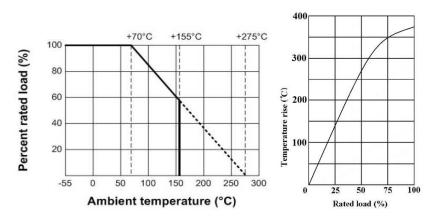
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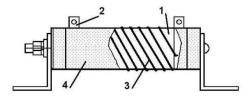
## **Derating Curve**

## **Temperature Rise Chart**

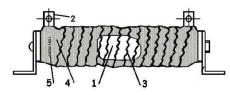


Construction:

Smooth:



Ribbed:



No.	Name	Material	Material Generic Name
1	Basic Body	Rod Type Ceramics	Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>
2	Terminal	Tin plated terminal cap	Fe : 73%, Mn : 21%, C : 5%
3	Resistance Wire	Ni-Cr or Cu-Ni Alloy	Ni-Cr or Cu-Ni Alloy
4	Coating	Insulated and non-flame paint (Color: Green)	Non-Flame paint UL94V
5	Marking	Marking Ink	

# Marking



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## **Environmental Characteristics:**

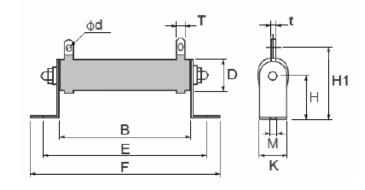
Characteristics	Limits	Test Methods
		(JIS C 5201-1)
Temperature	<20Ω : ± 400 PPM/°C Max.	Natural Resistance change per temperature degree
Coefficient	≥20Ω : ± 300 PPM/°C Max.	centigrade.
		R <sub>2</sub> -R <sub>1</sub> x10 <sup>6</sup> (PPM/°C)
		$R_1(t_2-t_1)$
		11(12-11)
		$R_1$ : Resistance value at room temperature ( $t_1$ )
		$R_2$ : Resistance value at room temperature (ti) $R_2$ : Resistance value at room temperature +100°C (t <sub>2</sub> )
		(Sub-clause 4.8)
Short term	±(2% + 0.05Ω) Max. with no	Permanent resistance change after the application of a
overload	evidence of mechanical	potential of 3 x RCWV for 5 seconds
	damage	Sub-clause 4.13
Terminal	No evidence of mechanical	Direct load :
Strength	damage	Resistance to a 2.5 kgs direct load for 10 secs. in the
U U	-	direction of the longitudinal axis of the terminal leads
		Twist Test :
		Terminal leads shall be bent through 90 ° at a point of
		about 6mm from the body of the resistor and shall be
		rotated through 360° about the original axis of the bent
		terminal in alternating direction for a total of 3 rotations
		(Sub-clause 4.16)
Solderability	95 % coverage Min.	The area covered with a new smooth, clean, shiny and
		continuous surface free from concentrated pinholes.
		Test temp. of solder : 245°C ± 3°C
		Dwell time in solder : 2 ~ 3 seconds
		(Sub-clause 4.17)
Soldering Temp.	Electrical Characteristics shall	Terminals immersed into solder bath to 3.2 ~ 4.8mm
Reference	be satisfied without distinct	from the body. Permanent resistance change shall be
	deformation in appearance.	checked.
	(95% coverage Min.)	Ways coldering condition (2 cycles max)
		Wave soldering condition (2 cycles max.) Pre-heat : 100 ~ 120 °C, 30 ± 5sec.
		Suggested solder temp.: 235 ~ 255 °C, 10 sec. (max.)
		Peak temp.: 260 °C
		Hand soldering condition:
		Hand Soldering bit temp. : 380 ± 10 °C
		Dwell time in solder : $3 + 1/-0$ sec.
Resistance to	Resistance change rate	Permanent resistance change when terminals immersed
soldering heat	±(1%+0.05Ω) with no	to 3.2 ~ 4.8mm from body in 350°C ±10°C solder for
	evidence of mechanical	3±0.5 seconds
	damage	Sub-clause 4.18
Load life in	Resistance change rate	Resistance change after 1,000 hours (1.5 hours "on", 0.5
humidity	±(5%+ 0.05Ω) Max. with no	hour "off") at RCWV in a humidity test chamber
	evidence of mechanical	controlled at 40 °C± 2 °C and 90 to 95 % relative
	damage	humidity
		(Sub-clause 4.24.2.1)
Load Life	Resistance change rate	Permanent resistance change after 1,000 hours
	±(5%+ 0.05Ω) Max. with no	operating at RCWV with duty cycle of (1.5 hours "on",
	evidence of mechanical	0.5 hour "off") at 70°C ± 2°C ambient
	damage	(Sub-clause 4.25.1)

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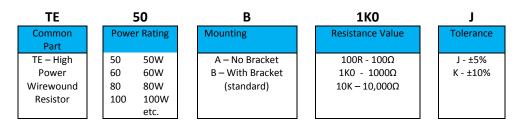


Power	Dimension (mm)										
rating	B±2	E±5	F±3	D±2	H±1	H1±3	M±0.5	K±1	T±0.5	t±0.5	Ød ±0.5
50W	102	124	146	28	28	61	6.5	28	8	1.8	4.3
60W	102	124	146	28	28	61	6.5	28	8	1.8	4.3
80W	152	174	196	28	28	61	6.5	28	8	1.8	4.3
100W	182	204	226	28	28	61	6.5	28	8	1.8	4.3
120W	182	204	226	28	28	61	6.5	28	8	1.8	4.3
150W	195	217	239	40	41	81	8	40	10	1.8	5.5
200W	195	217	239	40	41	81	8	40	10	1.8	5.5
300W	282	304	326	40	41	81	8	40	10	1.8	5.5
400W	282	304	326	40	41	81	8	40	10	1.8	5.5
500W	316	338	360	50	45	101	8	50	16	1.8	6.5
600W	345	367	389	40	41	81	8	40	10	1.8	5.5
750W	316	338	360	50	45	101	8	50	16	1.8	6.5
1000W	300	325	350	60	60	119	8.5	60	15	2	6.5
1200W	415	440	465	60	60	119	8.5	60	15	2	6.5
1500W	415	440	465	60	60	119	8.5	60	15	2	6.5
2000W	510	535	560	60	60	119	8.5	60	15	2	6.5
2500W	600	625	650	60	60	119	8.5	60	15	2	6.5

Label

**TE** TE1000B33RJ 1-1879453-9 Lot no. 18010222 Qty : 1 Pcs.

#### How To Order



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