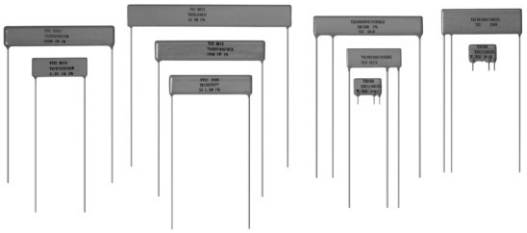
Thick Film Resistors and Dividers, Through-Hole, High Voltage



STANDARD ELECTRICAL SPECIFICATIONS				
MODEL	RESISTANCE (Ω) (1)		MAXIMUM POWER RATING (W)	MAXIMUM VOLTAGE (V)
	(Min.)	(Max.)		
TR03	300	10G	0.25	2.5K
TR05	500	100G	0.50	5K
TR10	1000	1T	1.00	10K
TR15	1500	1.5T	1.50	15K
TR20	2000	2T	2.00	20K
TR30	3000	3T	3.00	30K

Notes

(1) All resistance values are calibrated at 100 V_{DC}. Calibration at other voltages available upon request.

- Custom sizes available

MECHANICAL SPECIFICATIONS

Resistive Element: Thick film
Substrate: 96 % pure alumina
Encapsulation: Epoxy base, conformal coating
Terminals: Tin plated copper leads
Terminal Strength: 4.5 pounds pull-test
Power: Derated from ambient temperature + 25 °C

ENVIRONMENTAL SPECIFICATIONS

Temperature Range: - 55 °C to + 125 °C (For higher temperature range, consult factory)

FEATURES

Pb-free Available
RoHS* COMPLIANT

- 30 000 V capability
- Very low voltage coefficient to less than 1 ppm/V
- Outstanding stability under adverse conditions
- Stable cermet resistive element bonded to a high-purity alumina substrate
- Tough epoxy-based coating and high voltage stability
- Designs built from customer supplied schematics
- Dividers available leaded or non-leaded
- Typical resistance ratios of 1000:1, 2000:1, etc.
- TCR tracking to ± 5 ppm/°C depending on values
- TD series dividers available, contact factory
- Lead (Pb)-free version is RoHS compliant

APPLICATIONS

Applications include power supplies, transformers and any application requiring operation within an environment where high voltages are used.

ELECTRICAL SPECIFICATIONS

Resistance Range: 300 Ω to 3 TΩ
Resistance Tolerance: ± 1 % to ± 20 %
(values over 1 GΩ, consult factory)
Ratio Tolerance: 1 % to 20 %
Temperature Coefficient: < 100 ppm/°C absolute (values over 1 GΩ, consult factory)
Ratio TCR: to 5 ppm/°C (Ratio over 1000:1, consult factory)
Maximum Voltage: 30 000 V (higher available)
Voltage Coefficient: Typically less than 1 ppm/V (tested per MIL-STD-202)
Load Life: Less than 0.15 %, 1000 h

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TR20H1K00FKEB (preferred part number format)

T	R	2	0	H	1	K	0	0	F	K	E	B

GLOBAL MODEL	SIZE	POWER RATING	RESISTANCE VALUE	TOLERANCE	TCR	TERMINAL FINISH	PACKAGING
TR	**03** **05** **10** **15** **20** **30**	**C** = 0.25 W **D** = 0.5 W **F** = 1.0 W **G** = 1.5 W **H** = 2.0 W **J** = 3.0 W	R = Decimal K = Thousand M = Million G = Billion T = Trillion **400R** = 400 Ω **10M0** = 10 MΩ **1T00** = 1 TΩ	**F** = ± 1.0 % **G** = ± 2.0 % **J** = ± 5.0 % **K** = ± 10.0 % **M** = ± 20.0 %	**K** = 100 ppm **N** = 200 ppm **M** = 300 ppm	**E** = Sn100 **R** = Sn60/Pb40	**B** = Bulk **S** = Strip

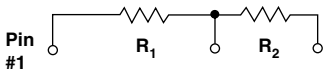
Historical Part Numbering: TR20H1001FKe3 (will continue to be accepted)

TR	20	H	1001	F	K	e3
HISTORICAL MODEL	SIZE	POWER RATING	RESISTANCE VALUE	TOLERANCE	TCR	TERMINAL FINISH

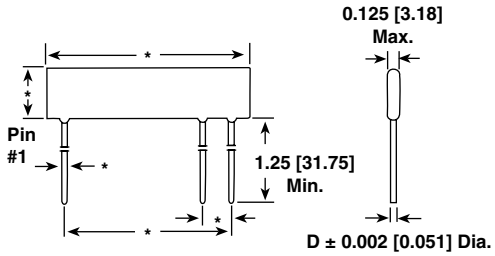
* Pb containing terminations are not RoHS compliant, exemptions may apply

DIMENSIONS in inches [millimeters]

Typical Resistor Schematic for Divider

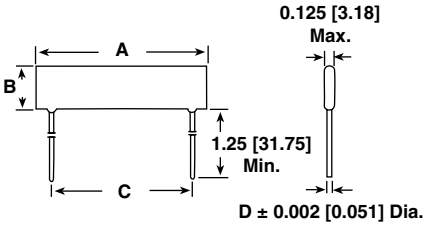


Typical High Voltage Divider



* Specified by application

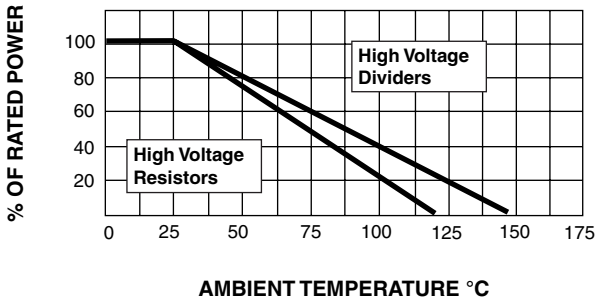
Standard High Voltage Resistor



Dimensions (± 10 %)

MODEL	A (LENGTH)	B (HEIGHT)	C (LEAD SPACING)	D (LEAD DIA.)
TR03	0.300 [7.62]	0.210 [5.33]	0.200 [5.08]	0.025
TR05	0.500 [12.70]	0.300 [7.62]	0.400 [10.16]	0.025
TR10	1.00 [25.40]	0.350 [8.89]	0.900 [22.86]	0.032
TR15	1.50 [38.10]	0.350 [8.89]	1.40 [35.56]	0.032
TR20	2.00 [50.80]	0.350 [8.89]	1.90 [48.26]	0.032
TR30	3.00 [76.20]	0.400 [10.16]	2.90 [73.66]	0.032

DERATING



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.