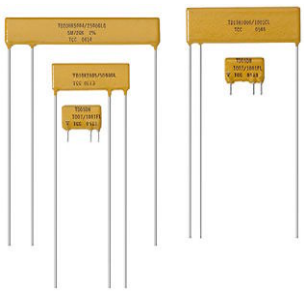
Thick Film Planar Dividers, Through-Hole, High Voltage



FEATURES

- 30 000 V capability
- Very low voltage coefficient to less than 1 ppm/V
- Outstanding stability under adverse conditions
- Stable cermet resistive elements bonded to a high-purity alumina substrate
- Tough epoxy-based coating and high voltage stability
- Custom designs built from customer supplied schematics available
- Custom dividers available with leadwire terminals or with leadless conductive pads
- Maximum resistance ratio of 1000:1 (for ratio's over 1000:1, contact factory)
- Minimum resistance ratio of 40:1
- TCR tracking to ± 25 ppm/°C
- Resistors available, see Vishay Techno's TR datasheet (www.vishay.com/doc?68000)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

e3

RoHS* Available

HALOGEN FREE

APPLICATIONS

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

Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

STANDARD ELECTRICAL SPECIFICATIONS

GLOBAL MODEL / SIZE	POWER RATING $P_{25\,°C}$ W	MAXIMUM WORKING VOLTAGE [1] V	RESISTANCE RANGE R_1 [2][3] Ω	ABSOLUTE TOLERANCE ± %	ABSOLUTE TEMPERATURE COEFFICIENT ± ppm/°C	RATIO TOLERANCE ± %	TCR TRACKING [4] ± ppm/°C	RATIO MAX. [5]
TDA03	0.25	0.8K	300 to 3M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			3.01M to 25M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX03		2.5K	25M to 250M	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			260M to 2G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			2.1G to 10G	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1
TDA05	0.5	4K	500 to 25M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			25.1M to 200M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX05		5K	30M to 1G	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			1.1G to 20G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			21G to 100G	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1
TDA10	1	6.5K	1K to 16M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			16.1M to 120M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX10		10K	20M to 1G	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			1.1G to 15G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			16G to 1T	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1
TDA15	1.5	12.5K	1.5K to 45M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			45.1M to 340M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX15		15K	60M to 1G	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			1.1G to 35G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			36G to 1.5T	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1
TDA20	2	17.5K	2K to 64M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			64.1M to 480M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX20		20K	80M to 1G	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			1.1G to 50G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			51G to 2T	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1
TDA30	3	25K	3K to 82M	0.5, 1, 2, 5, 10, 20	100	0.5, 1, 2, 5	25, 50, 100	1000:1
			82.1M to 620M	0.5, 1, 2, 5, 10, 20	200	0.5, 1, 2, 5	25, 50, 100	1000:1
TDX30		30K	80M to 1G	1, 2, 5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			1.1G to 60G	5, 10, 20	200	1, 2, 5	25, 50, 100	1000:1
			61G to 3T	5, 10, 20	500	1, 2, 5	25, 50, 100	1000:1

Notes

- Custom sizes available
- Voltage coefficient: typically less than 1 ppm/V (tested per MIL-STD-202)

(1) Continuous working voltage shall be $\sqrt{P} \times R$ or maximum working voltage, whichever is less
(2) All resistance values are calibrated at 100 V_{DC}. Calibration at other voltages available upon request
(3) Minimum R_2 value is 50 Ω
(4) TCR Tracking measured from 0°C to +70°C
(5) For ratios over 1000:1, contact factory

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: TDA20E100M3300FFEB

T	D	A	2	0	E	1	0	0	M	3	3	0	0	F	F	E	B

GLOBAL MODEL	VOLTAGE RATING	SIZE	TCR TRACKING	RESISTANCE VALUE R_1	RATIO R_1/R_2	RATIO TOLERANCE	TOLERANCE	TERMINAL FINISH	PACKAGING
TD	**A** = medium voltage **X** = high voltage	**03** **05** **10** **15** **20** **30**	**E** = 25 ppm **H** = 50 ppm **K** = 100 ppm	R = Ω K = kΩ M = MΩ G = GΩ T = TΩ **400R** = 400 Ω **10M0** = 10 MΩ **10G7** = 10.7 GΩ	3 digit significant figure, followed by a multiplier **0400** = 40:1 **2210** = 221:1 **1001** = 1000:1	**D** = ± 0.5 % **F** = ± 1 % **G** = ± 2 % **J** = ± 5 %	**D** = ± 0.5 % **F** = ± 1 % **G** = ± 2 % **J** = ± 5 % **K** = ± 10 % **M** = ± 20 %	**E** = Sn100 **R** = Sn60/Pb40	**B** = bag

Notes

- For additional information on packaging, refer to the Through Hole Resistor Packaging document (www.vishay.com/doc?31544)
- The TCR listed in this datasheet is for resistance values up to 1 GΩ. For resistance values > 1 GΩ, please contact factory

MECHANICAL SPECIFICATIONS

Resistive Element: thick film
Substrate: 96 % pure alumina
Encapsulation: epoxy base, conformal coating
Terminals: solder 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)
Load Life: less than 0.15 %, 1000 h

DIMENSIONS in inches (millimeters)

Schematic

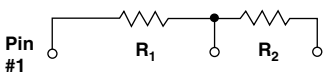


Figure 1

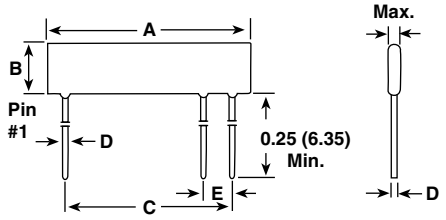
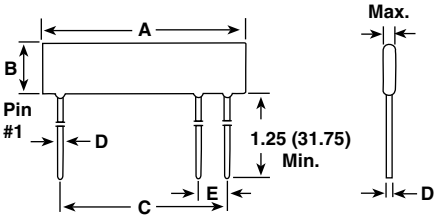


Figure 2

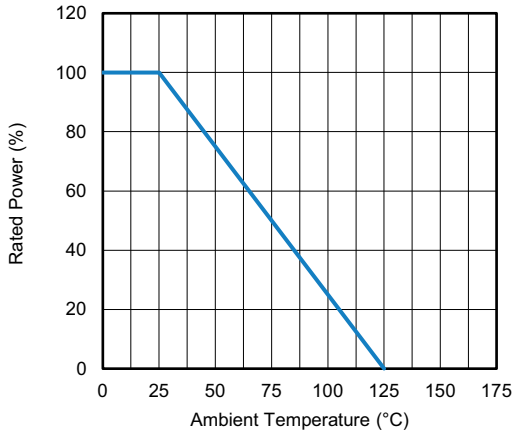


MODEL	A (LENGTH)	B (HEIGHT)	C (OVERALL LEAD SPACING)	D (LEAD DIA.)	E (R_2 LEAD SPACING)
TDA03, TDX03 (1)	0.300 ± 0.030 (7.62 ± 0.76)	0.210 ± 0.021 (5.33 ± 0.53)	0.200 ± 0.020 (5.08 ± 0.51)	0.025 ± 0.002 (0.64 ± 0.05)	0.100 ± 0.010 (2.54 ± 0.25)
TDA05, TDX05 (1)	0.500 ± 0.050 (12.70 ± 1.27)	0.300 ± 0.030 (7.62 ± 0.76)	0.400 ± 0.040 (10.16 ± 1.02)	0.025 ± 0.002 (0.64 ± 0.05)	0.100 ± 0.010 (2.54 ± 0.25)
TDA10, TDX10	1.00 ± 0.100 (25.40 ± 2.54)	0.350 ± 0.035 (8.89 ± 0.89)	0.900 ± 0.090 (22.86 ± 2.29)	0.032 ± 0.002 (0.81 ± 0.05)	0.200 ± 0.020 (5.08 ± 0.51)
TDA15, TDX15	1.50 ± 0.150 (38.10 ± 3.81)	0.350 ± 0.035 (8.89 ± 0.89)	1.40 ± 0.140 (35.56 ± 3.56)	0.032 ± 0.002 (0.81 ± 0.05)	0.200 ± 0.020 (5.08 ± 0.51)
TDA20, TDX20	2.00 ± 0.200 (50.80 ± 5.08)	0.350 ± 0.035 (8.89 ± 0.89)	1.90 ± 0.190 (48.26 ± 4.83)	0.032 ± 0.002 (0.81 ± 0.05)	0.200 ± 0.020 (5.08 ± 0.51)
TDA30, TDX30	3.00 ± 0.300 (76.20 ± 7.62)	0.400 ± 0.040 (10.16 ± 1.02)	2.90 ± 0.290 (73.66 ± 7.37)	0.032 ± 0.002 (0.81 ± 0.05)	0.200 ± 0.020 (5.08 ± 0.51)

Note

(1) Refer to Fig. 1 for TDA03, TDX03, TDA05 and TDX05 lead lengths

DERATING



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