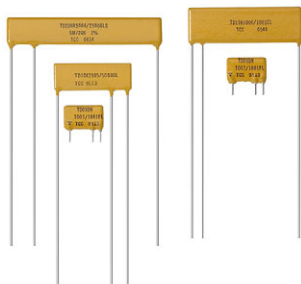


Thick Film Planar Dividers, Through-Hole, High Voltage



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/ $^{\circ}\text{C}$
- 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


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 $P_{25^{\circ}\text{C}}$ W	MAXIMUM WORKING VOLTAGE ⁽¹⁾ V	RESISTANCE RANGE R_1 ⁽²⁾⁽³⁾ Ω	ABSOLUTE TOLERANCE $\pm \%$	ABSOLUTE TEMPERATURE COEFFICIENT $\pm \text{ppm}/^{\circ}\text{C}$	RATIO TOLERANCE $\pm \%$	TCR TRACKING ⁽⁴⁾ $\pm \text{ppm}/^{\circ}\text{C}$	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 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$
- (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 = k Ω M = M Ω G = G Ω T = T Ω 400R = 400 Ω 10M0 = 10 M Ω 10G7 = 10.7 G Ω	3 digit significant figure, followed by a multiplier 0400 = 40:1 2210 = 221:1 1001 = 1000:1	D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$		D = $\pm 0.5\%$ F = $\pm 1\%$ G = $\pm 2\%$ J = $\pm 5\%$ K = $\pm 10\%$ M = $\pm 20\%$		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 G Ω . For resistance values > 1 G Ω , 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

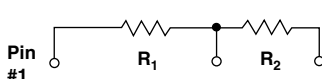


Figure 1

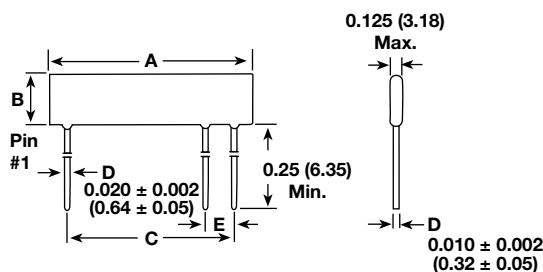
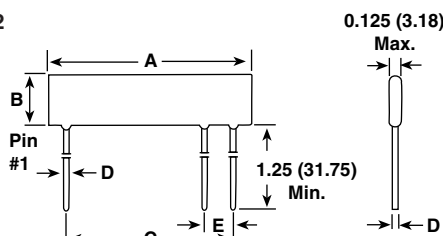


Figure 2



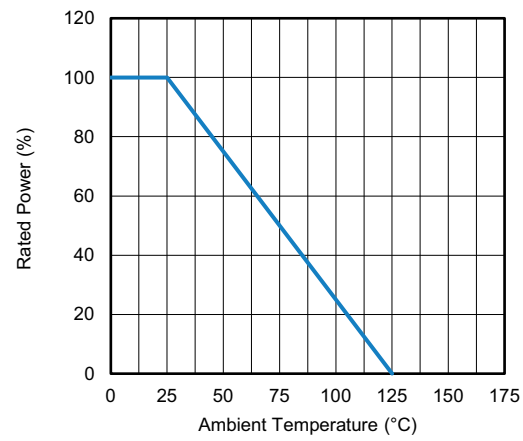
MODEL	A (LENGTH)	B (HEIGHT)	C (OVERALL LEAD SPACING)	D (LEAD DIA.)	E (R_2 LEAD SPACING)
TDA03, TDX03 ⁽¹⁾	0.300 ± 0.030 (7.62 ± 0.76)	0.210 ± 0.021 (5.33 ± 0.53)	0.200 ± 0.020 (5.08 ± 0.51)	See Fig. 01	0.100 ± 0.010 (2.54 ± 0.25)
TDA05, TDX05 ⁽¹⁾	0.500 ± 0.050 (12.70 ± 1.27)	0.300 ± 0.030 (7.62 ± 0.76)	0.400 ± 0.040 (10.16 ± 1.02)		0.100 ± 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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