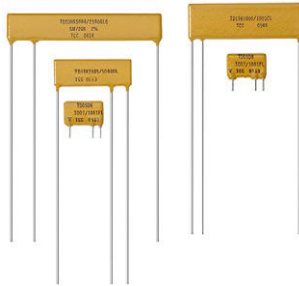


Thick Film Planar Dividers, Through-Hole, High Voltage



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/ $^{\circ}$ 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 ppm/ $^{\circ}$ C	RATIO TOLERANCE \pm %	TCR TRACKING (4) \pm ppm/ $^{\circ}$ 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
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
			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
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
			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
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
			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
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
			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
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
			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
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
			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 $^{\circ}$ C to +70 $^{\circ}$ 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 $^{\circ}\text{C}$
ENVIRONMENTAL SPECIFICATIONS
Temperature Range: -55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$

(for higher temperature range, consult factory)

Load Life: less than 0.15 %, 1000 h

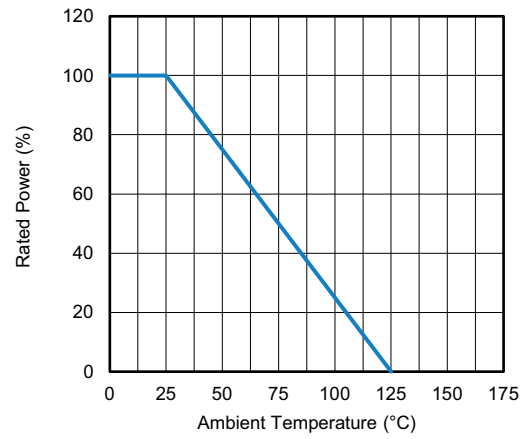
DIMENSIONS in inches (millimeters)					
Schematic					
Figure 1		Figure 2			
MODEL	A (LENGTH)	B (HEIGHT)	C (OVERALL LEAD SPACING)	D (LEAD DIA.)	E (R_2 LEAD SPACING)
TDA03, TDX03 ⁽¹⁾	0.300 \pm 0.030 (7.62 \pm 0.76)	0.210 \pm 0.021 (5.33 \pm 0.53)	0.200 \pm 0.020 (5.08 \pm 0.51)	0.025 \pm 0.002 (0.64 \pm 0.05)	0.100 \pm 0.010 (2.54 \pm 0.25)
TDA05, TDX05 ⁽¹⁾	0.500 \pm 0.050 (12.70 \pm 1.27)	0.300 \pm 0.030 (7.62 \pm 0.76)	0.400 \pm 0.040 (10.16 \pm 1.02)	0.025 \pm 0.002 (0.64 \pm 0.05)	0.100 \pm 0.010 (2.54 \pm 0.25)
TDA10, TDX10	1.00 \pm 0.100 (25.40 \pm 2.54)	0.350 \pm 0.035 (8.89 \pm 0.89)	0.900 \pm 0.090 (22.86 \pm 2.29)	0.032 \pm 0.002 (0.81 \pm 0.05)	0.200 \pm 0.020 (5.08 \pm 0.51)
TDA15, TDX15	1.50 \pm 0.150 (38.10 \pm 3.81)	0.350 \pm 0.035 (8.89 \pm 0.89)	1.40 \pm 0.140 (35.56 \pm 3.56)	0.032 \pm 0.002 (0.81 \pm 0.05)	0.200 \pm 0.020 (5.08 \pm 0.51)
TDA20, TDX20	2.00 \pm 0.200 (50.80 \pm 5.08)	0.350 \pm 0.035 (8.89 \pm 0.89)	1.90 \pm 0.190 (48.26 \pm 4.83)	0.032 \pm 0.002 (0.81 \pm 0.05)	0.200 \pm 0.020 (5.08 \pm 0.51)
TDA30, TDX30	3.00 \pm 0.300 (76.20 \pm 7.62)	0.400 \pm 0.040 (10.16 \pm 1.02)	2.90 \pm 0.290 (73.66 \pm 7.37)	0.032 \pm 0.002 (0.81 \pm 0.05)	0.200 \pm 0.020 (5.08 \pm 0.51)

Note

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



DERATING





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