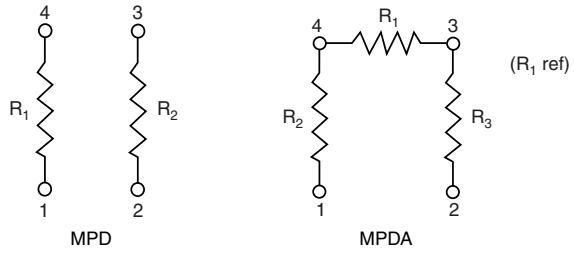
Molded, SOT-143 Thin Film Resistor, Surface Mount Network

Actual Size

Vishay Dale Thin Film MPD series dividers provide ± 2 ppm/°C tracking and a ratio tolerance as tight as ± 0.05 %, small size, and exceptional stability for all surface mount applications. The standard SOT-143 package format with unity and common standard resistance divider ratios provide easy selection for most applications requiring matched pair resistor elements. The ratios listed are available for off the shelf convenience, if you require a non-standard ratio, consult the applications engineering group as we may be able to meet your requirements.

SCHEMATIC



FEATURES

- Tight ratio tolerances to 0.05 %
- ± 2 ppm tracking
- Standard values stocked
- Standard JEDEC® TO-253 package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE

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.

TYPICAL PERFORMANCE

	ABSOLUTE	TRACKING
TCR	25	2
	ABSOLUTE	RATIO
TOL.	0.1	0.05

STANDARD VALUES

MODEL	R_1 (Ω)	R_2 (Ω)	R_3 (Ω)
MPD	100K	100K	-
	50K	50K	-
	25K	25K	-
	20K	20K	-
	10K	10K	-
	5K	5K	-
	2K	2K	-
	1K	1K	-
MPDA	10K	10K	10K

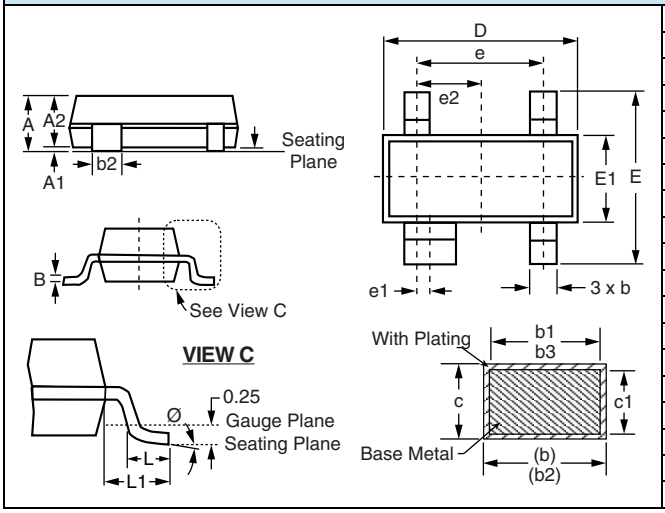
STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Passivated nichrome	-
Pin/Lead Number	4	-
Resistance Range	1000 Ω to 100 kΩ per resistor	-
TCR: Absolute	± 25 ppm/°C	-55 °C to +125 °C
TCR: Tracking	± 2 ppm/°C (typical)	-55 °C to +125 °C
Tolerance: Absolute	± 0.1 % to ± 1.0 %	+25 °C
Tolerance: Ratio	± 0.05 % to ± 0.5 %	+25 °C
Power Rating: Resistor	100 mW	Maximum at +70 °C
Power Rating: Package	200 mW	Maximum at +70 °C
Stability: Absolute	ΔR ± 0.05 %	2000 h at +70 °C
Stability: Ratio	ΔR ± 0.015 %	2000 h at +70 °C
Voltage Coefficient	0.1 ppm/V	-
Working Voltage	100 V max. not to exceed $\sqrt{P \times R}$	-
Operating Temperature Range	-55 °C to +125 °C	-
Storage Temperature Range	-55 °C to +150 °C	-
Noise	< -25 dB	-
Thermal EMF	0.2 µV/°C	-
Shelf Life Stability: Absolute	ΔR ± 0.01 %	1 year at +25 °C
Shelf Life Stability: Ratio	ΔR ± 0.002 %	1 year at +25 °C

Note

- Tantalum nitride film is available on special orders

DIMENSIONS AND IMPRINTING in millimeters

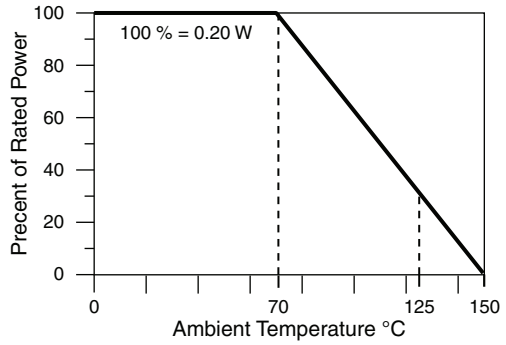


DIMENSION	MIN.	NOM.	MAX.
A	0.80	-	1.22
A1	0.05	-	0.15
A2	0.75	0.90	1.07
b	0.30	-	0.50
b1	0.30	0.40	0.45
b2	0.76	-	0.89
b3	0.76	0.80	0.84
c	0.08	-	0.20
c1	0.08	0.10	0.16
D	2.80	2.90	3.04
E	2.10	-	2.64
E1	1.20	1.30	1.40
e		1.92 BSC	
e1		0.20 BSC	
L	0.40	0.50	0.60
L1		0.54 REF.	
N		4	
Ø	0"	-	8"

MECHANICAL SPECIFICATIONS

Resistive Element	Passivated nichrome
Substrate Material	Silicon
Body	Molded epoxy
Terminals	Copper alloy
Lead (Pb)-Free Option	100 % matte tin
Tin Lead Option	Sn85
Tin Lead and Lead (Pb)-Free Finish	Plated

DERATING CURVE



GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: MPD1003AWS

M	P	D	1	0	0	3	A	W	S
M	P	D	T	2	0	0	1	A	T	1

GLOBAL MODEL (3 or 4 digits)	RESISTANCE (4 or 8 digits)	TOLERANCE AND RATIO TOLERANCE	PACKAGING
MPD (Two resistors, tin lead) **MPDT** (Two resistors, lead (Pb)-free) (e3)	The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. When like values are required use total resistance. Example: 1002 = 10K (5K / 5K) 1003 = 100K (50K / 50K)	Abs. Tol. / Ratio **A** = ± 0.1 % / ± 0.05 % **B** = ± 0.1 % / ± 0.1 % **C** = ± 0.25 % / ± 0.1 % **D** = ± 0.5 % / ± 0.1 % **F** = ± 1 % / ± 0.5 %	**BS** = BULK 100 min., 1 mult **WS** = WAFFLE 100 min., 1 mult TAPE AND REEL **T1** = 1000 min., 1000 mult (1)

Historical Part Number example: MPD1002BW (for reference purposes only)

MPD	1002	B	W
SERIES	RESISTANCE	TOLERANCE AND RATIO TOLERANCE	PACKAGING

Note

(1) Preferred packaging code

GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: MPDAT3002AWS

M	P	D	A	3	0	0	2	A	W	S
M	P	D	A	T	3	0	0	2	A	W	S

GLOBAL MODEL (4 or 5 digits)	RESISTANCE	TOLERANCE AND RATIO TOLERANCE	PACKAGING
MPDA (Three equal series resistors, tin / lead) **MPDAT** (Three equal series resistors, lead (Pb)-free) (e3)	First 3 digits are significant figures and the last digit specifies the number of zeros to follow. When like values are required use total resistance. Example: 3002 = three 10 kΩ resistors	Abs. Tol. / Ratio **A** = ± 0.1 % / ± 0.05 % **B** = ± 0.1 % / ± 0.1 % **C** = ± 0.25 % / ± 0.1 % **D** = ± 0.5 % / ± 0.1 % **F** = ± 1 % / ± 0.5 %	**BS** = BULK 100 min., 1 mult **WS** = WAFFLE 100 min., 1 mult TAPE AND REEL **T1** = 1000 min., 1000 mult (1)

Historical Part Number Example: MPDA3002BT (for reference purposes only)

MPDA	3002	B	T
SERIES	RESISTANCE	TOLERANCE AND RATIO TOLERANCE	PACKAGING

Note

(1) Preferred packaging code

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