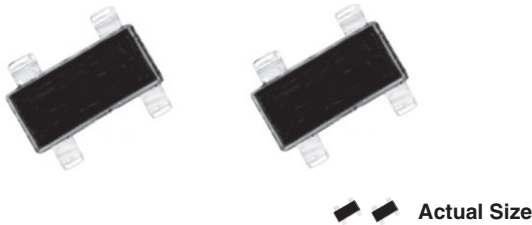


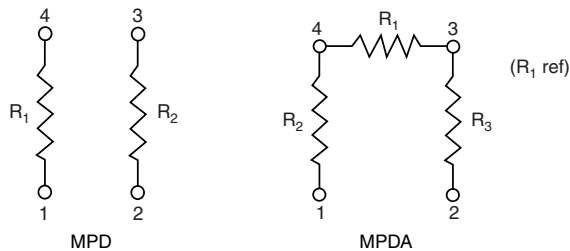


Molded, SOT-143 Thin Film Resistor, Surface Mount Network



Vishay Dale Thin Film MPD series dividers provide ± 2 ppm/ $^{\circ}\text{C}$ tracking and a ratio tolerance as tight as $\pm 0.05\%$, 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



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

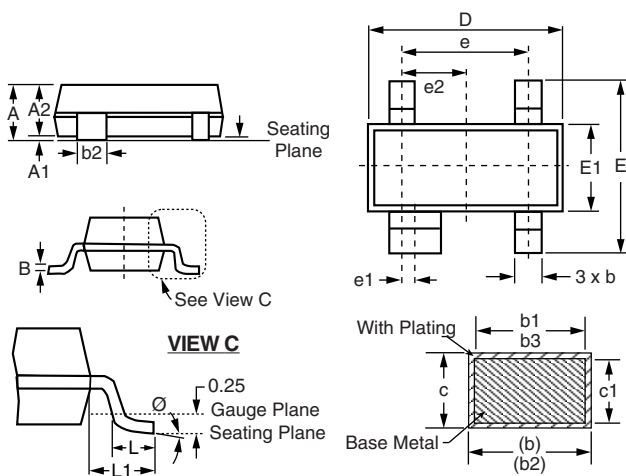
MODEL	R ₁ (Ω)	R ₂ (Ω)	R ₃ (Ω)
MPD	100K	100K	-
	50K	50K	-
	25K	25K	-
	20K	20K	-
	10K	10K	-
	5K	5K	-
	2K	2K	-
MPDA	1K	1K	-
	10K	10K	10K

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/ $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
TCR: Tracking	± 2 ppm/ $^{\circ}\text{C}$ (typical)	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
Tolerance: Absolute	$\pm 0.1\%$ to $\pm 1.0\%$	+25 $^{\circ}\text{C}$
Tolerance: Ratio	$\pm 0.05\%$ to $\pm 0.5\%$	+25 $^{\circ}\text{C}$
Power Rating: Resistor	100 mW	Maximum at +70 $^{\circ}\text{C}$
Power Rating: Package	200 mW	Maximum at +70 $^{\circ}\text{C}$
Stability: Absolute	$\Delta R \pm 0.05\%$	2000 h at +70 $^{\circ}\text{C}$
Stability: Ratio	$\Delta R \pm 0.015\%$	2000 h at +70 $^{\circ}\text{C}$
Voltage Coefficient	0.1 ppm/V	-
Working Voltage	100 V max. not to exceed $\sqrt{P \times R}$	-
Operating Temperature Range	-55 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$	-
Storage Temperature Range	-55 $^{\circ}\text{C}$ to +150 $^{\circ}\text{C}$	-
Noise	< -25 dB	-
Thermal EMF	0.2 $\mu\text{V}/^{\circ}\text{C}$	-
Shelf Life Stability: Absolute	$\Delta R \pm 0.01\%$	1 year at +25 $^{\circ}\text{C}$
Shelf Life Stability: Ratio	$\Delta R \pm 0.002\%$	1 year at +25 $^{\circ}\text{C}$

Note

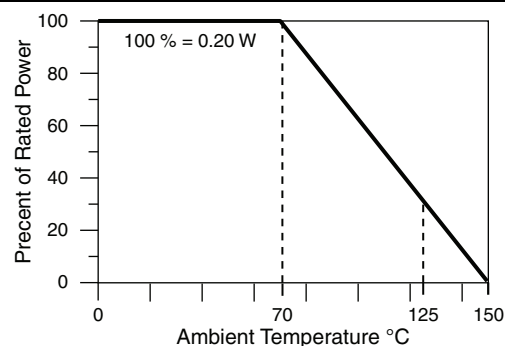
- Tantalum nitride film is available on special orders

**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)
MPD (Two resistors, tin lead)
MPDT (Two resistors, lead (Pb)-free) (e3)

RESISTANCE (4 or 8 digits)
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)

TOLERANCE AND RATIO TOLERANCE	
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 %

PACKAGING
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
SERIES

1002
RESISTANCE

B
TOLERANCE AND RATIO TOLERANCE

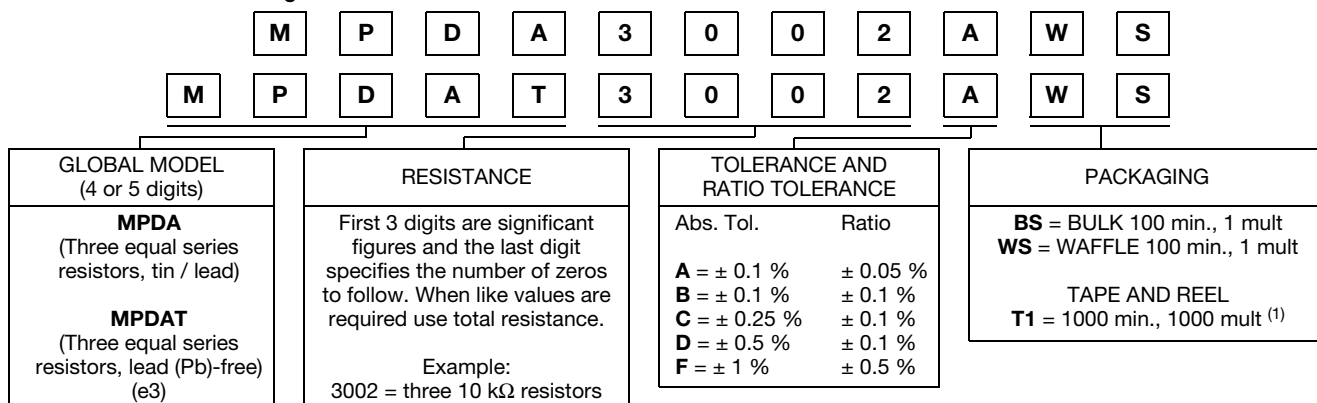
W
PACKAGING

Note⁽¹⁾ Preferred packaging code

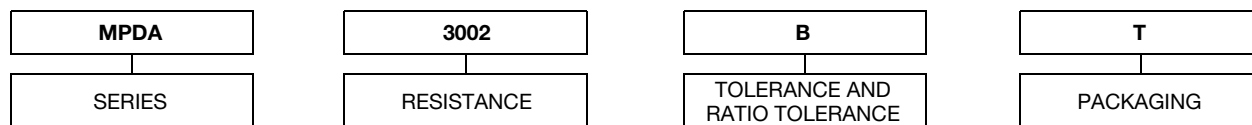


GLOBAL PART NUMBER INFORMATION

New Global Part Numbering: MPDAT3002AWS



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



Note

⁽¹⁾ Preferred packaging code



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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