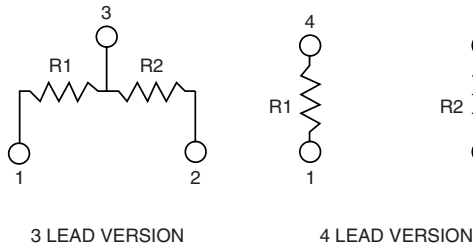


## Surface Mount Network



Vishay Thin Film MP Series Dividers provide  $\pm 2$  ppm/ $^{\circ}$ C tracking and a ratio tolerance as tight as  $\pm 0.05$  %, ultra small size, 3 or 4 lead package and exceptional stability for all surface mount applications. The standard SC70 package format with common standard resistance values provide easy selection for most applications requiring matched pair resistor elements. If you require a non-standard ratio, consult the applications engineering group as we may be able to meet your requirements with a custom design.

### SCHEMATIC



### FEATURES

- Lead (Pb)-free available
- Small physical size SC70 format
- Tight resistance ratio tolerances  $\pm 0.05$  %
- Low TCR tracking  $\pm 2$  ppm
- Excellent long term stability (500 ppm at 70  $^{\circ}$ C for 2000 h)
- Center taped or isolated matched pair resistors



### TYPICAL PERFORMANCE

	ABS	TRACKING
TCR	25	2
	ABS	RATIO
TOL	0.1	0.05

### STANDARD RESISTANCE VALUES

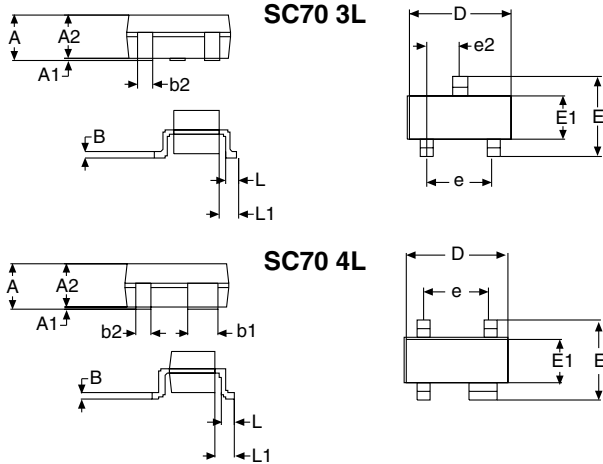
TYPE	STANDARD VALUES	
	R1 ( $\Omega$ )	R2 ( $\Omega$ )
MP3	1K	1K
	10K	10K
MP4	1K	1K
	10K	10K

### STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Passivated Nichrome	
Resistance Range	100 $\Omega$ to 50 k $\Omega$	
TCR	$\pm 25$ ppm/ $^{\circ}$ C	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C
Tolerance:	Absolute	$\pm 0.10$ %, $\pm 0.50$ %, $\pm 1.0$ %
	Ratio	$\pm 0.05$ % (standard), $\pm 1.0$ %
Power Rating:	Resistor	0.075 W
	Package	0.150 W
Stability	500 ppm	2000 h at + 70 $^{\circ}$ C
Voltage Coefficient	0.1 ppm/V	
Working Voltage	50 V	
Operating Temperature Range	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C	
Noise	< - 30 dB	
Thermal EMF	0.1 $\mu$ V/ $^{\circ}$ C	
Shelf Life Stability: Absolute	< 100 ppm	1 year at + 25 $^{\circ}$ C

\* Pb containing terminations are not RoHS compliant, exemptions may apply

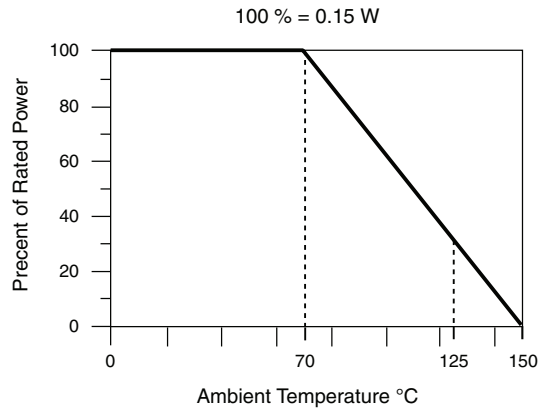
**DIMENSIONS AND IMPRINTING** in millimeters



DIMENSION	MIN.	MAX.
A	0.800	1.100
A1	0.000	0.100
A2	0.800	1.000
B	0.100	0.018
b1	0.400	0.500
b2	0.200	0.250
D	1.800	2.200
E	1.800	2.400
E1	1.150	1.350
e	1.300	-
e2	0.650	-
L	0.100	0.030

MECHANICAL SPECIFICATIONS	
Resistive Element	Passivated Nichrome
Substrate Material	Silicon
Body	Epoxy
Terminals	Copper with Nickel barrier
Plating	SN 60
Marking Resistance to Solvents	Per MIL-PRF-914
Lead (Pb)-free Option	100 % Sn Matte
Lead (Pb)-free Finish	Plated

**DERATING CURVE**



**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: MP31002AWS (preferred part number format)

M	P	3	1	0	0	2	A	W	S	
M	P	T	4	1	0	0	3	B	T	1

GLOBAL MODEL (2 or 3 digits)	LEADS	RESISTANCE	TOLERANCE AND RATIO TOLERANCE	PACKAGING												
<b>MP</b> (Tin Lead)  <b>MPT</b> (Lead (Pb)-free) (e3)	<b>3</b> <b>4</b>	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)	<table border="1" style="width: 100%;"> <thead> <tr> <th>Abs. Tol.</th> <th>Ratio</th> </tr> </thead> <tbody> <tr> <td><b>A</b> = 0.1 %</td> <td>0.05 %</td> </tr> <tr> <td><b>B</b> = 0.1 %</td> <td>0.1 %</td> </tr> <tr> <td><b>C</b> = 0.25 %</td> <td>0.1 %</td> </tr> <tr> <td><b>D</b> = 0.5 %</td> <td>0.1 %</td> </tr> <tr> <td><b>F</b> = 1.0 %</td> <td>0.5 %</td> </tr> </tbody> </table>	Abs. Tol.	Ratio	<b>A</b> = 0.1 %	0.05 %	<b>B</b> = 0.1 %	0.1 %	<b>C</b> = 0.25 %	0.1 %	<b>D</b> = 0.5 %	0.1 %	<b>F</b> = 1.0 %	0.5 %	<b>BS</b> = BULK 100 Min 1 Mult <b>WS</b> = WAFFLE 100 Min 1 Mult  TAPE AND REEL <b>T0</b> = 100 Min 100 Mult <b>T1</b> = 1000 Min 1000 Mult <b>T3</b> = 300 Min 300 Mult <b>T5</b> = 500 Min 500 Mult <b>TF</b> = Full Reel 4000 <b>TS</b> = 100 Min 1 Mult
Abs. Tol.	Ratio															
<b>A</b> = 0.1 %	0.05 %															
<b>B</b> = 0.1 %	0.1 %															
<b>C</b> = 0.25 %	0.1 %															
<b>D</b> = 0.5 %	0.1 %															
<b>F</b> = 1.0 %	0.5 %															

Historical Part Number example: MP32002BW (will continue to be accepted)

MP	3	2002	B	W
SERIES	LEADS	RESISTANCE	TOLERANCE AND RATIO TOLERANCE	PACKAGING



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