

# THIN FILM RESISTOR NETWORK

## MPMA (Divider)



Resistors - Ideal for High-Precision Automotive Applications

### Matched Pair Molded Automotive Thin Film, SOT-23, Surface-Mount Resistor Network, AEC-Q200 Qualified



#### KEY BENEFITS

- AEC-Q200 qualified
- Matched resistor pair in a small size SOT-23 package
- Resistance range: 1 k $\Omega$  to 50 k $\Omega$
- Ratio tolerances to  $\pm 0.05\%$
- Standard 1:1 to 50:1 dividers
- Low TCR tracking  $\pm 2$  ppm/ $^{\circ}\text{C}$
- Excellent long term ratio stability  $\pm 0.08\%$  over 1000 h, 125  $^{\circ}\text{C}$

#### APPLICATIONS

- Automotive
- Telecommunications
- Industrial applications
- Process control
- Medical instruments

#### RESOURCES

- Datasheet: MPMA (Divider) - <http://www.vishay.com/doc?60113>
- For technical questions contact [thinfilm@vishay.com](mailto:thinfilm@vishay.com)



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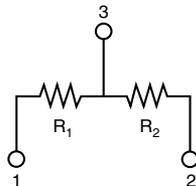
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Actual Size

Vishay Thin Film MPMA Series dividers provide  $\pm 2$  ppm/ $^{\circ}$ 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-23 package format with unity and common standard resistance divider ratios provide easy selection for most applications requiring matched pair resistor elements. MPMA is AEC-Q200 qualified and ideal for high precision automotive applications. The ratios listed are available for off the shelf delivery. If you require a non-standard ratio, consult the applications engineering group as we may be able to meet your requirements.

#### SCHEMATIC



#### FEATURES

- AEC-Q200 qualified
- Resistance range 1 k $\Omega$  to 50 k $\Omega$
- Excellent long term ratio stability  $\pm 0.08$  % over 1000 h, 125  $^{\circ}$ C
- Ratio tolerances to  $\pm 0.05$  %
- Low TCR tracking  $\pm 2$  ppm
- Very low noise and voltage coefficient (< -30 dB, 0.1 ppm/V)
- Standard JEDEC TO-236 package variation AB
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

#### TYPICAL PERFORMANCE

	ABSOLUTE	TRACKING
TCR	25	2
	ABSOLUTE	RATIO
TOL.	0.1	0.05

STANDARD DIVIDER RATIO (R <sub>2</sub> /R <sub>1</sub> )		
RATIO	R <sub>2</sub> ( $\Omega$ )	R <sub>1</sub> ( $\Omega$ )
50:1	50K	1K
25:1	25K	1K
20:1	20K	1K
10:1	10K	1K
9:1	9K	1K
6:1	6K	1K
5:1	10K	2K
5:1	5K	1K
4:1	8K	2K
4:1	4K	1K
2:1	10K	5K
2:1	2K	1K
1:1	50K	50K
1:1	25K	25K
1:1	10K	10K
1:1	5K	5K
1:1	2.5K	2.5K
1:1	1K	1K

#### STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Ta2N	-
Pin/Lead Number	3	-
Resistance Range	1 k $\Omega$ to 50 k $\Omega$ per resistor	-
TCR: Absolute	$\pm 25$ ppm/ $^{\circ}$ C	-55 $^{\circ}$ C to +125 $^{\circ}$ C
TCR: Tracking	$\pm 2$ ppm/ $^{\circ}$ C (typical)	-55 $^{\circ}$ C to +125 $^{\circ}$ C
Tolerance: Absolute	$\pm 0.1$ % to $\pm 1.0$ %	+25 $^{\circ}$ C
Tolerance: Ratio	$\pm 0.05$ % to 0.5 %	+25 $^{\circ}$ C
Power Rating: Resistor	100 mW	Maximum at +70 $^{\circ}$ C
Power Rating: Package	200 mW	Maximum at +70 $^{\circ}$ C
Stability: Absolute	$\pm 0.3$ %	1000 h at +125 $^{\circ}$ C
Stability: Ratio	$\pm 0.08$ %	1000 h at +125 $^{\circ}$ C
Voltage Coefficient	0.1 ppm/V	-
Working Voltage	100 V max. not to exceed $\sqrt{P \times R}$	-
Operating Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Storage Temperature Range	-55 $^{\circ}$ C to +155 $^{\circ}$ C	-
Noise	< -30 dB	-
Thermal EMF	0.2 $\mu$ V/ $^{\circ}$ C	-
Shelf Life Stability: Absolute	$\Delta R/R \pm 0.01$ %	1 year at +25 $^{\circ}$ C
Shelf Life Stability: Ratio	$\Delta R/R \pm 0.002$ %	1 year at +25 $^{\circ}$ C

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