

## Molded, SOT-23 Thin Film Surface Mount Resistor/Capacitor Network



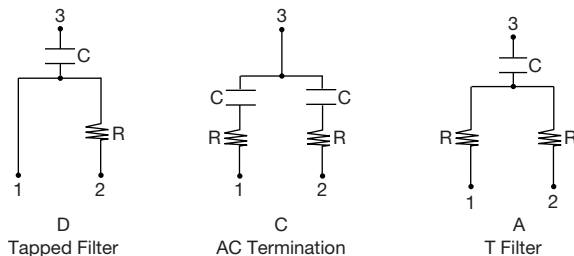
Vishay's R/C Network, packaged in the standard SOT-23, can be strategically placed on your PC board to do localized filtering. The R/C Network can be located at the point of emission before transients are carried through the design.

The sophisticated process of integrating the Resistor and Capacitor on a single substrate provides you with higher performance and more consistent results over discrete components. A real estate savings will also be gained.

Applications include EMI/RFI suppression and AC termination. These networks, in the SOT-23, along with Vishay's high component count R Networks and R/C Networks in a variety of standard IC packages, provides you with the exact solution for your redesign or new design.

Visit our website for the total picture on available R Networks and R/C Networks from our guaranteed stock program.

### SCHEMATIC



### FEATURES

- Resistor and capacitor **integrated** into a Thin Film network
- Filters at the source of emissions
- More consistent performance characteristics than discretés
- Compliant to RoHS Directive 2002/95/EC
- Halogen-free according to IEC 61249-2-21 definition



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### TYPICAL PERFORMANCE

	TCR	TOLERANCE
<b>RESISTOR</b>	200	10
	TCC	TOLERANCE
<b>CAPACITOR</b>	200	20

### VR TOOLED VALUES (1)

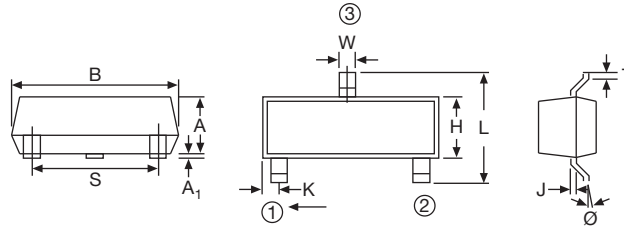
SCHEMATIC	R ( $\Omega$ )	C (pF)
D	33	47
C	47	47
A	100	80

#### Note

- Consult application engineering for custom values

### STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
Material	Tantalum nitride	-
Pin/Lead Number	3	-
Resistance Range	10 $\Omega$ to 500 $\Omega$	-
TCR: Absolute	$\pm 200$ ppm/ $^{\circ}$ C	0 $^{\circ}$ C to + 70 $^{\circ}$ C
TCR: Tracking	-	-
Tolerance: Absolute	$\pm 10$ % standard (R), $\pm 20$ % standard (C)	At 1 MHz and $V_{RMS}$ over + 10 $^{\circ}$ C to + 70 $^{\circ}$ C
Power Rating: Resistor	100 mW	-
Power Rating: Package	1 W	at + 70 $^{\circ}$ C
Stability: Ratio	-	-
Operating Temperature Range	0 $^{\circ}$ C to + 70 $^{\circ}$ C	-
Storage Temperature Range	- 55 $^{\circ}$ C to + 125 $^{\circ}$ C	-
Capacitance Range	10 pF to 80 pF	-
ESD Protection	-	-
Breakdown Voltage	25 V to 45 V	-

**DIMENSIONS** in inches and millimeters


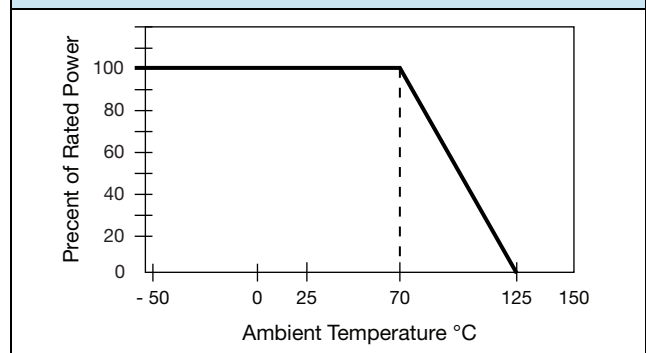
DIMENSION	JEDEC STANDARD TO-236			
	INCHES		MILLIMETERS	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
A	0.027	0.040	0.70	1.02
A <sub>1</sub>	0.001	0.004	0.02	0.15
B	0.105	0.120	2.67	3.04
S	0.071	0.079	1.80	2.00
W	0.015	0.021	0.38	0.54
L	0.083	1.03	2.10	2.64
H	0.047	0.055	1.20	1.40
T	0.050	0.157	0.13	0.40
J	0.003	0.008	0.089	0.15
K	0.017	0.022	0.44	0.55
Ø	0	8°	0	8°

**IMPRINTING**

	SCHEMATIC
VRA	AA
VRC	AC
VRD	AD

**MECHANICAL SPECIFICATIONS**

Resistive Element	Tantalum nitride
Capacitive Material	Thin film
Substrate Material	Silicon
Body	Molded epoxy
Terminals	Copper alloy
Plating	100 % matte Sn
Lead Coplanarity	0.0005"
Marking Resistance to Solvents	Permanency testing per MIL-STD-202, method 215

**DERATING CURVE**

**PACKAGING INFORMATION**

MODEL	LEADS	TAPE AND REEL
VR	3	3000



GLOBAL PART NUMBER INFORMATION				
New Global Part Numbering: VRD330K470MTF				
V	R	D	3	3
0	K	4	7	0
M	T	F		
GLOBAL MODEL	SCHEMATICS		RESISTANCE AND TOLERANCE/ CAPACITANCE AND TOLERANCE	
VR	D = Tapped filter C = AC termination A = T filter		<b>xxxK/yyyM</b>  First 2 digits are significant figures. Last digit specifies number of zeros to follow e.g. 330K/470M = 330 W 10 % 47 pF 20 % K = 10 % M = 20 %	
			PACKAGING	
			UF = TUBED  TAPE AND REEL TF = Full reels	
Historical Part Number example: VRD330K479MT/R (for reference purposes only)				
VR	D	330K	470M	T/R
MODEL	SCHEMATIC	RESISTANCE	TOLERANCE	PACKAGING



## 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.