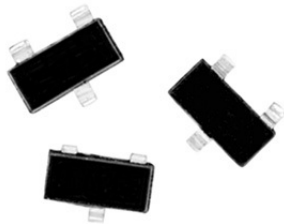


## Molded, SOT-23 Resistor/Capacitor Network



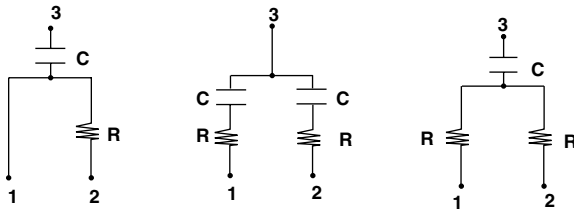
Vishay's R/C Network, packaged in the standard SOT-23, can be strategically placed on your PC board to do localized filtering. The R/C Network can be located at the point of emission before transients are carried through the design.

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



**D**  
Tapped Filter

**C**  
AC Termination

**A**  
T Filter

### FEATURES

- Lead (Pb)-free standard
- Resistor and capacitor **integrated** into a Thin Film Network
- Filters at the source of emissions
- More consistent performance characteristics than discrete



**RoHS**  
COMPLIANT

### 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     |

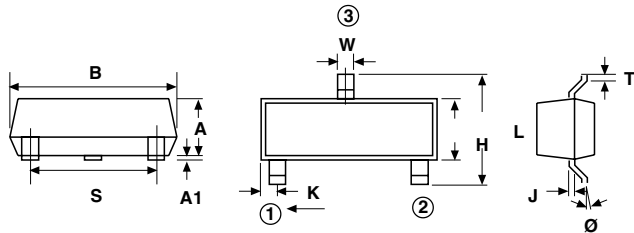
#### Note

(1) Consult Application Engineering for Custom Values

### STANDARD ELECTRICAL SPECIFICATIONS

| TEST                        | SPECIFICATIONS                          | CONDITIONS   |
|-----------------------------|---|--|
| Resistance Range            | 10 $\Omega$ to 500 $\Omega$             |  |
| TCR:                        | Absolute $\pm 200$ ppm/ $^{\circ}$ C    | 0 $^{\circ}$ C to + 70 $^{\circ}$ C                                |
| Tolerance:                  | Absolute $\pm 10$ % Standard (R)        |  |
|                             | Absolute $\pm 20$ % Standard (C)        | at 1 MHz and $V_{RMS}$ over + 10 $^{\circ}$ C to + 70 $^{\circ}$ C |
| Power Rating:               | Package 1 W at + 70 $^{\circ}$ C        |  |
| Power Rating/Resistor       | 100 mW                                  |  |
| Capacitance Range (pF)      | 10 - 80                                 |  |
| Breakdown Voltage           | 25 - 45 V                               |  |
| Operating Temperature Range | 0 to + 70 $^{\circ}$ C                  |  |
| Storage Temperature Range   | - 55 $^{\circ}$ C to + 125 $^{\circ}$ C |  |

**DIMENSIONS AND IMPRINTING** in inches and millimeters

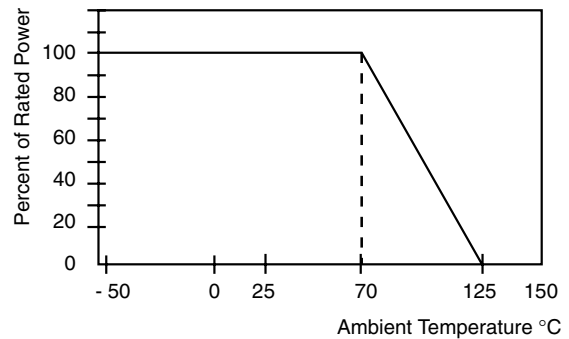


| JEDEC STANDARD TO-236 |        |       |             |      |
|-----------------------|--------|-------|-------------|------|
| DIMENSION             | INCHES |       | MILLIMETERS |      |
|                       | MIN.   | MAX.  | MIN.        | MAX. |
| A                     | 0.027  | 0.040 | 0.70        | 1.02 |
| A1                    | 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 Element             | Thin Film                                      |
| Substrate Material             | Silicon  |
| Body                           | Molded Epoxy                                   |
| Terminals                      | Copper Alloy                                   |
| Plating                        | 100 % Sn Matte                                 |
| Lead Coplanarity               | 0.0005 Inches                                  |
| Marking Resistance to Solvents | Permanency testing per MIL-STD-202, Method 215 |

**DERATING CURVE**



RC NETWORKS

| PACKAGING INFORMATION |       |               |
|-----------------------|-------|---------------|
| MODEL                 | LEADS | TAPE AND REEL |
| VR                    | 3     | 3000          |



**GLOBAL PART NUMBER INFORMATION**

New Global Part Numbering: VRD330K470MTF (preferred part number format)

V R D 3 3 0 K 4 7 0 M T F

|                                |   |   |  |
|--------------------------------|---|---|--|
| GLOBAL MODEL                   | SCHEMATICS  | RESISTANCE AND TOLERANCE/<br>CAPACITANCE AND TOLERANCE  | PACKAGING  |
| VR<br>(Lead (Pb)-free)<br>(e1) | D = Tapped Filter<br>C = AC Termination<br>A = T Filter | xxxK/yyyM<br><br>First 2 digits are significant figures.<br>Last digit specifies number of zeroes<br>to follow e.g.<br>330K/470M = 330 W, 10 % 47 pF 20 %<br>K = 10 %<br>M = 20 % | UF = TUBED<br><br>TAPE AND REEL<br>TF = Full Reels |

Historical Part Number example: VRD330K479MT/R (will continue to be accepted)

|       |           |            |           |           |
|-------|-----------|------------|-----------|-----------|
| VR    | D         | 330K       | 470M      | T/R       |
| MODEL | SCHEMATIC | RESISTANCE | TOLERANCE | PACKAGING |



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