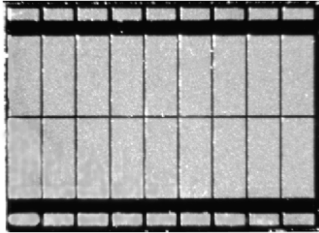


## Thin Film Filter Networks



Product may not  
be to scale

### FEATURES

- Wire bondable
- Standard resistance range: 25  $\Omega$  and 50  $\Omega$
- Standard capacitance range:  
50 pF, 100 pF, 200 pF, 400 pF
- Resistance tolerance to 1 %  
Capacitance tolerance to 5 %
- Capacitor MOS/MNOS
- Resistor material: Tantalum nitride, self-passivating
- Oxidized silicon substrate

The RCN series combines resistor and capacitor technology on a single chip to provide filtering capability together with excellent stability. Specifications below are standard but may be changed and customized for the application and are available in widebody SOIC or DIP packages.

These chips are manufactured using Vishay (EFI) sophisticated Thin Film equipment and manufacturing technology. The RCNs are 100 % electrically tested and visually inspected to MIL-STD-883.

### APPLICATIONS

The RCN filter chips are used for low pass filters, RFI & EMI, CMOS digital filters, ECL terminators and power supply filters. Contact our Sales Department for any special configurations or requirements that are needed.

### TEMPERATURE COEFFICIENT OF RESISTANCE, VALUES AND COMBOS (Standard)

Absolute TCR =  $\pm 100$  ppm/ $^{\circ}$ C

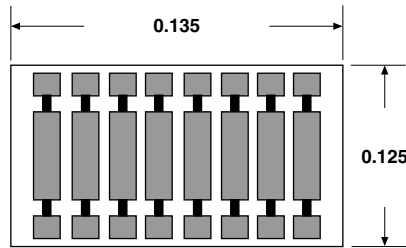
Absolute TCC =  $+ 45 \pm 75$  ppm/ $^{\circ}$ C

| R           | C      | R           | C      |
|-------------|--------|-------------|--------|
| 25 $\Omega$ | 50 pF  | 50 $\Omega$ | 50 pF  |
| 25 $\Omega$ | 100 pF | 50 $\Omega$ | 100 pF |
| 25 $\Omega$ | 200 pF | 50 $\Omega$ | 200 pF |
| 25 $\Omega$ | 400 pF | 50 $\Omega$ | 400 pF |

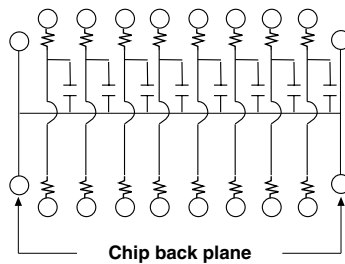
### STANDARD ELECTRICAL SPECIFICATIONS

| PARAMETER  |  |
|--|--|
| <b>Noise, MIL-STD-202, Method 308</b><br>100 $\Omega$ - 250 k $\Omega$<br>< 100 $\Omega$ or > 251 k $\Omega$ | - 35 dB typ.<br>- 20 dB typ.                                   |
| <b>Moisture Resistance, MIL-STD-202, Method 106</b>  | $\pm 0.5$ % max. $\Delta R/R$                                  |
| <b>Stability, 100 h, + 125 <math>^{\circ}</math>C, 50 mW/Res, at WVDC</b>                                    | $\pm 0.5$ % max. $\Delta R/R$<br>$\pm 2.0$ % max. $\Delta R/R$ |
| <b>Operating Temperature Range</b>   | - 55 $^{\circ}$ C to + 125 $^{\circ}$ C                        |
| <b>Thermal Shock, MIL-STD-202, Method 107, Test Condition F</b>  | $\pm 0.1$ % max. $\Delta R/R$                                  |
| <b>High Temperature Exposure, + 150 <math>^{\circ}</math>C, 1000 h</b>                                       | $\pm 0.2$ % max. $\Delta R/R$                                  |
| <b>Insulation Resistance</b>   | $10^9$ min.  |
| <b>Operating Voltage</b>   | 25 V max.  |
| <b>DC Pwr Rating at - 55 <math>^{\circ}</math>C to + 125 <math>^{\circ}</math>C (100 V Maximum)</b>          | 50 mW  |
| <b>5 x Rated Power Short-Time Overload, + 25 <math>^{\circ}</math>C, 5 s (100 V Maximum)</b>                 | $\pm 0.5$ % max. $\Delta R/R$                                  |

**DIMENSIONS** in inches



**SCHEMATIC**



RESISTOR  
CAPACITOR  
ARRAYS

| <b>MECHANICAL SPECIFICATIONS</b> in inches |  |
|--|--|
| PARAMETER                                  |  |
| Chip Size                                  | 0.135 x 0.125 ± 0.005 (3.429 x 3.175 ± 0.127 mm) |
| Chip Thickness                             | 0.010 ± 0.002 (0.254 ± 0.05 mm)                  |
| Chip Substrate Material                    | Oxidized silicon, 10 kÅ minimum SiO <sub>2</sub> |
| Resistor Material                          | Tantalum nitride, self-passivating               |
| Bonding Pad Size                           | 0.005 x 0.007 (0.127 x 0.178 mm)                 |
| Number of Pads                             | 16 (8 x RC)                                      |
| Pad Material                               | 10 kÅ minimum aluminum                           |
| Backing                                    | 3 kÅ minimum gold                                |

**Options:** Gold bonding pads 15 kÅ minimum thickness  
Consult Applications Engineer

| <b>ORDERING INFORMATION</b>  |   |                   |            |  |  |  |   |
|--|---|-------------------|------------|--|--|--|---|
| Example: 100 % visualled, 25 Ω ± 20 %, 200 pF ± 20 %, ± 100 ppm/°C, aluminum pads, class H visual inspection |   |                   |            |  |  |  |   |
| <b>P/N:</b>  | <b>W</b>  | <b>RCN</b>        | <b>200</b> | <b>250</b>   | <b>A</b>   | <b>201</b>   | <b>M</b>  |
|  | INSPECTION<br>/PACKAGING  | PRODUCT<br>FAMILY | SERIES     | RESISTANCE<br>VALUE  | RESISTOR<br>TOLERANCE  | CAPACITOR<br>VALUE   | CAPACITANCE<br>TOLERANCE  |
|  | <b>W</b> = 100 % visually inspected<br>parts in matrix trays per<br>MIL-STD-883               |                   |            | Use the first 3<br>significant digits of<br>the resistance<br>and multiplier | <b>B</b> = 0.01<br><b>A</b> = 0.1<br><b>0</b> = 1<br><b>1</b> = 10<br><b>2</b> = 100 | Use the first 3<br>significant digits<br>of the<br>capacitance and<br>multiplier | <b>J</b> = 5.0 %<br><b>K</b> = 10 %<br><b>M</b> = 20 %<br><b>N</b> = 25 % |
|  | <b>X</b> = Sample, commercial<br>visually inspected parts loaded in<br>matrix trays (4 % AQL) |                   |            |  |  |  |   |



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