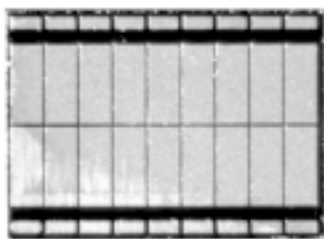




## Thin Film Filter Networks



Product may not  
be to scale

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

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

### FEATURES

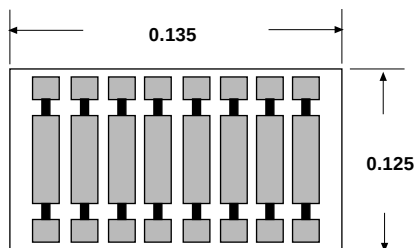
- Standard Resistance range:  $25\Omega$  and  $50\Omega$
- Standard Capacitance range:  $50\text{pF}$ ,  $100\text{pF}$ ,  $200\text{pF}$ ,  $400\text{pF}$
- Resistance Tolerance to 1%  
Capacitance Tolerance to 5%
- Capacitor MOS/MNOS
- Resistor material: Tantalum nitride, self-passivating
- Oxidized silicon substrate

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

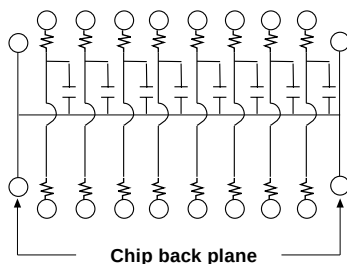
| STANDARD ELECTRICAL SPECIFICATIONS                                                                            |                                                                      |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| PARAMETER                                                                                                     |                                                                      |
| Noise, MIL-STD-202, Method 308<br>$100\Omega$ - $250\text{k}\Omega$<br>< $100\Omega$ or > $251\text{k}\Omega$ | - 35dB typical<br>- 20dB typical                                     |
| Moisture resistance, MIL-STD-202<br>Method 106                                                                | $\pm 0.5\%$ maximum $\Delta R/R$                                     |
| Stability, 100 hours, + $125^{\circ}\text{C}$<br>50mW/Res<br>@ WVDC                                           | $\pm 0.5\%$ maximum $\Delta R/R$<br>$\pm 2.0\%$ maximum $\Delta R/R$ |
| Operating temperature range                                                                                   | - $55^{\circ}\text{C}$ to + $125^{\circ}\text{C}$                    |
| Thermal shock, MIL-STD-202,<br>Method 107, Test condition F                                                   | $\pm 0.1\%$ maximum $\Delta R/R$                                     |
| High temperature exposure,<br>+ $150^{\circ}\text{C}$ , 1000 hours                                            | $\pm 0.2\%$ maximum $\Delta R/R$                                     |
| Insulation resistance                                                                                         | $10^9$ minimum                                                       |
| Operating voltage                                                                                             | 25V maximum                                                          |
| DC power rating at - $55^{\circ}\text{C}$ to + $125^{\circ}\text{C}$<br>(100V maximum)                        | 50mW                                                                 |
| 5 x rated power short-time overload,<br>+ $25^{\circ}\text{C}$ , 5 seconds (100V maximum)                     | $\pm 0.5\%$ maximum $\Delta R/R$                                     |

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## DIMENSIONS in inches



## SCHEMATIC



## MECHANICAL SPECIFICATIONS in inches

| PARAMETER               |                                                 |
|-------------------------|-------------------------------------------------|
| Chip size               | 0.135 x 0.125 ± 0.005 (3.429 x 3.175 ± 0.127mm) |
| Chip thickness          | 0.010 ± 0.002 (0.254 ± 0.05mm)                  |
| Chip substrate material | Oxidized silicon, 10kÅ minimum SiO <sub>2</sub> |
| Resistor material       | Tantalum nitride, self-passivating              |
| Bonding pad size        | 0.005 x 0.007 (0.127 x 0.178mm)                 |
| Number of pads          | 16 (8 x RC)                                     |
| Pad material            | 10kÅ minimum aluminum                           |
| Backing                 | 3kÅ minimum Gold                                |

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

## ORDERING INFORMATION

Example: 100% visualled, 25Ω, ± 20%, 200pF ± 20%, ± 100ppm/°C, Aluminum Pads, Class H

| P/N: | W<br>INSPECTION<br>/PACKAGING                                                                                                                      | RCN<br>PRODUCT<br>FAMILY | 200<br>SERIES | 250<br>RESISTANCE<br>VALUE                                        | A<br>RESISTOR<br>TOLERANCE                        | 201<br>CAPACITOR<br>VALUE                                          | M<br>CAPACITANCE<br>TOLERANCE             |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------|-------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------|
|      | W = 100% visually inspected parts in matrix tray per MIL-STD-883<br>X = Sample commercial visually inspected parts loaded in matrix trays (4% AQL) |                          |               | Use the first 3 significant digits of the resistance & multiplier | B = 0.01<br>A = 0.1<br>0 = 1<br>1 = 10<br>2 = 100 | Use the first 3 significant digits of the capacitance & multiplier | J = 5.0%<br>K = 10%<br>M = 20%<br>N = 25% |