

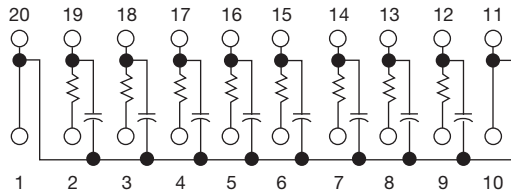


## 25 mil or 50 mil Pitch, T-Filter Thin Film Surface Mount Resistor/Capacitor Network



Small outline, surface mount, EMI/RFI reduction, T-filter networks  
 Vishay Thin Film's schematic AD is designed as an 8 channel filter for use with personal computer and peripheral 110 ports such as SCSI ports. The use of single die technology for filtering minimizes space and allows for more freedom in routing. With a rugged molded case to protect the circuit from the environment and an integrated thin film network this product is your choice when reduced size, improved accuracy and surface mount capability are your goals.  
 Available packages SOIC, SSOP and TSSOP.

### SCHEMATIC AD



### FEATURES

- Resistors and capacitors on a single chip
- Saves board space
- Reduces total assembly costs
- Uniform performance characteristics
- Compatible with automatic surface mounting equipment
- UL 94 V-0 flame resistant
- Rugged, molded case construction
- Compliant to RoHS Directive 2002/95/EC



### TYPICAL PERFORMANCE

|           | TCR | TOLERANCE |
|-----------|-----|-----------|
| RESISTOR  | 200 | 10        |
|           | TCC | TOLERANCE |
| CAPACITOR | 200 | 20        |

### STANDARD VALUES

| MODELS |       |       | R (Ω) | C (pF) |
|--------|-------|-------|-------|--------|
| VSORC  | VSSRC | VTSRC |       |        |
|        | X     |       | 33    | 47     |

| STANDARD ELECTRICAL SPECIFICATIONS |  |   |
|------------------------------------|--|---|
| TEST                               | SPECIFICATIONS                                     | CONDITIONS  |
| Material                           | Tantalum nitride on silicon                        | -   |
| Pin/Lead Number                    | 20   | -   |
| Resistance Range                   | 10 Ω to 750 Ω                                      | -   |
| TCR: Absolute                      | ± 200 ppm/°C                                       | 0 °C to + 70 °C                                       |
| TCR: Tracking                      | ± 10 ppm/°C  | -   |
| Tolerance: Absolute                | ± 10 % standard (R), ± 20 % standard (C)           | At 1 MHz and V <sub>RMS</sub> over + 10 °C to + 70 °C |
| Power Rating: Resistor             | 100 mW   | -   |
| Power Rating: Package              | (T)SSOP: 1 W, SOIC: 1.2 W                          | See derating curve                                    |
| Stability: Ratio                   | ± 2 %  | 1000 h  |
| Operating Temperature Range        | 0 °C to + 70 °C                                    | -   |
| Storage Temperature Range          | - 55 °C to + 125 °C                                | -   |
| Capacitance Range                  | TSSOP: 10 pF to 150 pF, SOIC/SSOP: 10 pF to 250 pF | -   |
| ESD Protection                     | > 2 kV   | MIL-STD-883, method 3015                              |
| Breakdown Voltage                  | 35 V to 50 V                                       | -   |



**DIMENSIONS** in inches and millimeters



| DIMENSION | JEDEC M0-153AC, VT SRC20-AD |             | JEDEC M0-137AD, VSSRC20-AD |             | JEDEC MS-013AC, VSORC20-AD |             |
|-----------|-----------------------------|-------------|----------------------------|-------------|----------------------------|-------------|
|           | INCHES                      | MILLIMETERS | INCHES                     | MILLIMETERS | INCHES                     | MILLIMETERS |
| A         | 0.256 ± 0.003               | 6.5 ± 0.08  | 0.344 max.                 | 8.74 max.   | 0.500 ± 0.010              | 12.7 ± 0.25 |
| B (ref.)  | 0.025                       | 0.65        | 0.025                      | 0.64        | 0.050                      | 1.27        |
| C (ref.)  | 0.0087                      | 0.22        | 0.010                      | 0.25        | 0.016                      | 0.41        |
| D         | 0.004                       | 0.10        | 0.006                      | 0.15        | 0.008                      | 0.20        |
| E (typ.)  | 0.024                       | 0.61        | 0.025                      | 0.64        | 0.030                      | 0.76        |
| F         | 0.173 ± 0.003               | 4.39 ± 0.08 | 0.154 ± 0.003              | 3.9         | 0.293 ± 0.003              | 7.44        |
| G         | 0.015 x 45°                 | 0.38        | 0.015 x 45°                | 0.38        | 0.025 x 45°                | 0.64        |
| H         | 0.252 ± 0.005               | 6.4 ± 0.13  | 0.236 ± 0.008              | 6.0 ± 0.20  | 0.406 ± 0.005              | 10.31       |
| J (ref.)  | 0.005                       | 0.13        | 0.010                      | 0.25        | 0.010                      | 0.25        |
| W         | 0.043 ± 0.005               | 1.09 ± 0.13 | 0.064 ± 0.005              | 1.6         | 0.100 ± 0.005              | 2.59        |

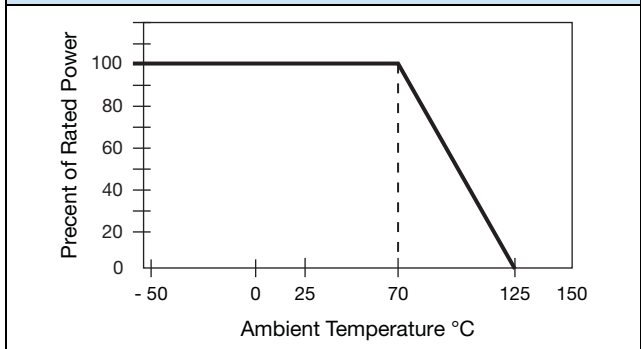
**IMPRINTING**

|                             |           |                   |  |          |   |
|-----------------------------|-----------|-------------------|--|----------|---|
| <b>VSORC, VSSRC, VT SRC</b> | <b>20</b> | <b>AD</b>         | <b>XXX</b>                             | <b>/</b> | <b>XXX</b>                                |
| MODEL                       | PIN COUNT | SCHEMATIC         | RESISTANCE<br>Code: e.g.<br>100 = 10 Ω | <b>/</b> | CAPACITANCE<br>Code: e.g.<br>101 = 100 pF |
|                             |           | XXXX<br>Date code |  |          | Optional marking                          |

**MECHANICAL SPECIFICATIONS**

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

**DERATING CURVE**



**PACKING INFORMATION**

| MODEL                          | LEADS | TAPE AND REEL | TUBES |
|--------------------------------|-------|---------------|-------|
| JEDEC M0-153AC, VT SRC (TSSOP) | 20    | 2500          | 74    |
| JEDEC M0-137AD, VSSRC (SSOP)   | 20    | 2500          | 55    |
| JEDEC MS-013AC, VSORC (SOIC)   | 20    | 1000          | 38    |



| GLOBAL PART NUMBER INFORMATION   |   |                    |   |                                |   |            |  |           |   |           |   |  |   |   |   |   |
|--|---|--------------------|---|--------------------------------|---|------------|--|-----------|---|-----------|---|--|---|---|---|---|
| New Global Part Numbering: VTSRC20AD330470TF                                       |   |                    |   |                                |   |            |  |           |   |           |   |  |   |   |   |   |
| V  | T | S                  | R | C                              | 2 | 0          | A  | D         | 3 | 3         | 0 | 4  | 7 | 0 | T | F |
| GLOBAL MODEL   |   |                    |   | NUMBER OF LEADS/<br>SCHEMATICS |   |            | RESISTANCE AND TOLERANCE/<br>CAPACITANCE AND TOLERANCE   |           |   |           |   | PACKAGING  |   |   |   |   |
| VSSRC<br>VTSRC<br>VSORC  |   |                    |   | 20AD                           |   |            | xxxxyy<br><br>First 2 digits are significant figures.<br>Last digit specifies number of<br>zeros to follow.<br><br>K = 10 % resistance tol. fixed<br>M = 20 % capacitor tol. fixed |           |   |           |   | UF = TUBED<br><br>TAPE AND REEL<br>TF = Full reels |   |   |   |   |
| Historical Part Number example: VTSRC20AD330K470MT/R (for reference purposes only) |   |                    |   |                                |   |            |  |           |   |           |   |  |   |   |   |   |
| VTSRC  |   | 20                 |   | AD                             |   | 330K       |  | 470M      |   | T/R       |   |  |   |   |   |   |
| MODEL  |   | NUMBER<br>OF LEADS |   | SCHEMATIC                      |   | RESISTANCE |  | TOLERANCE |   | PACKAGING |   |  |   |   |   |   |



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