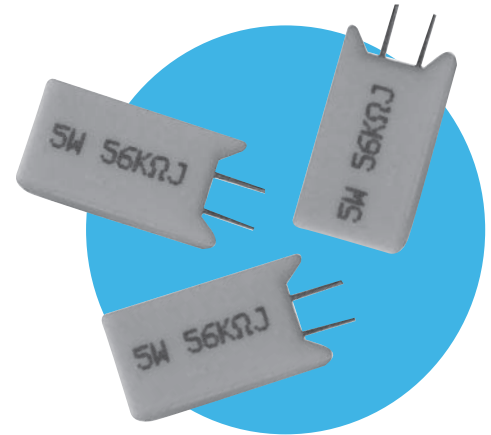


## Radial Ceramic Case Resistors Wirewound / Metal Oxide



### SQM / CVF / CVW Series

- 2 to 10 watts
- Resistance 0R1 to 200K
- High overload capability
- Flameproof case
- Small PCB footprint
- RoHS compliant

All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

### Electrical Data

|                                    |                    | SQM2 / CV-2              | SQM3 / CV-3 | SQM5 / CV-5 | SQM7 / CV-7 | SQM10 / CV-10 | SQM10A     |
|------------------------------------|--------------------|--------------------------|-------------|-------------|-------------|---------------|------------|
| Power rating at 70°C               | watts              | 2                        | 3           | 5           | 7           | 10            | 10         |
| Resistance range – wirewound (CVW) | ohms               | 0R1 - 27R                | 0R1 - 39R   | 0R1 - 47R   | 0R1 - 680R  | 0R1 - 910R    | 0R1 - 560R |
| Resistance range – oxide (CVF)     | ohms               | 30R - 33K                | 43R - 56K   | 51R - 100K  | 750R - 200K | 1K0 - 200K    |            |
| Limiting element voltage           | volts dc or ac rms | 150                      | 300         | 350         | 500         | 750           | 750        |
| Thermal impedance                  | °C/watt            | 50                       | 45          | 30          | 28          | 23            | 23         |
| Isolation voltage                  | volts              | 1000                     |             |             |             |               |            |
| TCR                                | ppm/°C             | <20R: ± 400, ≥20R: ± 350 |             |             |             |               |            |
| Resistance Tolerance               | %                  | ± 5 ± 10                 |             |             |             |               |            |
| Standard Values                    |                    | E24                      |             |             |             |               |            |
| Ambient temperature range          | °C                 | -55 to +155°C            |             |             |             |               |            |

### Physical Data (all dimensions in mm, weights in g)

| Type          | L     | W     | D     | B     | E     | F     | P     | d      | Weight<br>Nom. |
|---------------|-------|-------|-------|-------|-------|-------|-------|--------|----------------|
| SQM2 / CV-2   | ± 1.0 | ± 1.0 | ± 1.0 | ± 1.0 | ± 1.0 | ± 1.0 | ± 1.0 | ± 0.05 | 4.3            |
| SQM3 / CV-3   | 20    | 11.5  | 7.5   | 4.5   | 3.0   | 3.0   | 5     | 0.7    | 4.3            |
| SQM5 / CV-5   | 25    | 12.5  | 8.5   | 4.5   | 4.0   | 4.0   | 5     | 0.7    | 5.6            |
| SQM7 / CV-7   | 25    | 12.5  | 9     | 5.0   | 3.5   | 3.5   | 5     | 0.8    | 6.3            |
| SQM10 / CV-10 | 38    | 12.5  | 9     | 5.0   | 2.75  | 5.0   | 5     | 0.8    | 10.7           |
| SQM10A        | 50    | 12.5  | 9     | 4.25  | 2.75  | 5.0   | 5     | 0.8    | 13.4           |
| SQM10A        | 35    | 16.0  | 12    | 6.0   | 4.25  | 4.25  | 7.5   | 0.8    | 13.8           |

### Construction

A high purity ceramic rod, with force fit end caps onto which is wound a wire element: or a deposited metal oxide film (depending on value). The element is fitted into a ceramic case with fireproof insulation cement.

#### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

**Termination Details:**

**Material** The 100% Sn finish copper lead wires are internally welded to the resistance element end caps.  
**Solderability** The terminations meet the requirements of IEC 115-1 Clause 4.17.3.2  
**Strength** The terminations meet the requirements of IEC 86.2.21

**Marking:** Type reference, resistance value and tolerance are legend marked onto the upper surface.

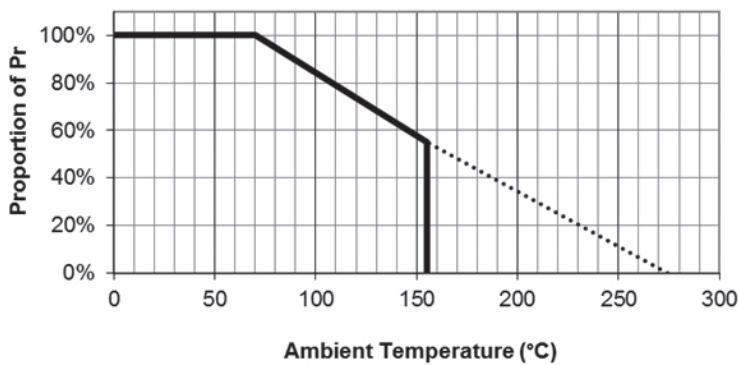
**Flammability:** The resistor will not burn under any condition of applied temperature or overload.

**Solvent resistance:** The body protection and marking are resistant to all normal industrial solvents suitable for printed circuits.

**Performance Data**

|   |    | <b>Maximum</b>  |
|---|----|---|
| Load at rated power (1000hrs at 70°C)                         | ΔR | <100K: 5% ≥100K: 10%  |
| Derating from rated power at 70°C                             |    | See Graph   |
| short term overload (lesser of 6.25 x Pr or 2.5 x LEV for 5s) | ΔR | 5% +0.05Ω   |
| Damp heat steady state (56 days, 40°C, ≥90% RH)               | ΔR | 5% +0.05Ω   |
| Temperature rapid change (5 cycles -55°C to +155°C)           | ΔR | 2% +0.05Ω   |
| Resistance to solder heat                                     | ΔR | 1% +0.05Ω   |
| Voltage Proof (1kV for 60s)                                   |    | No evidence of flashover, mechanical damage, arcing or insulation breakdown |
| Solderability   |    | Min. 95% coverage   |

**Temperature Derating**



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## Ordering Procedure

This product has two valid part numbers:

**European (Welwyn) Part Number: SQM3-1K2JB3** (SQM3, 1.2 kilohms  $\pm 5\%$ , Pb-free)

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| S | Q | M | 3 | - | 1 | K | 2 | J | B | 3 |
| 1 |   | 2 |   | 3 | 4 |   |   |   |   |   |

| 1<br>Type                                     | 2<br>Value                                      | 3<br>Tolerance | 4<br>Packing & Termination Finish |             |          |
|---|---|----------------|-----------------------------------|-------------|----------|
| SQM2, SQM3,<br>SQM5, SQM7<br>SQM10,<br>SQM10A | E24 = 3/4 characters<br>R = ohms<br>K = kilohms | J = $\pm 5\%$  | Pb-free only                      |             |          |
|   |   | K = $\pm 10\%$ | B3                                | SQM2, SQM3  | 3000/box |
|   |   |                | B2                                | SQM5        | 2000/box |
|   |   |                | B1                                | SQM7, SQM10 | 1000/box |
|   |   |                | B09                               | SQM10A      | 900/box  |

**USA (IRC) Part Number: CVF31201JLF** (CVF3, 1.2 kilohms  $\pm 5\%$ , Pb-free)

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| C | V | F | 3 | 1 | 2 | 0 | 1 | J | L | F |
| 1 | 2 | 3 |   | 4 | 5 |   |   |   |   |   |

| 1<br>Type   | 2<br>Size | 3<br>Value  | 4<br>Tolerance | 5<br>Termination Finish | Packing |          |
|-------------|-----------|---|----------------|-------------------------|---------|----------|
| CVF,<br>CVW | 2         | 3 digits + multiplier<br>R = ohms for values<br><100 ohms | J = $\pm 5\%$  | LF = Pb-free            | 2, 3    | 3000/box |
|             | 3         |   | K = $\pm 10\%$ |                         | 5       | 2000/box |
|             | 5         |   |                |                         | 7, 10   | 1000/box |
|             | 7         |   |                |                         |         |          |
|             | 10        |   |                |                         |         |          |

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# Mouser Electronics

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[RBR54L402RBR](#) [RBR55L36000FR](#) [RBR52L13702AR](#) [RBR55L909RAR](#) [RBR52L76R8AR](#) [RBR54L10202AR](#)  
[RBR55L91RTR](#) [RBR54L154RQR](#) [RBR56L11501BR](#) [RBR54L62001QR](#) [RBR56L43R2BR](#) [RBR56L59001AR](#)  
[RBR52L17802TR](#) [RBR52L237RAR](#) [RBR52L590RBR](#) [RBR54L53602AR](#) [RBR52L12002TR](#) [RBR54L73200AR](#)  
[RBR55L45R3QR](#) [RBR54L16202QR](#) [RBR52L11R5AR](#) [RBR53L309RFR](#) [RBR52L88R7BR](#) [RBR54L26701AR](#)  
[RBR52L95R3BR](#) [RBR53L127RTR](#) [RBR56L619RFR](#) [RBR56L453RAR](#) [RBR55L243RBR](#) [RBR56L422RFR](#)  
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