# Resistors

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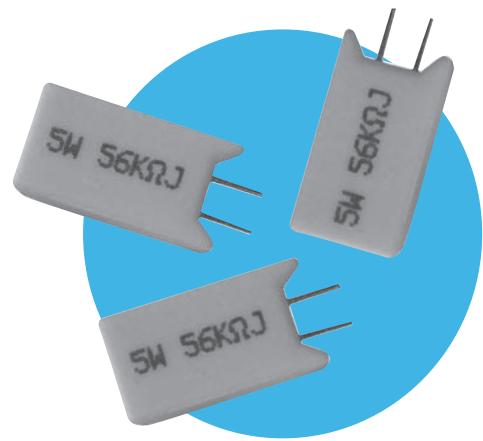
All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

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 +155ºC					

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

Type	L ± 1.0	W ± 1.0	D ± 1.0	B ± 1.0	E ± 1.0	F ± 1.0	P ± 1.0	d ±0.05	Weight Nom.
SQM2 / CV-2	20	11.5	7.5	4.5	3.0	3.0	5	0.7	4.3
SQM3 / CV-3	25	12.5	8.5	4.5	4.0	4.0	5	0.7	5.6
SQM5 / CV-5	25	12.5	9	5.0	3.5	3.5	5	0.8	6.3
SQM7 / CV-7	38	12.5	9	5.0	2.75	5.0	5	0.8	10.7
SQM10/ CV-10	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
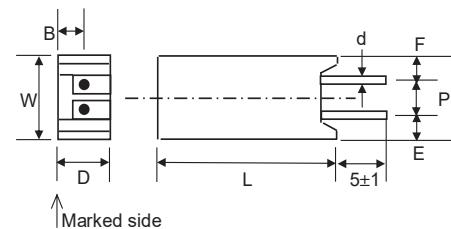
Construction

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

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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

		Maximum
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 -55ºC to +155ºC)	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
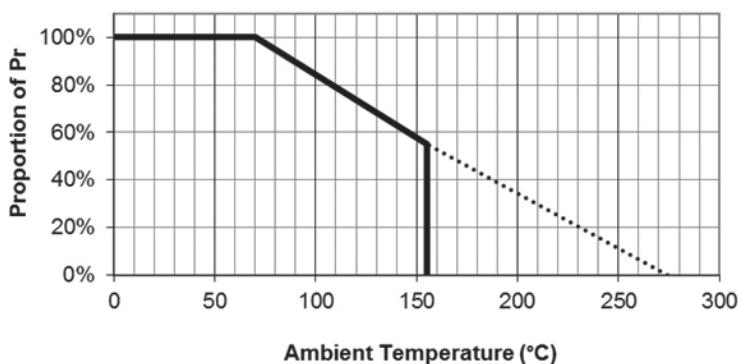
General Note

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.

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Ordering Procedure

This product has two valid part numbers:

European (Welwyn) Part Number: SQM3-1K2JB3 (SQM3, 1.2 kilohms ±5%, Pb-free)

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

| 1 | | | | 2 | | 3 | 4 |

1 Type	2 Value	3 Tolerance	4 Packing & Termination Finish		
SQM2, SQM3, SQM5, SQM7 SQM10, SQM10A	E24 = 3/4 characters R = ohms K = kilohms	J = ±5%	Pb-free only		
		K = ±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 ±5%, Pb-free)

| C | V | F | 3 | 1 | 2 | 0 | 1 | J | L | F |

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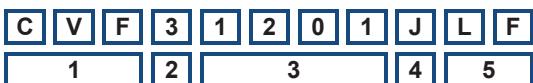
1 Type	2 Size	3 Value	4 Tolerance	5 Termination Finish	Packing	
CVF, CVW	2	3 digits + multiplier R = ohms for values <100 ohms	J = ±5%	LF = Pb-free	2, 3	3000/box
	3		K = ±10%		5	2000/box
	5				7, 10	1000/box
	7					
	10					

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Authorized Distributor

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  CVW56R80JLF   SQM10-5K1J   RBR56L36000TR   RBR53L22101BR   RBR54L62000FR   RBR56L549RBR
RBR54L39R2QR   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   RBR52L22102AR   RBR53L976RQR   RBR53L22601TR   RBR53L90R9FR   RBR54L10702AR
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RBR55L82R5QR   RBR53L11502TR   RBR56L15800BR   RBR52L165RAR   RBR56L226RBR   RBR55L82R5TR
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RBR52L309RTR   RBR54L34800FR   RBR55L20RQR   RBR54L82000AR   RBR54L8R45BR   RBR55L27400BR
RBR55L88701FR   RBR55L147RBR   SQM7-20RJB1   SQM5-100RJB2   SQM5-220RJI   SQM7-68RJB1   SQM5-6R8JB2
SQM5-1R0JB2