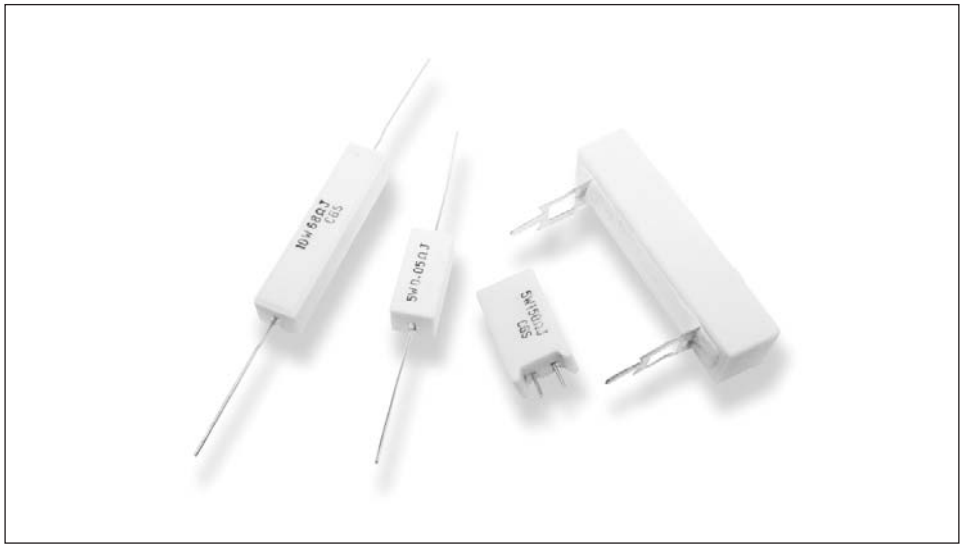
# Type SQ Series

## Key Features

- Choice of Styles
- Bracketed Types Available
- Temp. Op. -55°C to +250°C
- Wide Value Range
- Stable TCR 300ppm/°C
- Custom Designs Welcome
- Inorganic Flame Proof Construction

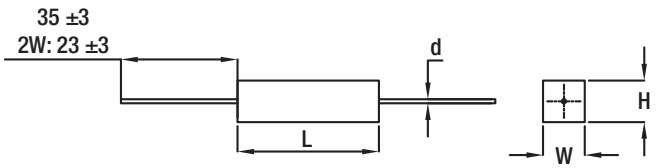


This flexible range of Power Wirewound Resistors either have wire or power oxide film elements. The SQ series resistors are wound or deposited on a fine non - alkali ceramic core then embodied in a ceramic case and sealed with an inorganic silica filler. This design provides a resistor with high insulation resistance, low surface temperature, excellent T.C.R., and entirely fire proof construction. These resistors are ideally suited to a range of areas where low cost, and efficient thermal performance are important design criteria. Metal film cores adjusted by laser spiral are used where the resistor value is above that suited to wire. Similar performance is obtained although short time overload is slightly derated.

## Characteristics - Electrical

| | Test Condition | Performance |
|---|---|---|
| **Resistance Temp. Coefficient:** | -55°C ~ 155°C | ± 300ppm/°C |
| ***Short Time Overload:** | 10 times rated power for 5 seconds | ± 2% |
| **Rated Load:** | Rated power for 30 minutes | ± 1% |
| **Voltage Withstand:** | 1000V AC 1 minute | no change |
| **Insulation Resistance:** | 500V megger | 1000 Meg |
| **Temperature Cycle:** | -30°C ~ 85°C for 5 cycles | ± 1% |
| **Load Life:** | 70°C on-off cycle for 1000 hours | ± 5% |
| **Moisture-proof Load Life:** | 40°C 95% RH on-off cycle 1000 hours | ± 5% |
| **Incombustability:** | 16 times rated wattage for 5 minutes | No flame |
| **Max. Overload Voltage:** | 2 times max. working voltage | |
| ***Metal Film Elements:** | Short time overload 5 times rated power, 5 seconds | |

## Type SQP - Horizontal




| Power Rating | Dimensions | | | | | Resistance Range | | Max. Working Voltage |
|---|---|---|---|---|---|---|---|---|
| | W ± 1 | H ± 1 | L ± 1.5 | d ± 0.05 | l ± 0.3 | Wire | Metal Film | |
| 2W | 7 | 7 | 18 | 0.65 | 23 | R10 - 82R | 83R - 10K | 150V |
| 3W | 8 | 8 | 22 | 0.8 | 35 | R10 - 180R | 181R - 33K | 350V |
| 5W | 10 | 9 | 22 | 0.8 | 35 | R10 - 180R | 181R - 100K | 350V |
| 7W | 10 | 9 | 35 | 0.8 | 35 | R10 - 430R | 431R - 100K | 500V |
| 10W | 10 | 9 | 48 | 0.8 | 35 | R10 - 470R | 471R - 100K | 750V |
| 15W | 12.5 | 11.5 | 48 | 0.8 | 35 | R50 - 600R | 601R - 150K | 1000V |
| 20W - 25W | 14 | 13.5 | 60 | 0.8 | 35 | R50 - 1K0 | 1.1K - 150K | 1000V |

Rated Continuous Working Voltage (RCWV)
RCWV: √Rated Power x Resistance Value or Maximum Working Voltage listed above whichever is lower

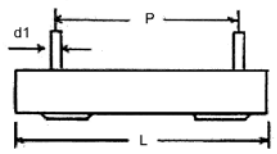


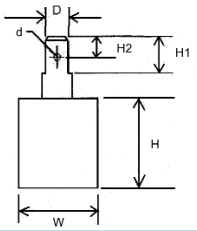
Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

Dimensions are shown for reference purposes only. Specifications subject to change.

# Type SQ Series

## Type SQH - Horizontal with Faston Connectors

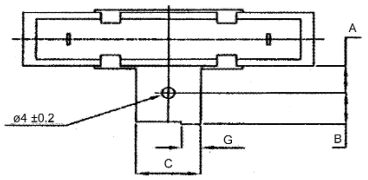


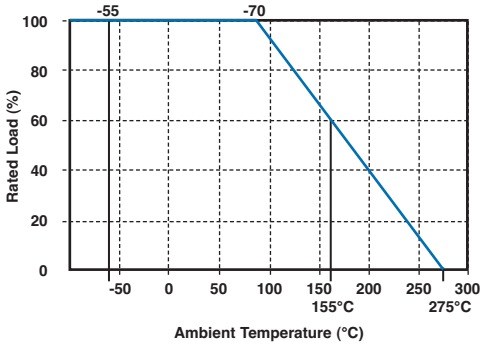

| Power Rating | Dimensions | | | | | | | | Resistance Range | |
|---|---|---|---|---|---|---|---|---|---|---|
| | W ± 1 | H ± 1 | L ± 1.5 | P | H1± 1 | D±0.5 | P1±0.2 | P2±0.2 | Wire | Metal Film |
| 10W | 10 | 10 | 48 | 32 ±1 | 21 | 5 | 2.5 | 1.7 | R50 - 600R | 601R - 50K |
| 15W | 12.5 | 11.5 | 48 | 32 ±1 | 21 | 5 | 2.5 | 1.7 | 1R0 - 600R | 601R - 50K |
| 20W | 14.5 | 13.5 | 60 | 42 ±1 | 24 | 6 | 3.0 | 2.5 | 1R0 - 1K0 | 1K1 - 50K |
| 30W | 19 | 19 | 75 | 55 ±2 | 31 | 7.5 | – | – | 1R0 - 2K0 | – |
| 40W | 19 | 19 | 90 | 67 ±2 | 31 | 7.5 | – | – | 1R0 - 2K0 | – |

## Type SQB - Horizontal with Faston Connectors and Bracket

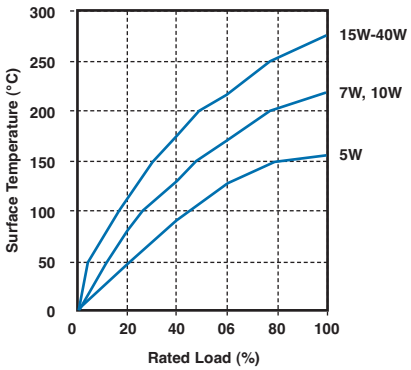
| Power Rating | Dimensions | | | |
|---|---|---|---|---|
| | A ± 0.5 | B ± 0.5 | C ± 0.5 | G ± 0.5 |
| 10W | 8.0 | 5.0 | 12.0 | 3.0 |
| 15W | 8.0 | 5.5 | 12.0 | 3.0 |
| 20W | 8.0 | 5.5 | 12.0 | 3.0 |
| 30W | 10.5 | 8.0 | 18.0 | 3.5 |
| 40W | 10.5 | 8.0 | 18.0 | 3.5 |



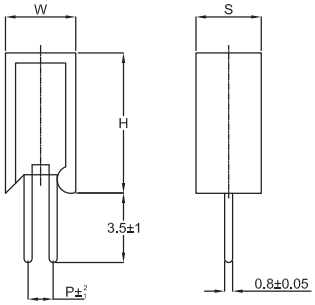

## Power Derating Curve




## Load Against Temperature




## Type SQM - Vertical




| Power Rating | Dimensions | | | | Resistance Range | |
|---|---|---|---|---|---|---|
| | W ± 1 | H ± 1 | S ± 1.5 | P ± 2.0 | Wire | Metal Film |
| 2W | 11 | 20 | 7 | 5 | R10 - 82R | 83R - 10K |
| 3W | 12 | 25 | 8 | 5 | R10 - 180R | 181R - 33K |
| 5W | 13 | 25 | 9 | 5 | R10 - 180R | 181R - 100K |
| 7W | 13 | 39 | 9 | 5 | R10 - 430R | 431R - 100K |
| 10W | 13 | 51 | 9 | 5 | R10 - 470R | 471R - 100K |
| 10WS | 16 | 35 | 12 | 7.5 | R10 - 360R | 361R - 100K |

N.B. Custom design versions in wire at low tolerances, better T.C.R., and higher ohmic values are available to special order. Please enquire.

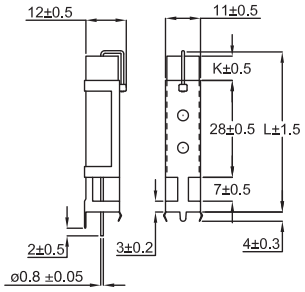


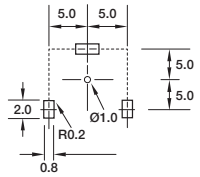
Dimensions are in millimeters and inches unless otherwise specified. Values in brackets are standard equivalents.

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# Type SQ Series

## Type SPS - Vertical Mounting with Stabilising Bracket

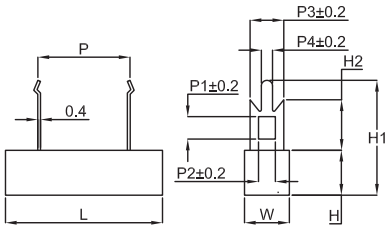



Suggested PCB Layout Plan

| Power Rating | Dimension | | Resistance Range | |
|---|---|---|---|---|
| | L ± 1.5 | K ± 0.5 | Wire | Metal Film |
| 7W | 48 | 8.5 | R10 - 430R | 431R - 100K |
| 10W | 60 | 20 | R10 - 470R | 471R - 100K |

## Type SQZ - Horizontal Pluggable

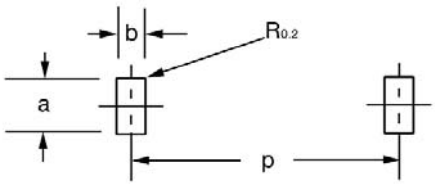



| Power Rating | Dimensions | | | | | | | | | | Resistance Range | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W±1 | H±1 | L±1.5 | P±1.5 | P1 | P2 | P3 | P4 | H1±1 | H2±1 | Wire | Metal Film |
| 5W | 10 | 10 | 28 | 15 | 4.2 | 2 | 5 | 1.5 | 25 | 10.5 | R10 - 130R | 131R - 100K |
| 7W | 10 | 10 | 36 | 20 | 4.2 | 2 | 5 | 1.5 | 25 | 10.5 | R10 - 430R | 431R - 100K |
| 10W | 10 | 10 | 48 | 32 | 4.2 | 2 | 5 | 1.5 | 25 | 10.5 | R20 - 470R | 471R - 100K |
| 15W | 12.5 | 12 | 48 | 32 | 4.2 | 2 | 5 | 1.5 | 26 | 10.5 | 1R0 - 600R | 601R - 150K |
| 20W-25W* | 15 | 13 | 60 | 42 | 7 | 6 | 10 | 2.7 | 36 | 15.0 | 1R0 - 1K0 | 1K1 - 150K |

*NB: 20W & 25W Devices Terminations are not crimped

## Type SQZ - Recommended PCB Hole Dimensions

| Power Rating | a | b | p |
|---|---|---|---|
| 5W | 2.0 | 0.8 | 15 |
| 7W | 2.0 | 0.8 | 20 |
| 10W | 2.0 | 0.8 | 32 |
| 15W | 2.0 | 0.8 | 32 |
| 20W_25W | 3.5 | 1.0 | 42 |




## How to Order

| SQP | W | 20 | 1R0 | F |
|---|---|---|---|---|
| **Common Part** | **Element** | **Rated Power** | **Resistance Value** | **Resistance Tolerance** |
| SQP - Axial Type<br>SQZ - Pluggable Type<br>SQM - Vertical Type<br>SPS - Vertical Type<br>SQH - Horizontal Type<br>SQB - Horizontal Type<br>(with bracket) | W - Wire<br>R - Metal Film | 2 - 2 Watts<br>3 - 3 Watts<br>5 - 5 Watts<br>etc | 0.1 ohm<br>(1 milliohm) R10<br>1 ohm<br>(1000 milliohms) 1R0<br>1K ohm<br>(1000 ohms) 1K0<br>1M ohm<br>(1000000 ohms) 1M0 | F - ±1%<br>G - ±2%<br>J - ±5%<br>K - ±10% |

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