



VISHAY DALE Surface Mount Resistors

Leader In Innovative Technologies

MILITARY / MEDICAL / INDUSTRIAL* (Thick Film)

For technical questions, contact
ff2aresistors@vishay.com

CURRENT SENSE (Power Metal Strip®)

For technical questions, contact
ww2bresistors@vishay.com

HIGH POWER/HIGH PRECISION (Wirewound / Metal Film)

For technical questions, contact
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WSL

- 0402 0.063W
- 0603 0.1W
- 0805 0.125W
- 1206 0.25W
- 2010 0.5W<7 mΩ
- 2010 0.5W≥7 mΩ
- 2512 1W<5 mΩ
- 2512 1W<7 mΩ
- 2512 1W≥7 mΩ
- 2816 2W

WSL...18

- (High Power)
- 0603 0.2W
- 0805 0.25W
- 1206 0.5W
- 2010 1W<7 mΩ
- 2010 1W≥7 mΩ
- 2512 2W<5 mΩ
- 2512 2W<7 mΩ
- 2512 2W≥7 mΩ

Wirewound (High Power)

- WSC01/2 0.5W
- WSC2515 1W
- WSC4527 2W
- WSC6927 3W
- WSZ7532 3.75W

Metal Film (High Power)

- WSF2012 0.5W
- WSF2515 1W
- WSF4527 2W
- (High Precision)
- PFS2012 0.125W
- PSF4527 0.25W

WSLP

- (Very High Power)
- 0603 0.4W
- 0805 0.5W
- 1206 1W
- 2010 2W

WSLS (Improved Stability)

- 2512 1W

Medium Voltage

- CRMV1206 0.25W
- CRMV1210 0.3W
- CRMV2010 0.4W
- CRMV2510 0.45W
- CRMV2512 0.5W

High Voltage

- CRHV1206 0.3W
- CRHV1210 0.45W
- CRHV2010 0.5W
- CRHV2510 0.6W
- CRHV2512 0.7W
- CDHV2512

High Resistance

- RCHR0805 0.2W
- RCHR1005 0.25W
- RCHR1206 0.3W

Low Resistance

- RCWL/RCWE (5%)(1%)
- 0402 0.063W/0.125W
- 0603 0.1W/0.2W
- 0805 0.125W/0.25W
- 1206 0.25W/0.5W
- 1210 0.33W/1W
- 1218 1W/na
- 2010 0.5W/1W
- 2512 1W/2W

WSK / WSL (4-Terminal)

- WSK0612 1W
- WSK1206 0.25W
- WSK2512 1W <5 mΩ
- WSK2512 1W ≥5 mΩ
- WSL3637 3W <2 mΩ
- WSL3637 3W ≥2 mΩ
- WSL2726 3W
- WSL4026 3W
- WSL4727 2W

3921 5W/9W

5931 7W/10W

WSH

- 2512 3W
- 2818 5W

WSLT

- (High Temperature)
- 2010-18 1W
- 2512 1W
- 3921 3W
- 5931 5W

WSE / WSL...E (Extended Range) (0.5Ω - 10kΩ)

- WSE0805 0.25W
- WSL1506E 0.25W
- WSL2010E 0.5W
- WSL2512E 1W

WSR

- WSR2 2W
- WSR3 3W
- WSR5 5W

Military

- 55342/32159
- /01 (0502) 0.05W
- /02 (0550) 0.125W/0.1W
- /03 (5100) 0.2W
- /04 (5150) 0.15W
- /05 (7225) 0.225W
- /06 (0575) 0.15W
- /07 (1206) 0.25W
- /08 (2010) 0.8W
- /09 (2512) 1W
- /10 (1100) 0.5W
- /11 (0402) 0.05W/0.04W
- /12 (0603) 0.1W/0.07W
- /13 (0302) 0.04W/0.035W

Medical / Industrial

- RCWP0201 0.05W
- RCWP0302 0.04W
- RCWP0402 0.05W
- RCWP0502 0.05W
- RCWP0540 0.08W
- RCWP0550 0.125W
- RCWP0603 0.1W
- RCWP0575 0.15W
- RCWP5100 0.2W
- RCWP1100 0.5W
- RCWP1206 0.25W
- RCWP5150 0.35W
- RCWP2010 0.8W
- RCWP7225 0.6W
- RCWP2512 1W

Alternate Termination

- RC0540 0.1W
- RC0550 0.1W
- RC0575 0.2W
- RC5100 0.25W
- RC1100 0.45W
- RC1206 0.3W
- RC5150 0.325W
- RC7225 0.525W
- RC2010 0.575W

Resistor/Capacitor

- CRCA12E
- CRCA12S
- CRCC1206

Attenuator

- CZA04 0.04W
- CZA06 0.075W

Custom Networks



Resistor Networks

- (Medium Body) SOMC 14
- SOMC 16
- SOMC 20
- (Wide Body) SOGC 16
- SOGC 20



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CURRENT SENSE

Power Metal Strip® – Characteristics and Advantages

- More than 50 packages / configurations available (0402 to 5931, 2 & 4 terminal)
- Broad resistance range (0.0002 Ω to 1.0 Ω)
- Many power ratings (0.063W to 10W)
- High temperature performance (up to 275 °C)
- Tight tolerances (down to 0.5%)
- Low TCR (down to 30 ppm/°C)
- Excellent overload capability (equivalent to Wirewound)

Models Available

WSL

- Standard 2-terminal devices

WSL...18

- High Power (2X standard WSL power capability)

WSLP

- Very High Power (4X standard WSL power capability)

WSLT

- High Temperature (to 275 °C)

WSLS

- Improved stability (<0.5% resistance shift through 2000 hr life)

WSR

- Molded 4527 size packages in 2, 3 & 5 watt designs

WSH

- Very High Power (improved thermal efficiency)

WSK

- 4-terminal Kelvin design in 0612, 1206 & 2512 sizes

WSL2726, WSL3637, WSL4026, and WSL4727

- 4-terminal Kelvin design, 2 or 3 watt power rating

WSE / WSL...E

- Extended Resistance Range (0.5 Ω to 10 k Ω)

LOW RESISTANCE

RCWE – Thick Film Chip Resistor, Extremely Low Value

- Resistance range of 0.01 Ω to 0.976 Ω (E96 values) and a tolerance of 1%
- High power (2X standard Thick Film resistors)
- Low TCR (down to 100 ppm/°C)
- 7 package sizes (0402 to 2512)

RCWL – Thick Film Chip Resistor, Low Value

- Resistance range of 0.1 Ω to 0.91 Ω (E24 values) and a tolerance of 5%
- 8 package sizes (0402 to 2512)

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HIGH POWER

WSC / WSZ / WSF – High Power, Wirewound/Metal Film

- High power ratings for SMD (0.5 W to 3.75 W)
 - A wide resistance range (0.1 Ω to 100k Ω)
 - Low-High temperature performance (-65 °C to +275 °C)
 - Tight tolerances (down to 0.5%)
 - Non-inductive WSC available (WSN family)
 - Excellent overload capability
 - Compliant terminals eliminate risk of solder fillet cracking
- For technical questions, contact ww2aresistors@vishay.com

MILITARY

RCWPM – Thick Film Chip Resistor, Military / Established Reliability

- Qualified to MIL-PRF-55342, termination style B, characteristic K, M
- Jumpers qualified to MIL-PRF-32159, termination style B
- Established reliability – Verified failure rate: M, P, R, S & T levels (55342) & M level (32159)
- Package sizes from 0302 to 2512, and Power ratings from 0.035 W to 1 W

MEDICAL / INDUSTRIAL

RCWP – Thick Film Chip Resistor, Industrial

- Same materials and construction as the MIL-PRF-55342 chip resistors
- Capability to develop specific reliability programs designed to customer requirements
- Size, value, packaging & materials can be customized for special customer requirements
- Also available with Lead (Pb)-Free terminations

ATTENUATOR

CZA – Thick Film Chip Resistor, Attenuator

- Single component reduces board space and component counts
- Tolerance matching and temperature tracking superior to individual components
- Impedance range from 50 Ω to 600 Ω and Attenuation range from 1 dB to 20 dB

ALTERNATE TERMINATION

RC – Thick Film Chip Resistor, Alternate Terminations

- Suitable for solderable, epoxy bondable, or wire bondable applications
- Multiple sizes and a variety of termination materials allow wide design flexibility
- Available with either single sided flip chip or wraparound non-magnetic terminations

MEDIUM / HIGH VOLTAGE

CRMV / CRHV / CDHV – Thick Film Chip Resistors & Divider

- Available as a single resistor (CRHV & CRMV) or as a divider (CDHV)
- Voltage capability up to 800 V for the CRMV and 3000 V for CRHV & CDHV
- Resistance range from 150 Ω to 50 G Ω

HIGH RESISTANCE

RCRHR – Thick Film Chip Resistor, High Resistance Value

- Resistance values up to 3 G Ω
- Available with either wraparound terminations or single termination flip chip

HIGH PRECISION

PSF – Metal Film Resistor, High Precision, High Stability

- Low temperature coefficients (down to 5 ppm/°C) and tolerances (down to 0.01%)
- Molded SMD body with wraparound compliant terminations

RESISTOR NETWORKS

SOMC / SOGC – Thick Film Resistor Network, Dual-in-Line, Gull-wing Body

- Rugged molded case construction
- Compatible with automatic surface mount equipment
- Isolated, bussed, dual terminator, TTL/ECL translator, & signal terminator schematics

RESISTOR / CAPACITOR

CRCA / CRCC – Thick Film Resistor / Capacitor Array & Chip

- Single component reduces board space and component counts
- Choice of dielectric characteristics X7R or Y5U

CUSTOM NETWORKS

SPM / MCMU / TCX / QUADTCX – Custom Network

- Customized product designs utilizing Thick Film technology
- Available with various resistor, capacitor and/or diode multicomponent network combinations
- Can reduce component count and cross talk, as well as simplifying board layouts

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