

Ohmite: Precision Power Resistors

www.ohmite.com



OHMITE®

contents

| | |
|------------|---|
| 3 | Ohmite Power Resistors |
| 4 | High Power/Heat Sinkable High Power |
| | 4 High Power |
| | 6 Heat Sinkable High Power |
| 10 | High Voltage |
| 12 | Surge/High Energy |
| 14 | High Current/Braking |
| 16 | Current Sense |
| 19 | Resistive Based Sensors/Sensing |
| 20 | About Ohmite: Leading the Resistive Product Charge since 1925 |
| Back Cover | Contact |



Ohmite's power resistors have led the industry in product innovation for over 95 years. We offer multiple product types to suit specific application requirements. From surface mount components to large load banks, Ohmite carries the products required for your application. All Ohmite resistive products are RoHS Compliant.

OHMITE POWER RESISTORS

| APPLICATIONS | | | | | | |
|-----------------------|--------------------------|-------------------|-----------------------|------------------------|--------------------------------|-------------------|
| High Power | Heat Sinkable High Power | High Voltage | Surge / High Energy | High Current / Braking | Current Sense | Sensors / Sensing |
| 14984 Series | 89 Series | ARCOL ARC2 Series | 280 Series | 14984 Series | 10 Series | FSR Series |
| 210 Series | ALX Series | ARCOL ARC3 Series | 30 Series | 280 Series | 14A Series | FSP Series |
| 250 Series | ARCOL Aluminum Housed | HSX Series | A Series | BA Series | 60 Series | FST Series |
| 270 Series | ARCOL HS Series 400-600 | HVC Series | AS Series | Euro-Power Wirewound | 60S Series | TX Series |
| 280 Series | ARCOL AP101 Series | MacroChip Series | G Series | HCLB Series | ARCOL L4T Series | |
| ALN Series | ARCOL AP725 Series | Maxi-Mox Series | MOX500 Series | JR Series | CS3 Series | |
| Audio Gold Resistors | ARCOL AP830 Series | MC1RD Series | MOX600 Series | PFE and PFR Series | CS5 Series | |
| Euro-Power Wirewound | ARCOL AP836 Series | MC4 Series | MOX700 Series | S Series Shunts | EBW Series | |
| HCLB Series | ARCOL AP851 Series | Mini-Mox Series | OW/OX/OY Series | SGM Series | FC4L Series | |
| PFE and PFR Series | ARCOL ARF Series | Power-Mox Series | TFS Series | SH Series Shunt | FC4T Series | |
| Power-Mox Series | ARCOL FPA600 Series | RX-1M Hi-Meg | TFSS Series | WLRD6G Series | FCSL Series | |
| SGM Series | ARCOL TFBR Series | Slim-Mox Series | TP Series High Energy | WLRH Series | FK/GK Series | |
| TA Series | ARG Series | Super Mox Series | TRH Series | | KDV Series | |
| TP Series High Energy | BA Series | TFS Series | 100 Series | | LVK Series | |
| TRH Series | IS Series Resistor | TFSS Series | 200 Series | | LVM Series | |
| WLRD6G Series | Metalohm Series | TRH Series | 500 Series | | LVT Series | |
| WLRH Series | TAH20 Series | 100 Series | 800 Series | | MCS Series | |
| | TAP1K & TAP2K Series | 200 Series | 1000 Series | | PCS Series | |
| | TAP2K Series | 500 Series | | | RW1/RW2 Series | |
| | TAP650 Series | 800 Series | | | S Series Shunts | |
| | TAP600/TAP800 Series | 1000 Series | | | SB Series | |
| | TBH25 Series | | | | SH Series Shunt | |
| | TCH35 Series | | | | TGHG Series | |
| | TDH35 Series | | | | | |
| | TEH100 Series | | | | | |
| | TEH140P Series | | | | | |
| | TFSO Series | | | | | |
| | TGH Series | | | | | |
| | TGHD Series | | | | | |
| | TGHG Series | | | | | |
| | TGHM Series | | | | | |
| | TGHP Series | | | | | |
| | TKH45 Series | | | | | |
| | TKH55 Series | | | | | |
| | TL series | | | | | |
| | WFH Series | | | | | |
| | | | | | Current Sensing Modules | |
| | | | | | | ES-600 |

HIGH POWER/HEAT SINKABLE HIGH POWER

Ohmite has multiple part series for High Power, Surge, Current Sense and other applications. Part constructions range from thick film to wirewound. With multiple mounting options and constructions, you're sure to find the proper High Power resistor required to fit your needs. Adjustable Power Resistors allow resistance to be readily changed.

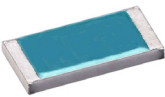
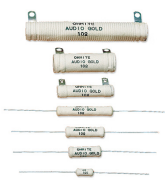





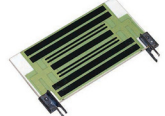
Many of our High Power resistors can be attached to a heat sink for enhanced power dissipation. Much smaller than standard parts of the same wattage, Heat Sinkable resistors release most of their heat in one plane. The single side is attached to a heat sink, and the heat generated is absorbed. Once the heat is absorbed, it is released into the air or water through a heat sink or chill plate.

Common applications include: Power transmission, traction, variable speed drives, power supplies, robotics, motor control, power control devices, current pulse limiters


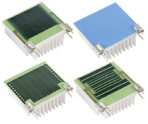


HIGH POWER

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|--|--------------------|-------------------|-------|--|---|
|  14984 Series High Current Round Edgewound | $\sqrt{P \cdot R}$ | 0.118Ω | 3,021 | ±10% Applies to all resistances and power ratings | Available for ohmic values other than those listed, mountings, other terminal styles, all stainless frame and terminal construction. |
| | | 0.157Ω | 3,077 | | |
| | | 0.171Ω | 2,889 | | |
| | | 0.285Ω | 2,850 | | |
|  210 Series Dividohm® Vitreous Enamel Adjustable Power | 565 | 1.0-10kΩ | 12 | ±10% Applies to all resistances and power ratings | Other sizes available; also available in low cost Centohm or Silicone coating; contact Ohmite. |
| | 625 | 1.0-25kΩ | 25 | | |
| | 1,625 | 1.0-100kΩ | 50 | | |
| | 2,625 | 1.0-100kΩ | 75 | | |
| | 2,845 | 1.0-100kΩ | 100 | | |
| | 3,595 | 1.0-100kΩ | 175 | | |
| | 4,595 | 1.0-100kΩ | 225 | | |
| | 4,970 | 1.5-15kΩ | 500 | | |
|  250 Series 'Thin' Stackohm® Vitreous Enamel Power | 187 | 1.0-15kΩ | 10 | ±5% Applies to all resistances and power ratings | Adjustable versions and other sizes available; consult Ohmite also available in low cost Centohm or Silicone coating; consult Ohmite. |
| | 815 | 1.0-50kΩ | 20 | | |
| | 281 | 1.0-10kΩ | 30 | | |
| | 655 | 1.0-25kΩ | 40 | | |
| | 1,405 | 1.0-30kΩ | 55 | | |
|  270 Series Vitreous Enamel Power | 565 | 0.1-51kΩ | 12 | Under 1Ω: ±10% 1Ω and over: ±5% Applies to all resistances and power ratings | Non-Inductive versions available; Other sizes available; Also available in low cost Centohm or Silicone coating; Consult Ohmite. |
| | 625 | 0.15-100kΩ | 25 | | |
| | 1,625 | 0.38-260kΩ | 50 | | |
| | 2,845 | 0.23-101kΩ | 100 | | |
| | 3,595 | 0.13-101kΩ | 175 | | |
| | 4,595 | 0.16-129kΩ | 225 | | |
| | 4,970 | 0.38-218kΩ | 500 | | |
| 8,900 | 0.69-392kΩ | 1,000 | | | |
|  280 Series Corrib® Fixed and Adjustable Vitreous Enamel Power | $\sqrt{P \cdot R}$ | 0.1Ω-63Ω | 300 | ±10% | Also available in low cost Centohm or Silicone coating; Consult Ohmite. |





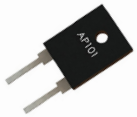
HIGH POWER (continued)

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|--|---|-------------------|---|--|--|
|  ALN Series High Power Chip Resistor | 200 | 10Ω-2KΩ | 3.5 | ±1%, ±5% | Industry standard 2512 size |
|  Audio Gold Resistors Audio Applications | 200 | 0.10-2kΩ | 3 | 5% std., 1% available Applies to all resistances and power ratings | Non-inductive versions available |
| | 460 | 0.10-8kΩ | 5 | | |
| | 1,000 | 0.10-22kΩ | 10 | | |
| | 625 | 0.10-20kΩ | 12 | | |
| | 750 | 0.10-39kΩ | 20 | | |
| | 625 | 0.10-39kΩ | 25 | | |
| | 1,625 | 0.38-100kΩ | 50 | | |
|  Euro-Power Wirewound Vitreous Enamel Power | Round Wire Construction | | | Under 1Ω: ±10% 1Ω and over: ±5% Applies to all resistances and power ratings | Non-Inductive versions available; Other sizes available; Also available in low cost Centohm or Silicone coating; Consult Ohmite. |
| | 1,400 | 0.4Ω-250kΩ | 72 | | |
| | 2,100 | 0.5Ω-100kΩ | 160 | | |
| | 3,300 | 0.2Ω-125kΩ | 280 | | |
| | 5,000 | 0.2Ω-200kΩ | 700 | | |
| | Ribbon Wire Construction | | | | |
| | $\sqrt{P \cdot R}$ | 0.10-18Ω | 200 | | |
| | $\sqrt{P \cdot R}$ | 0.22-33Ω | 350 | | |
| $\sqrt{P \cdot R}$ | 0.33-56Ω | 1,000 | | | |
|  HCLB Series Resistor Load Banks, High Current Oval Edgewound | 1,000V If mounting is grounded; special higher voltage mounting is available. | 0.1Ω-41.3Ω | 8kW-24kW | ±10% | Choose from four bank wattages with up to thirty-one current ratings per bank. |
|  PFE and PFR Series Powr-Rib® Edgewound Edgewound and Round Wire | $\sqrt{P \cdot R}$ | 0.1Ω-25Ω | 700-1,000 (up to 1,600 watts on special order) | ±10% std., ±5% available | Designed in both Edgewound and Round Wire formats |
|  Power-Mox Series Precision Power Thick Film High Voltage/High Resistance Tubular | 20kV | 1k-800,000MΩ | 25 | 0.5%, 1%, 2%, 5% (Some tolerances are not available over the entire resistance range) | 0.4" diameter ferrule, 0.25"-20 threaded end cap, or radial bands available |
| | 30kV | 1.5k-1,000,000MΩ | 40 | | |
| | 45kV | 2k-1,000,000MΩ | 50 | | |
| | 60kV | 3k-1,000,000MΩ | 75 | | |
|  SGM Series Stamped Grid Module Resistors | 1,000 VAC/ 1,400 VDC | 2.7Ω-392Ω | 4kW-380kW | ±10% std. others on request | Brake resistors are offered as open units or with an enclosure |
|  TA Series Power Chip Thick Film on Alumina Substrate | 350 VAC, 500 VDC through glass, 1,000 VAC, 1,500 VDC through substrate, not to exceed power rating | 0.25Ω-10MΩ | 3.0-100.0 | ±1%, ±5%, and ±10% | Other ohmic values than listed available upon request |

HIGH POWER (continued)

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|---|-------------------------------------|--|-------------------------|-----------------------------------|---|
|  TP Series High Energy Thick Film on Alumina Substrate | 350 VAC 500 VDC through glass | 10 Ω -1M Ω | 20 | \pm 1%, \pm 5%, and \pm 10% | Consult factory for other ohmic values |
|  TRH Series Thick Film | 15kV, not to exceed power rating | Continuous Power: 100 Ω -10k Ω Impulse Energy: 5 Ω -1k Ω High Voltage: 100k-100M Ω | 30 | 1%, 5%, and 10% | Meets Mil-Std-202 and IEC 61000-4-5 |
|  WLRD6G Series High Current Oval Edgewound | 550 | 0.082-6.13 Ω | 525-1,750 | \pm 10% | Five sizes with up to thirty-one current ratings; special higher voltage mounting available |
|  WLRH Series Heliohm Wirewound | 600 | 0.25-250 Ω | 1.0-32.0A Continuous | \pm 10% | 45 models ranging from 0.25-250 Ω ; Various mounting options |

HEAT SINKABLE HIGH POWER

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes | |
|--|---|------------------------------|---|---|---|--|
|  89 Series Metal-Mite [®] Aluminum Housed Axial Terminal Wirewound, 1% Tolerance | 210 | 0.10-25k Ω | 5 | \pm 1% and \pm 5% Applies to all voltage, resistances and power ratings | Non-Inductive versions available; Other tolerances available | |
| | 320 | 0.10-50k Ω | 10 | | | |
| | 520 | 0.010-75k Ω | 25 | | | |
| | 1,170 | 0.005-100k Ω | 50 | | | |
|  ALX Series High Power Chip Resistor | 100 | 50 Ω - 30.1K Ω | 2 | \pm 0.1% | Offered in 1206 and 2512 sizes | |
| | 100 | 50 Ω - 30.1K Ω | 6 | \pm 0.1%, \pm 0.2%, \pm 0.5%, \pm 1% | | |
|  ARCOL Aluminum Housed HS Aluminum Housed Resistors | (Limiting Element Voltage) 160-2,500 | 0.005-100k Ω | 10-300 on std. heat sink at 25 $^{\circ}$ C; 5-60 with no heat sink at 25 $^{\circ}$ C | std. \pm 5% and \pm 10% Also available \pm 1%, \pm 2% and \pm 3% | In line with the requirements of MIL 18546 and IEC 115; Custom designs welcome | |
|  ARCOL HS Series 400-600 HS Aluminum Housed Resistors | | | 100% Duty Cycle No Heat Sink | 100% Duty Cycle W/ Heat Sink | std. \pm 5%, \pm 10%, and \pm 20% Applies to all voltage, resistances & power ratings | Designed to be heat sink-mounted to achieve full commercial wattage; Wound to maximize High Pulse Capability |
| | 2,000 | 3.6-620 Ω | 80 | 400 | | |
| | 2,300 | 5.1-910 Ω | 100 | 500 | | |
| | 2,800 | 6.8-1.2k Ω | 120 | 600 | | |
|  ARCOL AP101 Series 100W TO-247 High Power Resistors | 700 | 0.05-10k Ω | 100 at 25 $^{\circ}$ C case temperature heat sink mounted | \pm 1%, \pm 5%, and \pm 10% | Single screw mounting to heat sink; Non-inductive design | |

HEAT SINKABLE HIGH POWER (continued)

| Resistor Family | | Max Voltage* | Resistance (Ohms) | Watts | | Tolerance | Notes |
|---|---|---|-------------------|--|--------------|---|---|
|  | ARCOL AP725 Series 20W TO-263 Power Resistor | 250 | 0.02-130kΩ | 20 at 25°C | | ±1%, ±5% | D2PAK housing; Electrically isolated from backplate; TCR Options ±100 ppm/°C |
|  | ARCOL AP830 Series 30W TO-220 High Power Resistors | 350 | 0.05-10kΩ | 2.25 in free air 30 at 25°C case temperature on heat sink | | ±0.5% to ±10% | Molded case for protection and easy to mount; Non-inductive design; Electrically isolated case |
|  | ARCOL AP836 Series 35W TO-220 High Power Resistors | 350 | 0.05-10kΩ | 2.5 in free air 35 at 25°C case temperature on heat sink | | ±0.5% to ±10% | Molded case for protection and easy to mount; Non-inductive design; Electrically isolated case |
|  | ARCOL AP851 Series 50W TO-220 High Power Resistors | 420 | 1-10kΩ | 2.25 in free air 50 at 25°C case temperature on heat sink | | ±0.5% to ±10% | Molded case for protection and easy to mount; Non-inductive design; Electrically isolated case |
|  | ARCOL ARF Series Low Profile Wirewound Metal Clad Resistors | | | No Heat Sink | W/ Heat Sink | ±5% Applies to all voltage, resistances & power ratings | Enhanced power levels can be achieved when heat sink mounted. |
| | | 1,000 | 2.2-220Ω | 75 | 150 | | |
| | | 1,000 | 3.6-390Ω | 100 | 200 | | |
| | | 1,500 | 5.6-560Ω | 150 | 300 | | |
| | | 1,500 | 7.5-820Ω | 200 | 400 | | |
| | | 2,000 | 10-1kΩ | 250 | 500 | | |
| | | 2,000 | 11-1kΩ | 300 | 600 | | |
|  | ARCOL FPA600 Series 600W Thick Film Heat Sink Resistors | 5,000 VDC | 0.5-1MΩ | 600 | | ±5% or ±10% | Partial discharge 4kVrms <10 pc up to 7kV. Please consult with Ohmite regarding application areas. |
|  | ARCOL TFBR Series Stainless Steel Power Resistors | 1,000 VDC | 5-680Ω | No Heat Sink | W/ Heat Sink | ±10% | Other ohmic values than listed available upon request. |
| | | | | 20 | 100 | | |
| | | | | 40 | 300 | | |
| | | | | 120 | 900 | | |
|  | ARG Series Wirewound Power Resistors in Al Case | 1,000 VAC | 1.6-180Ω | 45 | 150 | ±5% Applies to all voltage, resistances & power ratings | **PNED=100% ED – load factor = percentual ratio of switch-on time against cycle period - typical 120s |
| | | 1,000 VAC | 2.2-240Ω | 60 | 200 | | |
| | | 1,500 VAC | 4.7-430Ω | 70 | 300 | | |
| | | 2,000 VAC | 6.8-620Ω | 80 | 400 | | |
| | | 2,300 VAC | 9.1-910Ω | 100 | 500 | | |
|  | BA Series Aluminum Cased Resistor | 1,000 Applies to all resistance ranges and power ratings | 0.5Ω-18kΩ | 500 | | ±10% Applies to all voltage, resistances & power ratings | Thermal cut-off available; scalable, custom lengths available; custom leads available |
| | | | 1Ω-10kΩ | 700 | | | |
| | | | 1Ω-10kΩ | 1,000 | | | |

HEAT SINKABLE HIGH POWER (continued)

| Resistor Family | | Max Voltage* | Resistance (Ohms) | Watts | | Tolerance | Notes |
|---|---|---|-------------------|--|--------------|--|---|
|  | IS Series Resistor Ultra Low Profile Power Resistors | 300V | 5Ω-10kΩ | 175, 200, 250, or 270 | | 10%, 20% | Available with fast-on terminals or wire leads |
|  | Metalohm Series Cold Rolled Steel Encased Wirewound Heat Sinkable Radial Terminal | 6-9 Applies to all resistance ranges and power ratings | | No Heat Sink | W/ Heat Sink | 5%, 10% Applies to all voltage, resistances & power ratings | Noninductive versions (Aryton-Perry windings); Variety of terminal choices |
| | | | 0.05-6kΩ | 20 | 45 | | |
| | | | 1.0-25kΩ | 40 | 70 | | |
| | | | 1.0-25kΩ | 40 | 70 | | |
| | | | 1.5-47.5kΩ | 50 | 100 | | |
| | | | 2.5-81kΩ | 60 | 115 | | |
| | | | 4.5-100kΩ | 85 | 150 | | |
|  | TAH20 Series 20 Watt TO220 Package Thick Film Power | 350 | 0.05Ω-10kΩ | 20 at 25°C case temperature on heat sink | | 5% std. | Other ohmic values and 1% tolerance available on request |
|  | TAP1K & TAP2K Series High Wattage Heat Sinkable Planar Resistor | 2,000 VDC | 0.5-1,000Ω | 1,000 or 2,000 | | +10% std. | Power rating based on 85°C mounting plate |
|  | TAP2K Series Ultra High Power Planar Resistor | 5,000 VDC = 3.500VAC RMS (50 Hz) | 0.15-6kΩ | 2,000 at 125°C bottom case temperature | | ±5% to ±10% | Higher ohmic values and voltage available upon request |
|  | TAP650 Series 650 Watt Heat Sinkable Planar | 5,000 VDC | 0.25-1MΩ | 650 | | ±5% to ±10% | Higher voltage and other ohmic values available upon request |
|  | TAP600 Series 600 Watt Heat Sinkable Planar | 5,000 VDC | 0.25-100kΩ | 600 | | ±10% std., 5% available on request | Higher voltage and other ohmic values available upon request |
|  | TAP800 Series 800 Watt Heat Sinkable Planar | 5,000 VDC | 1-10kΩ | 800 | | ±5% to ±10% | Higher voltage available on request |
|  | TBH25 Series 25 Watt TO220 Package Thick Film Power | 350 | 0.1-10kΩ. | 25 at 25°C case temperature | | 5% | Other ohmic values available upon request; Anti-static tube packaging available |
|  | TCH35 Series 35 Watt TO220 Package Thick Film Power | 350 | 0.05-10kΩ | 35 at 25°C | | ±5% std., (1% on request) | Higher ohmic values on request subject to derating |
|  | TDH35 Series 35 Watt D2PAK Package Thick Film Power Surface Mount | 350 | 0.05-10kΩ | 35 at 25°C | | ±1% to ±10% (0.5% on request) | Other ohmic values on request |

HEAT SINKABLE HIGH POWER (continued)










| Resistor Family | | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|---|--|--|-------------------|------------------------------|--|---|
|  | TEH100 Series 100 Watt Thick Film Power Resistors for High Frequency and Pulse Loading Applications | 350 | 0.05-10MΩ | 100 at 25°C | ±1%, ±2%, ±5%, ±10% | Other ohmic values on request |
|  | TEH140P Series 140 Watt Thick Film Power Resistors for High Frequency and Pulse Loading Applications | 700 VDC | 20mΩ-1MΩ | 140 | ±1%, ±5%, ±10% | TO-247 Package |
|  | TFSO Series 100W SOT227 Package Thick Film Power | 500 | 0.5Ω-1MΩ | 100 | ±5%, ±10% | Alternative terminations and custom/made-to-order designs are available |
|  | TGH Series 120 and 200W SOT227Package Thick Film Power | 500V (1,000V, not to exceed rated wattage using $\sqrt{P \cdot R}$) | 0.1-1MΩ | 120 or 200 | ±5% | Other tolerances available on request. |
|  | TGHD Series Chassis Mounting Non-inductive High Power Resistors | $E = \sqrt{P \cdot R}$ or 1,000V | 0.1Ω-51kΩ | 100 | ±5% | 100W at flange temperature -55 to +100°C (wire leads) or -55 to +25°C (quick connect) |
|  | TGHG Series Precision Current Sense Resistors | 10 | 0.5m-1Ω | 100 at 70°C case temperature | 0.5% (0.0005 thru 0.022Ω), 1%, 5% | Other ohmic values on request |
|  | TGHM Series 300W SOT-227 Quick-Connect High-Power Resistors | 2,000 VAC Withstanding voltage | 0.1-1MΩ | 300 | ±5% | Vibration proof design passing IEC 60068-2-6 |
|  | TGHP Series Thick Film SOT227 Package | 1,000 VDC | 0.25-1kΩ | 600 | ±10% | ±5% on request; higher voltage on request |
|  | TKH45 Series 45W TO-252 Thick Film Resistor | $< 500V$ or $\sqrt{P \cdot R}$ P is rated power and R resistance | 0.02-510kΩ | 45 | ±1% | 0.02Ω-0.91Ω resistance available at 5% tol. only. |
|  | TKH55 Series 55W TO-252 Thick Film Power Resistor | 500 | 0.02Ω-510KΩ | 55 | ±1%, ±5% | Use with Ohmite D Series heatsinks for maximum performance |
|  | TL Series Modular Heat Sinkable Thick Film Power | | | Ultra | Std. | ±10% std. Applies to all resistances ranges and power ratings |
| | | 1,000 | 0.3-1MΩ | 35 | 27 | |
| | | 2,000 | 1.0-2MΩ | 96 | 71 | |
| | | 2,500 | 1.5-3MΩ | 155 | 114 | |
| | | 2,500 | 2.0-4MΩ | 215 | 158 | |
| | | 2,500 | 2.0-4MΩ | 275 | 202 | |
|  | WFH Series Aluminum Housed Wirewound Power | 1,200 VAC | 0.22-6.8kΩ | 90 | ±5%, ±10% | Multiple resistors in one profile possible; Custom wire lengths available |
| | | Applies to all resistances and power ratings | 0.47-18kΩ | 160 | Applies to all resistances and power ratings | |
| | | | 0.82-27kΩ | 230 | | |
| | | | 1-39kΩ | 330 | | |

HIGH VOLTAGE

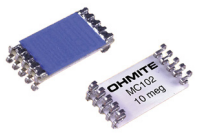









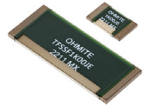
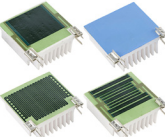
Ohmite's extensive selection of part series for High Voltage applications includes multiple mountings and custom specifications, ensuring you will find the proper High Voltage resistor required to fit your needs.

With the range of custom options available, Ohmite High Voltage resistors fill the need for multiple applications including power supplies, avionics, medical instruments, industrial controls, vacuum and space applications.

HIGH VOLTAGE

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|---|----------------|--|---------------|---|---|
|  100 Series Bulk Ceramic Axial Lead Resistors | 1,000-3,000 | 1.0Ω-700KΩ | 4-15 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 3,600-9,000 | 2.0Ω-1MΩ | 7-25 | | |
| | 5,000-15,000 | 3.0Ω-1MΩ | 10-36 | | |
| | 8,800-25,000 | 4.0Ω-1MΩ | 16-55 | | |
|  200 Series Bulk Ceramic Axial Lead Resistors | 375-1,500 | 1.0Ω-390KΩ | 1.2-2.5 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 375-1,100 | 1.0Ω-150KΩ | 1.6-7 | | |
| | 500-2,500 | 1.0Ω-300KΩ | 2.4-10 | | |
| | 375-1,500 | 1.0Ω-130KΩ | 2-8.5 | | |
| | 500-2,500 | 1.0Ω-190KΩ | 3-12 | | |
| | 1,000-3,000 | 1.0Ω-450KΩ | 5-18 | | |
| | 3,600-9,000 | 2.0Ω-970KΩ | 9-31 | | |
| | 5,000-15,000 | 2.0Ω-1MΩ | 13-45 | | |
|  500 Series Non-inductive Bulk Ceramic Slab Resistors | 900-8,500 | 0.2Ω-800Ω | 30-150 | ±5%, ±10%, ±20%, available to ±2% on assemblies | Not all sizes available in all values. |
| | 8,500-65,000 | 5.0Ω-9,200Ω | 12-60 | | |
| | 3,000-22,000 | 1.2KΩ-870KΩ | 10-48 | | |
|  800 Series Tubular High Energy Bulk Ceramic | 1,000 | 1.0Ω-200Ω | 22.5 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 1,000-8,000 | 1.0Ω-220KΩ | 15-45 | | |
| | 4,000-20,000 | 1.0Ω-390KΩ | 30-90 | | |
| | 4,000-30,000 | 1.0Ω-390KΩ | 50-150 | | |
| | 6,000-45,000 | 1.0Ω-470KΩ | 60-190 | | |
| | 10,000-75,000 | 1.0Ω-680KΩ | 90-275 | | |
| | 16,000-120,000 | 1.0Ω-1MΩ | 125-375 | | |
| | 16,000 | 1.0Ω-450Ω | 750 | | |
| | 22,000 | 1.0Ω-600Ω | 1,000 | | |
|  1000 Series Tubular High Energy Bulk Ceramic | 30,000 | 5.0Ω-1,200Ω | 70 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 45,000 | 6.5Ω-1,900Ω | 100 | | |
| | 75,000 | 9.0Ω-2,500Ω | 150 | | |
| | 120,000 | 15Ω-3,800Ω | 225 | | |
| | 165,000 | 20Ω-4,800Ω | 300 | | |
|  ARCOL ARC2 Series High Voltage Precision Resistors | 9kVdc | 400-10GΩ | 3.8 | ±0.1% to ±10% Applies to all power ratings | Non-Inductive, Thick Film; Low TCR |
| | 12kVdc | 500-15GΩ | 5 | | |
| | 18kVdc | 900-20GΩ | 7.5 | | |
| | 24kVdc | 1.2k-30GΩ | 10 | | |
| | 36kVdc | 1.7k-30GΩ | 12.5 | | |
| | 42kVdc | 2.6k-30GΩ | 15 | | |
|  ARCOL ARC3 Series High Voltage Precision Resistors | 24kVdc | 500-5GΩ | 11 | ±0.1% to ±10% Applies to all power ratings | Non-Inductive, Thick Film; Low TCR |
| | 48kVdc | 700-10GΩ | 23 | | |
| | 48kVdc | 2-10GΩ | 54 | | |
| | 64kVdc | 20-15GΩ | 71 | | |
| | 96kVdc | 80-25GΩ | 105 | | |
|  HSX Series Ultra High Resistance High Stability Hermetically Sealed | 10,000 | 1MΩ-10GΩ | 1.0, 2.0, 2.5 | ±0.1% - ±5% | Available in E24 ranges |
|  HVC Series Precision High-Value High-Voltage Wraparound Chip | 60 | 100k-100MΩ Applies to all power ratings | 50mW | 1%-30% Applies to all power ratings | Suitable for high vacuum applications—no organics |
| | 150 | | 100mW | | |
| | 400 | | 125mW | | |
| | 1,000 | | 250mW | | |
| | 3,000 | | 1,000mW | | |
| | 6,000 | | 1,500mW | | |

HIGH VOLTAGE (continued)







| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|---|---------------------------------|---|-------------|---|---|
|  MacroChip Series High Voltage/High Resistance Precision Thick Film Surface Mount | 2.0kV | 100-1,000MΩ | 0.75 | 0.5%-20% Applies to all power ratings | Contact Ohmite for custom configurations. |
| | 5.0kV | 200-5,000MΩ | 1.50 | | |
| | 7.5kV | 250-5,000MΩ | 2.00 | | |
| | 10.0kV | 1K-5,000MΩ | 2.50 | | |
| | 5.0kV | 500-5,000MΩ | 2.50 | | |
| | 10.0kV | 1K-5,000MΩ | 3.25 | | |
|  Maxi-Mox Series Precision Thick Film Axial Terminal High Voltage/High Resistance | 10kV-50kV | 250-1TΩ | 2.0-12.5 | 0.5%-20% | Silicone or epoxy coating; Non-inductive available |
|  MC1RD Series SMT-MOX Divider | 5kV | 1M-5,000MΩ | 1.5 | 0.5%-5% | Contact Ohmite for custom configurations. |
|  MC4 Series High Voltage 4-Resistor SMD DIP Package | 2,500 VDC | 200-5,000MΩ | 0.75 | 5%-20% | Specify up to 4 different resistor value/tolerance combinations and connect them for countless results. |
|  Mini-Mox Series Precision Thick Film Axial Terminal High Voltage/High Resistance | 2,500V-7.5kV | 500-1TΩ | 0.35-1.5 | 5%-20% | Silicone or epoxy coating; Metal oxide resistive element |
|  Power-Mox Series Precision Power Thick Film High Voltage/High Resistance Tubular | 20kV | 1k-800,000MΩ | 25 | 0.5%, 1%, 2%, 5% <small>(Some tolerances are not available over the entire resistance range)</small> | 0.4" diameter ferrule, 0.25"-20 threaded end cap, or radial bands available |
| | 30kV | 1.5k-1,000,000MΩ | 40 | | |
| | 45kV | 2k-1,000,000MΩ | 50 | | |
| | 60kV | 3k-1,000,000MΩ | 75 | | |
|  RX-1M Hi-Meg Ultra High Resistance High Stability Hermetically Sealed | 1.0kV | 1M-10,000,000MΩ | 0.5 at 25°C | 5%-20% | Calibration available |
|  Slim-Mox Series Precision Thick Film Planar | 1.5kV to 25kV | 100-5,000MΩ | 0.25-5.5 | 5%-20% | Multiple taps are provided on the Slim-Mox RD for use in advanced circuit designs. |
|  Super Mox Series High Voltage | 9.4kV | 600-10GΩ | 3.9 | 0.10%, 0.25%, 0.5%, and 1% Applies to all voltage, resistances & power ratings | Other tolerances and ohmic values available on request. |
| | 13.8kV | 500-50GΩ | 4.6 | | |
| | 20kV | 400-50GΩ | 7.8 | | |
| | 30kV | 600-50GΩ | 11.7 | | |
| | 40kV | 800-50GΩ | 12.5 | | |
| | 50kV | 1M-50GΩ | 15.5 | | |
| | 60kV | 1M-50GΩ | 19.4 | | |
|  TFS Series Surge Capable Thick Film Non Inductive | 3kV | 100-100kΩ | .5 | 1%, 2%, 5%, 10% Applies to all voltage, resistances & power ratings | Custom dimensions, values, tolerances and characteristics available. |
| | 3.5kV | | .5 | | |
| | 4kV | | .75 | | |
| | 7kV | | 1 | | |
| | 7kV | | 1.5 | | |
| | 11kV | | 2 | | |
|  TFSS Series Surge Capable Thick Film Non Inductive | 11,000 | 100Ω-10KΩ | 0.5-2 | ±1%, ±2%, ±5%, ±10% | Custom dimensions, values, tolerances and characteristics available. |
|  TRH Series Thick Film | 15kV not to exceed power rating | Continuous Power: 100-10kΩ Impulse Energy: 5-1kΩ High Voltage: 100K-100MΩ | 30 | 1%, 5%, 10% | Meets Mil-Std-202 and IEC 61000-4-5 |

SURGE/HIGH ENERGY





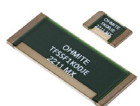

Need resistive products that can handle transients, overloads, in-rush, and other high-energy events? Ohmite has you covered. From composition to unique thick film designs, Ohmite offers multiple product series that can take thousands of Joules. Axial, Radial and Surface Mount designs are available to suit all needs and energy levels.

Common applications include: Motor starting, dynamic braking, medical surge, power supplies, UPS, power conversion, in-rush current limiting

SURGE/HIGH ENERGY

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | Tolerance | Notes |
|--|--------------------|-------------------|---------|---|--|
|  100 Series Bulk Ceramic Axial Lead Resistors | 1,000-3,000 | 1.0Ω-700KΩ | 4-15 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 3,600-9,000 | 2.0Ω-1MΩ | 7-25 | | |
| | 5,000-15,000 | 3.0Ω-1MΩ | 10-36 | | |
| | 8,800-25,000 | 4.0Ω-1MΩ | 16-55 | | |
|  200 Series Bulk Ceramic Axial Lead Resistors | 375-1,500 | 1.0Ω-390KΩ | 1.2-2.5 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 375-1,100 | 1.0Ω-150KΩ | 1.6-7 | | |
| | 500-2,500 | 1.0Ω-300KΩ | 2.4-10 | | |
| | 375-1,500 | 1.0Ω-130KΩ | 2-8.5 | | |
| | 500-2,500 | 1.0Ω-190KΩ | 3-12 | | |
| | 1,000-3,000 | 1.0Ω-450KΩ | 5-18 | | |
| | 3,600-9,000 | 2.0Ω-970KΩ | 9-31 | | |
| | 5,000-15,000 | 2.0Ω-1MΩ | 13-45 | | |
|  500 Series Non-inductive Bulk Ceramic Slab Resistors | 900-8,500 | 0.2Ω-800Ω | 30-150 | ±5%, ±10%, ±20%, available to ±2% on assemblies | Not all sizes available in all values. |
| | 8,500-65,000 | 5.0Ω-9,200Ω | 12-60 | | |
| | 3,000-22,000 | 1.2KΩ-870KΩ | 10-48 | | |
|  800 Series Tubular High Energy Bulk Ceramic | 1,000 | 1.0Ω-200Ω | 22.5 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 1,000-8,000 | 1.0Ω-220KΩ | 15-45 | | |
| | 4,000-20,000 | 1.0Ω-390KΩ | 30-90 | | |
| | 4,000-30,000 | 1.0Ω-390KΩ | 50-150 | | |
| | 6,000-45,000 | 1.0Ω-470KΩ | 60-190 | | |
| | 10,000-75,000 | 1.0Ω-680KΩ | 90-275 | | |
| | 16,000-120,000 | 1.0Ω-1MΩ | 125-375 | | |
| | 16,000 | 1.0Ω-450Ω | 750 | | |
| 22,000 | 1.0Ω-600Ω | 1,000 | | | |
|  1000 Series Tubular High Energy Bulk Ceramic | 30,000 | 5.0Ω-1,200Ω | 70 | ±5%, ±10%, ±20% | Not all sizes available in all values. |
| | 45,000 | 6.5Ω-1,900Ω | 100 | | |
| | 75,000 | 9.0Ω-2,500Ω | 150 | | |
| | 120,000 | 15Ω-3,800Ω | 225 | | |
| | 165,000 | 20Ω-4,800Ω | 300 | | |
|  280 Series Corrib® Fixed and Adjustable Vitreous Enamel Power | $\sqrt{P \cdot R}$ | 0.1-63Ω | 300 | ±10% | Also available in low cost Centohm or Silicone coating; Consult Ohmite. |
|  30 Series High Energy Wirewound Axial Terminal/Surface Mount/Heat Sinkable Packaging | 200 | 1.0-150Ω | 3 | 5% | Standard offerings in three package types: axial, SMD, and heat sinkable. Other types can be quoted on request |
| | 460 | | 5 | | |
| | 1,000 | | 10 | | |
| | 520 | | 25 | | |
| | 200 | | 3 | | |

SURGE/HIGH ENERGY (continued)

| Resistor Family | Max Voltage* | Resistance (Ohms) | Watts | | Tolerance | Notes |
|--|--|---|------------------------|---------|--|--|
|  A Series PulsEater® Ceramic Composition Available in E12 Ohmic values | 1,000 | 3.3 to 10kΩ | 2.0 | | ±10% std. Applies to all voltage, resistances & power ratings | Joules |
| | 1,500 | 4.7 to 15kΩ | 2.5 | | | 250 |
| | 1,000 | 1.0 to 3.3kΩ | 3.5 | | | 400 |
| | 2,000 | 2.2 to 6.8kΩ | 4.5 | | | 700 |
| | 2,500 | 1.5 to 4.7kΩ | 5.5 | | | 1,400 |
| | | | | | | |
|  AS Series Anti-surge Thick Film Chip Resistors | Max Working Voltage: 150-500V Max Overload Voltage: 300-500V Dielectric Withstanding Voltage: 500V | 1-10MΩ | 0.33-1.5 at 70°C | | ±5% std.; ±10% and ±20% available | Follows the IEC 61000-4-5 |
|  EY Series 10% Tolerance | 550 | 10-390kΩ | 2.5 at 25°C | | ±10% | Joules Max: 400 |
|  G Series Capacitor Discharge & Symmetry | | | at 25°C | at 70°C | ±1%, ±2%, ±5%, ±10% | IEC 115-1 Reference Standard |
| | 685 | 1-82kΩ | 10 | 8.5 | | |
| | 940 | 1-120kΩ | 13 | 11 | | |
|  MOX500 Series Epoxy Molded, Metal Glaze-Metal Oxide Resistors | RCWV or 1,000V, whichever lesser | Metal Glaze: 1.5k-5MΩ Metal Oxide: 15-<1.5kΩ | 3 at 25°C 2 at 70°C | | 1%, 2%, 5% | Meets Mil-Std-202 and IEC 61000-4-5 up to 2kV |
|  MOX600 Series High Resistance, Axial Lead | 2,000 – 10,000 | 150KΩ-1,000MΩ | 1-5 | | ±0.1% - ±5% | Maximum Pulse Handling of 30 kV |
|  MOX700 Series High Precision Metal Film Axial Lead | 250 | 10Ω-1MΩ | 0.25 | | ±0.02%, ±0.05%, ±0.1%, ±1% | TCR Available at 5ppm/°C |
|  OW/OX/OY Series Ceramic Composition | | | at 70°C | | ±10% std. | Joules Max: |
| | 300 | 3.3-100kΩ | 1 | | Applies to all voltage, resistances & power ratings | 50 |
| | 400 | 3.3-1MΩ | 2 | | | 80 |
| | | | | | | |
|  TFS Series Surge Capable Thick Film Non Inductive | 3kV | 100-100kΩ Applies to all power ratings | 5 | | 1%, 2%, 5%, 10% | Joules: 3.0 - 11.0 Custom dimensions, values, tolerances and characteristics available. |
| | 3.5kV | | 0.5 | | | |
| | 4kV | | 0.75 | | | |
| | 7kV | | 1 | | | |
| | 7kV | | 1.5 | | | |
| | 11kV | | 2 | | | |
|  TFSS Series Surge Capable Thick Film Non Inductive | 11,000 | 100Ω-10KΩ | 0.5-2 | | ±1%, ±2%, ±5%, ±10% | Joules: 3.0 - 11/0 Custom dimensions, values tolerances and characteristics available. |
|  TP Series High Energy Thick Film on Alumina Substrate | 350 VAC 500 VDC through glass | 10-1MΩ | 20 | | ±1%, ±5%, ±10% | Joules: 100 Consult factory for other ohmic values |
|  TRH Series Thick Film | 15 kV, not to exceed power rating | Continuous Power: 100-10kΩ Impulse Energy: 5-1kΩ High Voltage: 100k-100MΩ | 30 | | 1%, 5%, 10% | Meets Mil-Std-202 and IEC 61000-4-5 |

HIGH CURRENT/BRAKING

Ohmite understands the demand for high current and braking applications. We provide quality high current products for load testing and dynamic braking resistors in the transportation and semiconductor industries. Thanks to the products' modular and scalable designs, customers can confidently find the proper high current/braking resistor required to fit their needs for motor deceleration and other applications.

Our high current resistors cover applications ranging from standard current loads to motor braking for trains and elevators. Other typical applications include: battery testing, current detection in precise power sources, constant current sources, industrial power conversion circuits, HEVs, fuel cells and constant electronic loads.

HIGH CURRENT/BRAKING

| Resistor Family | Max Voltage* | Max Current (Amp) | Resistance (Ohms) | Watts | Tolerance | Notes |
|--|---|----------------------|-------------------|----------|--|--|
|  14984 Series High Current Round Edgewound | $\sqrt{P \cdot R}$ | 160 | 0.118Ω | 3,021 | ±10% Applies to all resistance ranges and power ratings | Available for ohmic values other than those listed, mountings, other terminal styles, all stainless frame and terminal construction. |
| | | 140 | 0.157Ω | 3,077 | | |
| | | 130 | 0.171Ω | 2,889 | | |
| | | 100 | 0.285Ω | 2,850 | | |
|  280 Series Corrib® Fixed and Adjustable Vitreous Enamel Power | $\sqrt{P \cdot R}$ | $\sqrt{\frac{P}{R}}$ | 0.1-63Ω | 300 | ±10% | Also available in low cost Centohm or Silicone coating; Consult Ohmite. |
|  BA Series Aluminum Cased Resistor | 1,000 | $\sqrt{\frac{P}{R}}$ | 0.5-18kΩ | 500 | ±10% Applies to all resistance ranges and power ratings | Thermal cut-off available; scalable, custom lengths available; custom leads available |
| | | | 1-10kΩ | 700 | | |
| | | | 1-10kΩ | 1,000 | | |
|  Euro-Power Wirewound Vitreous Enamel Power | Round Wire Construction | $\sqrt{\frac{P}{R}}$ | | | Under 1Ω: ±10% 1Ω and over: ±5% Applies to all resistance ranges and power ratings | Non-Inductive versions available; Other sizes available; Also available in low cost Centohm or Silicone coating; Consult Ohmite. |
| | 1,400 | | 0.4-250kΩ | 72 | | |
| | 2,100 | | 0.5-100kΩ | 160 | | |
| | 3,300 | | 0.2-125kΩ | 280 | | |
| | 5,000 | | 0.2-200kΩ | 700 | | |
| | Ribbon Wire Construction | $\sqrt{\frac{P}{R}}$ | | | | |
| | $\sqrt{P \cdot R}$ | | 0.10-18Ω | 200 | | |
| | $\sqrt{P \cdot R}$ | | 0.22-33Ω | 350 | | |
| $\sqrt{P \cdot R}$ | | | 0.33-56Ω | 1,000 | | |
|  HCLB Series Resistor Load Banks, High Current Oval Edgewound | 1,000V if mounting is grounded; Special higher voltage mounting is available. | 23.5-285 | 0.1-41.3Ω | 8kW-24kW | ±10% | Choose from four bank wattages with up to thirty-one current ratings per bank. |

*Maximum voltage is based on Ohm's Law $[V = \sqrt{P \cdot R}]$ as limited by the resistance value of specified product.

HIGH CURRENT/BRAKING (continued)

| | Resistor Family | Max Voltage* | Max Current (Amp) | Resistance (Ohms) | Watts | Tolerance | Notes |
|---|---|-------------------------|----------------------|---------------------|--|---|---|
|  | JR Series High Power Jumper Chip | $\sqrt{P \cdot R}$ | 100 | 0.5m-0.2m Ω | 0.2-2 | — | Available in 5 different sizes; 100M Ω insulation resistance |
|  | PFE and PFR Series Powr-Rib [®] Edgewound Edgewound and Round Wire | $\sqrt{P \cdot R}$ | 5.1-100 | 0.1-25 Ω | 700-1,000 (up to 1,600 watts on special order) | $\pm 10\%$ std., $\pm 5\%$ available | Designed in both Edgewound and Round Wire formats |
|  | S Series Shunts High Current Shunts | $\sqrt{P \cdot R}$ | 100-1200 | — | 100-1,200A | 0.5% accuracy class | Choose from 3 terminal types and 4A ratings. |
|  | SGM Series Stamped Grid Module Resistors | 1,000 VAC/ 1,400 VDC | $\sqrt{\frac{P}{R}}$ | 2.7-392 Ω | 4kW-380kW | $\pm 10\%$ std.; others on request | Brake resistors are offered as open units or with an enclosure |
|  | SH Series Shunt Precision Metal-Clad Shunts | $\sqrt{P \cdot R}$ | 100 | 1.000m Ω | 100A | $\pm 0.5\%$ Applies to all resistance ranges and power ratings | Simple four port Kelvin design ensures easy installation on large current bus bars. |
| | | | 150 | 0.6666m Ω | 150A | | |
| | | | 200 | 0.5000m Ω | 200A | | |
| | | | 250 | 0.4000m Ω | 250A | | |
| | | | 300 | 0.3333m Ω | 300A | | |
|  | WLRD6G Series High Current Oval Edgewound | 550 | 18-146 | 0.082-6.13 Ω | 525-1,750 | $\pm 10\%$ | Five sizes with up to thirty-one current ratings; special higher voltage mounting available |
|  | WLRH Series Heliohm Wirewound | 600 | 1.0-32.0 | 0.25-250 Ω | 1.0-32.0A continuous | $\pm 10\%$ | 45 models ranging from 0.25-250 Ω ; Various mounting options |



*Maximum voltage is based on Ohm's Law $[V = \sqrt{P \cdot R}]$ as limited by the resistance value of specified product.

CURRENT SENSE

Ohmite's line of products for Current Sense applications provide ultra-low values while still maintaining resistive stability. Ohmite Current Sense resistors are offered in two and four terminal configurations. With the versatility of multiple mountings, constructions, and configurations, Ohmite customers are sure to find the proper Current Sense resistor required to fit their needs.



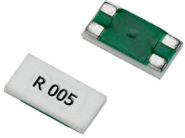
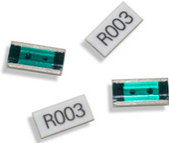
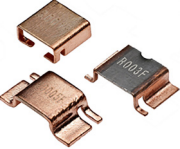

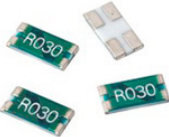

Common applications include: Solar inverters, frequency converters, current sensors for hybrid power sources, battery management systems, and measuring instruments

CURRENT SENSE

| Resistor Family | Max Current (Amp) | Lowest Ω Value | Temperature Coefficient of Resistance | Tolerance | Notes |
|--|------------------------|---|---|-------------------------|--|
|  10 Series Axial Wire Element Current Sense Two or Four Terminal Axial | 22A | 0.005 Ω (2-5W) | (0°C to 85°C) $\geq 0.015\Omega$: ± 50 ppm/°C; $< 0.015\Omega$: ± 100 ppm/°C | $\pm 1\%$ std. | Other tolerances available |
|  14A Series Alumina Body Current Sense | $\sqrt{\frac{P}{R}}$ * | 0.004 Ω (4W) | +150-+1100 ppm/°C based on resistance value. Increases as resistance value reduces. | $\pm 1\%$ std. | Other tolerances available; 9 popular resistance values for easy accessibility |
|  60 Series Two Terminal Metal Element Current Sense | $\sqrt{\frac{P}{R}}$ * | 0.005 Ω (0.1-3W) | 50-100 ppm/°C | $\pm 3\%$ std. | Multiple wattages, resistance values and tolerances offer a wide variety of design choices. |
|  60S Series Surface Mount Metal Plate Current Sense | $\sqrt{\frac{P}{R}}$ * | 0.003 Ω (0.25W) 0.002 Ω (1W) | ± 100 ppm/°C (0.25W) ± 350 ppm/°C (1W) | $\pm 5\%$ | Custom values available |
|  ARCOL L4T Series Four Terminal High Precision Current Sense Resistor | $\sqrt{\frac{P}{R}}$ * | 10m Ω (0.5W, 0.75W) | ± 50 ppm/°C ± 75 ppm/°C | $\pm 0.5\%$, $\pm 1\%$ | Available in two sizes; TCR of 75 ppm with 50 ppm available |
|  CS3 Series Wire Element Four Terminal Precision Current Sense | Max. 40 permanent | 1m Ω (3W) | TC referenced to 25°C, ΔR taken at -15°C and +105°C, 60 ppm/°C | 1%, 2%, 5% | Non Inductive Design; Four terminal Kelvin connection |
|  CS5 Series High Power Precision Current Sense | 60 at 1m Ω | 1m Ω (1W) | ± 30 ppm/°C | $\pm 0.5\%$, $\pm 1\%$ | Four terminal Kelvin connection allows high precision measurements even with low resistance values |





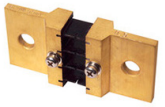




*Max current/voltage limited to Ohm's Law

CURRENT SENSE (continued)

| Resistor Family | Max Current (Amp) | Lowest Ω Value | Temperature Coefficient of Resistance | Tolerance | Notes |
|---|--|---|---|--|---|
|  EBW Series Manganin/Aluchrom Alloy Current Sense | EBWA 100 at 0.5m Ω EBWB 180 at 0.2m Ω | EBWA (7W) 0.002 Ω EBWB (5W) 0.005 Ω | 20°C-60°C Max. ± 200 ppm/°C | $\pm 1\%$, $\pm 5\%$ | Manufactured using electron beam welding technology, allowing joining of different alloys with great accuracy and tolerance |
|  FC4L Series Four Terminal Current Sense Metal Foil Construction | 5 45-24 85-35 | 5m Ω (0.25W) 1m Ω (1W) 1m Ω (2W) | ± 50 ppm/°C- ± 100 ppm/°C | $\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$, $\pm 5\%$ | Industry standard sizes; Foil Construction ensures a very stable TCR |
|  FC4T Series Metal Foil Low Value Chip | $\sqrt{\frac{P}{R}}$ * | 0.005 Ω (0.5W) | within ± 50 ppm, ± 100 ppm for 5m Ω | 0.5% and 1% std. | Range of resistance from and a TCR down to 50 ppm |
|  FCSL Series Metal Foil Current Sense | 45-270 at 1m-10m Ω ; 20-140 at 10m-100m Ω | 2m Ω (1W) 1m Ω (1.5W-10W) | ± 50 ppm/°C- ± 100 ppm/°C based on resistance value | $\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$, $\pm 5\%$ | Very low & stable TCRs available in a wide selection of very low ohmic values |
|  FK/GK Series Metal Alloy Low-Resistance Chip Resistor | $\sqrt{\frac{P}{R}}$ * | 0.3m Ω (5W) | Manganin: $\leq \pm 70$ ppm/K Karma: $\leq \pm 40$ ppm/K (20°-120°C) | 1% | Ideal for mounting on DCB/IMS substrate |
|  KDV Series Metal Film Low-Resistance Chip Resistor | 1.41 1.58 2 2.24 3.16 | 100m Ω (0.1W) 50m Ω (0.125W) 50m Ω (0.2W) 100m Ω (0.25W) 100m Ω (0.5W) | ± 50 ppm/°C- ± 100 ppm/°C based on resistance value | 0.5%, 1% | Halogen and lead-free; Provides long-term stability & high-precision current sensing |
|  LVK Series Four Terminal High Precision Current Sense | 20 23 27 200 | 0.01 Ω (0.5W) 0.01 Ω (0.75W) 0.01 Ω (1.0W) 0.001 Ω (2W) | 50 ppm/°C 50 ppm/°C 50 ppm/°C 100-300 ppm/°C | 0.25%, 0.5% and 1% std. | Industry standard sizes; High-precision Kelvin connect capability in a small package |
|  LVM Series Current Sensing Metal Chip Resistor | $\sqrt{\frac{P}{R}}$ * | 10m Ω (0.125W) 10m Ω (0.5W) 7m Ω (1.0W) | 100, 50, 100 ppm/°C 100, 50, 100 ppm/°C 50-75 ppm/°C | $\pm 0.5\%$, $\pm 1\%$, $\pm 2\%$, $\pm 5\%$ | SMD Type designed for automatic insertion; High overload rating in small size (5 times rated wattage for 5 seconds) |

*Max current/voltage limited to Ohm's Law

CURRENT SENSE (continued)



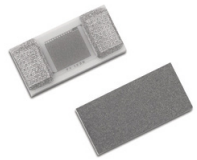

| Resistor Family | | Max Current | Lowest Ω Value | Temperature Coefficient of Resistance | Tolerance | Notes |
|---|--|--|--|---|---|---|
|  | LVT Series Low Value Current Sense | $\sqrt{\frac{P}{R}}$ * | 2.5m Ω (0.33W, size 0402) 2m Ω (0.33W, size 0603) 2m Ω (0.5W) 2m Ω (1W) | $\pm 150, 100, 75,$ or 50 ppm based on resistance | 3%, 2% and 1% based on resistance value | Flip Chip design produces an economical option; Great stability with TCR down to 50 ppm |
|  | MCS Series Metal Element Current Sense Resistive Metal Alloy mOhm Technology, SMD | $\sqrt{\frac{P}{R}}$ * | 3m Ω (0.75W) 3m Ω (1W) 2m Ω (2W) | >10m Ω : ± 100 ppm/ $^{\circ}\text{C}$ ≤ 10 m Ω : ± 50 ppm/ $^{\circ}\text{C}$ | 1%, 3%, 5% | NiCu or MnCu resistive alloy; material TCR ± 10 ppm/ $^{\circ}\text{C}$ |
|  | PCS Series Low Resistance Value Chip Resistors | 31.62 63.25 31.62 | 1m Ω (1W) 0.5m Ω (2W) 4m Ω (4W) | ± 50 ppm/ $^{\circ}\text{C}$ | 0.5%, 1% | Metal alloy plate construction, alloy type based on resistance value. |
|  | RW1/RW2 Series Surface Mount Four Terminal Current Sense | $\sqrt{\frac{P}{R}}$ * | 5m Ω (1W-2W) | ± 50 ppm/ $^{\circ}\text{C}$ | 1% | Flameproof UL94-V-0 |
|  | S Series Shunts High Current Shunts | $\sqrt{\frac{P}{R}}$ * | — | — | 0.5% accuracy class | Choose from 3 terminal types and 4 Amp ratings. |
|  | SB Series Surface Mount Element Current Sense | $\sqrt{\frac{P}{R}}$ * | 2m Ω (3W) 16m Ω (2W) 1m Ω (5W) | $\pm 70, \pm 40$ (See notes) | $\pm 1%, \pm 2%, \pm 5%$ | TCR = $\pm 40, \pm 70$; For 2-3m Ω SBM12 and 1m Ω SBM20, TCR is 240 ppm |
|  | SH Series Shunt Precision Metal-Clad Shunts | $\sqrt{\frac{P}{R}}$ * | 1m Ω 0.66m Ω 0.5m Ω 0.4m Ω 0.33m Ω | Max. 30 ppm/ $^{\circ}\text{C}$ [20 $^{\circ}\text{C}$ and 60 $^{\circ}\text{C}$] | $\pm 0.5%$ | Simple four port Kelvin design ensures easy installation on large current bus bars. |
|  | TGHG Series Chassis Mounting Non-inductive High Power Resistors | 150 permanent not to exceed Ohms Law power load $\sqrt{\frac{P}{R}}$ * | 0.5m Ω (100W) | Referenced to 25 $^{\circ}\text{C}$, ΔR taken at -15 $^{\circ}\text{C}$ and +105 $^{\circ}\text{C}$, <60 ppm/ $^{\circ}\text{C}$; <500 ppm/ $^{\circ}\text{C}$ for resistance range 27m-49m Ω | 0.5% (0.0005 thru 0.022 Ω), 1%, 5% | SOT 227 Package; Other ohmic values available on request |
| CURRENT SENSING MODULES | Resistor Family | Rated Current | Peak Current | Current Measurement Accuracy | Power Consumption | |
|  | ES-600 Current Sensing Module | $\pm 600\text{A}$ | $\pm 22,400\text{A}$ | 0.1% | 200mW | High precision, automotive grade |

*Max current/voltage limited to Ohm's Law

RESISTIVE BASED SENSORS/SENSING

For touch, pressure, temperature, and more, you can find the sensor for your project among Ohmite's multiple resistive sensor options. Utilizing technologies like thick film and thin film inks, we produce several versatile sensor types that can be easily integrated into your product.

RESISTIVE BASED SENSORS/SENSING

| Resistor Family | Actuation force | Sensing Range | Long Term Drift | Lifecycle Durability | Notes |
|---|--|------------------------------|---------------------------------------|---|---|
|  <p>FSR Series Force Sensing Resistor</p> | Force to reach 10M Ω , Average of 100 samples <10g - <30g | Circa 20g to 5kg | 1kg for 48hrs, Per log time <1% - <2% | (10M) 1kg force at 3Hz, Avg. change in res. of 4 sensors 3%-17% | Three individual designs (square, circle, and strip); Largely immune to EMI and water events; false touch rejection |
|  <p>FSP Series Force Sensing Potentiometers</p> | Force to reach 10M Ω , Average of 100 samples <20g | Force range up to 1kg | 1kg for 48hrs, Per log time <2% | (10M) 1kg force at 3Hz, Avg. change in resistance of 4 sensors 4% | Dynamically reconfigurable in firmware enabling multiple functions from a single sensor; Largely immune to EMI and water events; false touch rejection |
| | Specification | Nom. Resistance (Ω) | Temp. Range | Tolerance | Notes |
|  <p>FST Series Thin Film Temperature Sensor</p> | DIN EN 60751 | 100-1,000 Ω | -50 $^{\circ}$ C to +170 $^{\circ}$ C | Class B (RO: \pm 0.12%). Class 2B (RO: \pm 0.24%) | UL1434 available in some parts; Some parts can resist in operating temperature range up to 150 $^{\circ}$ C. |
|  <p>TX Series Thick Film Chip Thermistor</p> | AEC-Q200 available | 1K-100K Ω | -40 $^{\circ}$ C to +125 $^{\circ}$ C | \pm 1%, \pm 2%, \pm 3%, \pm 5%, \pm 10% | UL1434 available in some parts; Some parts can resist in operating temperature range up to 150 $^{\circ}$ C. B-constant taken at 25 $^{\circ}$ C–85 $^{\circ}$ C with values ranging from 2750K and 4700K. |

ABOUT OHMITE:

LEADING THE RESISTIVE PRODUCT CHARGE SINCE 1925

Ohmite Manufacturing Company has been the leading provider of resistive products for high current, high voltage, and high energy applications for over 95 years. The company's full portfolio of resistor construction includes wirewound, wire element, thick film, and ceramic composition.

Ohmite Manufacturing Company started operations in a small shop on the west side of Chicago in 1925. Founded by David T. Siegel, the company's focus was to manufacture carbon and wirewound 'lug' resistors for Chicago's growing radio manufacturing industry.

As the electronics industry evolved, Ohmite evolved along with it to service ever-changing design requirements. Through acquisitions from 1996-1999, Ohmite added the wirewound capabilities of Memcor-Truohm and Ward Leonard Resistors, as well as Victoreen Components's experienced specialization in Thick Film technology for high voltage applications.

In 1998, Ohmite was acquired by Heico Companies LLC; a multinational, U.S. based holding company, allowing for the move and expansion of Ohmite's Chicago-area plant. 2006 saw Ohmite's continued growth and enhancement of product offerings when it acquired Vishay's Angstrom Rheostat and Ultronix Precision Resistor divisions.

Strengthened by the backing of Heico Companies LLC, Ohmite strives to maintain the flexibility needed to handle both large and small requirements. Product availability in today's market is critical to the success of our customers, which is why we continue to work with made-to-order parts and evaluate new technologies. Ohmite's network of international distributors and sales representatives enables us to fulfill the requirements of an increasingly global marketplace.

We offer a broad selection of Power Resistors to worldwide customers in the industrial, medical, military, and aerospace industries. Through ongoing product development, we continue to provide the latest in resistor technology required by today's sophisticated high voltage, high current, and high energy circuit designs. To view our most up to date resistor products please visit our website at www.ohmite.com.

Get in Touch – We're ready to help you find a solution to your design challenges.

1-866-9-OHMITE | International: 1-847-258-0300 | www.ohmite.com/contact/ | F: 1-847-574-7522



Facilities

Warrenville, IL (Headquarters)

Matamoros, Mexico (Manufacturing)

Brownsville, TX (Distribution Center, Product Development)

Headquarters

27501 Bella Vista Parkway
Warrenville IL, 60555 – USA

Toll-Free: 1-866-9-OHMITE
International: 1-847-258-0300
Fax: 1-847-574-7522

Southeast Regional Manager

Matt Wargel
407-714-7990
mwargel@ohmite.com

Central/New England Regional Manager

Kevin Flaherty
603-395-5083
kflaherty@ohmite.com

Western Regional Manager

Rene Chavez
915-217-9167
rchavez@ohmite.com

Europe and Asia

Darrel Oliver
+44(0)7584 858768
doliver@arcolresistors.com



Ohmite Manufacturing Company

27501 Bella Vista Parkway

Warrenville, IL 60555

P: 866-964-6483

INTL: 1-847-258-0300

F: 847-574-7522

E: sales@ohmite.com

www.ohmite.com

