



Vishay Intertechnology, Inc.

# *Transportation*

*(Heavy Transportation)*



One of the World's Largest Manufacturers of  
**Discrete Semiconductors and Passive Components**





## **Transportation** Heavy Transportation

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More information on the Engineer's Toolbox, including product datasheet links, can be found at [www.vishay.com/ref/et3](http://www.vishay.com/ref/et3).

For inquiries, please contact your local sales representative.

Key components for  
**HEAVY TRANSPORTATION**



**THE VISHAY ADVANTAGE**

- AEC Qualifications
- High Power Density
- High-Voltage Performance
- Inrush Current Capabilities
- Long Life
- High Reliability
- and more...

**Cranes**



**Mining Trucks**



**Boats, Ships, Vessels**






# Cranes



**RECTIFIERS**  
**Surface-Mount Glass Passivated Rectifier**   
[S1J](#)  

- Glass passivated diode technology
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

**ESTA POWER CAPACITORS**  
**Capacitors for Power Electronics (PEC) – Rectangular**   
[DCMKP Rectangular](#)  


- Heavy duty
- Low self inductance

**MOSFETs**  
**Automotive N-Channel 100 V (D-S) 175 °C MOSFET**   
[SQD50N10-8m9L](#)  


- Medium-voltage ThunderFET® technology, AEC-Q101 qualified, maximum  $R_{DS(on)}$  8.9 mΩ
- Popular DPAK packaging

**RESISTORS**  
**Precision Thin Film Chip Resistor Array, Superior Moisture Resistivity**   
[ACAS...AT](#)  


- Arbitrary resistance ratio up to 1:20, superior tracking stability over lifetime
- Relative TCR down to ± 5 ppm/K (tracking), AEC-Q200 qualified, sulfur resistant

**OPTOELECTRONICS**  
**Widebody IGBT and MOSFET Driver with 10 mm Creepage and Clearance**   
[VOW3120](#)  


- 10 mm min. external creepage distance, 8000 V max. transient isolation voltage
- 2.5 A minimum peak output current, 45 kV/μs common mode rejection

**RESISTORS**  
**High-Power, High-Current Grid Resistors, 1 kW and Larger**   
[GRE1](#)  


- High active mass with good thermal dissipation
- IP00, IP20, and IP23 rated enclosures available

**SENSORS**  
**Single-Turn Bushing Mount Hall Effect Sensor in Size 09 (22.2 mm)**   
[351 HE](#)  


- Accurate linearity: ± 0.5 %, all angles available up to 360°, no dead band
- Dedicated to applications in harsh environments, long life > than 10M cycles

**INDUCTORS**  
**Low-Profile, High-Current IHLP® Inductors**   
[IHLP-6767GZER470M11](#)  


- High-current, high-temperature inductor for filtering and DC/DC conversion

**RESISTORS**  
**High-Stability Thin Film Flat Chip Resistors**   
[TNPW e3](#)  


- Excellent overall stability, endurance < 0.05 %, resistance range from 10 Ω to 3 MΩ
- AEC-Q200 qualified, sulfur resistant, halogen-free

**RESISTORS**  
**Surface-Mount Power Resistor Thick Film Technology**   
[D2TO020](#)  

- AEC-Q200-qualified D<sup>2</sup>PAK TO-263 standard package, 20 W and 35 W at 25 °C case temperature
- High-pulse capability up to 10 J for short pulse, high-temp. soldering, RoHS comp.

**NON-LINEAR CAPACITORS**  
**SMD 0805, Glass Protected NTC Thermistors**   
[NTCS0805E3...](#)  

- Standard series, AEC-Q200 compliant
- Glass protected with soft terminations

**RESISTORS**  
**Thick Film Surface-Mount Chip Resistors, Wraparound and Extremely Low Value**   
[RCWE](#)  

- Low resistance values from 0.01 Ω to 0.976 Ω and tolerance of 1 %
- Thick film construction with 2x power capacity

View datasheets for these products  
www.vishay.com/ref/et3tr4a



# Mining Trucks



RESISTORS

**Vitreous Wirewound Resistors with Corrugated Ribbon** 

[GBS](#)

- High power rating up to 1000 W
- Complete vitreous coating for perfect humidity protection


MOSFETs

**Automotive N-Channel 100 V (D-S) 175 °C MOSFET** 

[SQD50N10-8m9L](#)

- Medium-voltage ThunderFET® technology, AEC-Q101 qualified, maximum  $R_{DS(on)}$  8.9 mΩ
- Popular DPAK packaging


RESISTORS

**Integrated Braking Resistor with Fans** 

[Grid Box Braking Resistor](#)

- Power of 4.4 MW
- Dedicated for severe conditions (mining)


OPTOELECTRONICS

**Widebody 1 MBd High-Speed Optocoupler with 10 mm Creepage and Clearance** 

[VOW2611](#)

- 8000 V max. transient isolation voltage
- Integrated faraday shield provides very high input-to-output noise isolation of 40 kV/μs


RESISTORS

**Universal Mount Edgewound Power Wirewound Resistors** 

[EDGU](#)

- High current capability
- Enclosures and mounting frames available


INDUCTORS

**Low-Profile, High-Current IHLP® Inductors** 

[IHLP-6767GZER470M11](#)

- High-current, high-temperature inductor for filtering and DC/DC conversion


NON-LINEAR RESISTORS

**SMD 0805, Glass Protected NTC Thermistors** 

[NTCS0805E3...](#)

- Standard series, AEC-Q200 compliant
- Glass protected with soft terminations


RECTIFIERS

**Surface-Mount Glass Passivated Rectifier** 

[S1J](#)

- Glass passivated diode technology
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

SENSORS

**Position Sensor Tiller Head Control** 

[Auto xxxxHE](#)

- Redundant laws for safety, molded housing for perfectly fitting in applications
- Sealed sensor: IP67, integrated connector, hollow shaft actuated by flatted axis


RESISTORS

**Thick Film Surface-Mount Chip Resistors, Wraparound and Extremely Low Value** 

[RCWE](#)

- Low resistance values from 0.01 Ω to 0.976 Ω and tolerance of 1 %
- Thick film construction with 2x power capacity


ESTA POWER CAPACITORS

**Capacitors for Power Electronic (PEC) - Rectangular** 

[ACMKP Rectangular](#)

- High RMS and impulse current rating
- High reliability

RESISTORS

**Vitreous Wirewound Resistors with Ferrules** 

[GWK](#)

- High power rating up to 260 W
- Complete vitreous coating for perfect humidity protection

View datasheets for these products [www.vishay.com/ref/et3tr4b](http://www.vishay.com/ref/et3tr4b)



# Boats, Ships, Vessels




DIODES

**Small-Signal Zener Diodes**

[MMBZ5235](#)

- AEC-Q101 qualified
- ESD capability according to AEC-Q101




TRANSDUCERS

**Precision Rotative Transducers, Conductive Plastic, Economic Series (ECO)**

[ECO78](#)

- Rudder position control for boats, phased for easier mounting in production
- Special electrical angle for a perfect fitting with customer application




RECTIFIERS

**Surface-Mount Ultrafast Plastic Rectifier**

[ES1B](#)

- Glass passivated diode technology
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C



RESISTORS

**Very High Power Water Cooled Resistor with Multiple Resistive Functions**

[WCR](#)

- Power up to 2500 W at 60 °C water inlet temperature and 5 l/min
- Possible to have up to eight resistive functions on the same support




MOSFETs

**Automotive P-Channel 30 V (D-S) 175 °C MOSFET**

[SQ4425EY](#)

- TrenchFET® technology, AEC-Q101 qualified, maximum  $R_{DS(on)}$  down to 12 mΩ
- Popular SO-8 packaging




INDUCTORS

**Low-Profile, High-Current IHLP® Inductors**

[IHLP-2525CZ-5A](#)

- Compact size and high current, low saturation for noise filtering




SENSORS

**Throttle Position Sensor in Hall Effect Technology, Hollow and D-Shaft Versions**

[981 HE](#)

- Accurate linearity down to ± 0.5 %, hollow and d-shaft versions available
- Spring-loaded types available, dedicated to applications in harsh environments




RESISTORS

**Aluminum-Housed Compact Wirewound Resistor**

[VACR](#)

- High power rating up to 500 W
- Easy to mount due to rectangular design




OPTOELECTRONICS

**Photovoltaic MOSFET Driver with Integrated Fast Turn-Off, Solid-State Relay**

[VOM1271](#)

- Drive current from primary-side LED; one less external power supply needed
- Isolation test voltage 4500 V<sub>RMS</sub> and integrated turn-off circuitry for high-speed switching




RESISTORS

**Vitreous Wirewound Resistors**

[RW](#)

- High power rating up to 480 W
- Complete vitreous coating for perfect humidity




DISPLAYS

**High-Quality Displays Offer Excellent Human-to-Machine Interface Solutions**

[LCD, Color TFT, OLED](#)

- Selection of transfective LCD, sunlight-readable OLED, and high-brightness color TFT
- High-visibility displays for use in the transportation industry




RESISTORS

**Power Metal Strip® Resistors, Low Value (Down to 0.0005 Ω), Surface-Mount**

[WSL2512](#)

- Extremely low resistance values from 0.0005 Ω to 0.5 Ω and tolerance of 1 %
- High power of 1 W in 2512 size resistor



View datasheets for these products [www.vishay.com/ref/et3tr4c](http://www.vishay.com/ref/et3tr4c)





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**A *WORLD OF***  
***SOLUTIONS***