



# INDUSTRIAL APPLICATIONS

Diodes and Rectifiers,  
Modules, and SCR Thyristors



FACTORY  
AUTOMATION



FABRICATION



DETECTION



SURVEILLANCE  
SYSTEMS

# INDUSTRIAL APPLICATIONS

## Diodes and Rectifiers, Modules, and SCR Thyristors



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**[www.vishay.com](http://www.vishay.com)**

For technical questions within your region, please contact: [DiodesAmericas@vishay.com](mailto:DiodesAmericas@vishay.com), [DiodesAsia@vishay.com](mailto:DiodesAsia@vishay.com), [DiodesEurope@vishay.com](mailto:DiodesEurope@vishay.com)



## FACTORY AUTOMATION

**Motor Drives**

**Testers**

**Control Units**

**Air Conditioning Systems**

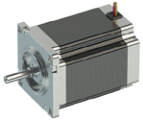
**Laser Marking and Coding**

**Collaborative Robots (Cobots)**

**Low Voltage UPS**



## Motor Drives



### DIODES

#### **BZG03 Series** – Small Signal Zener Diodes

- Silicon planar Zener diode, 10 V to 270 V
- Non-repetitive peak surge power of 300 W (tested with 10/1000  $\mu$ s current wave form)
- Wave and reflow solderable



### MODULES

#### **VS-160MT180C, VS-300MT180C** – Three-Phase Bridge Rectifiers

- High blocking voltage up to 1800 V, output current up to 300 A
- High surge current to 2512 A, UL-approved file E78996
- Input rectification for AC/DC three-phase rectification

## Testers



### RECTIFIERS

#### **VS-15ETH06FP-N3** – FRED Pt® Hyperfast Rectifiers, 15 A

- 175 °C operating junction temperature
- Hyperfast recovery time



### RECTIFIERS

#### **GSIB1560N** – Glass Passivated Single-Phase, Single in-Line Bridge Rectifiers

- 150 °C operating junction temperature
- High forward surge current capability
- General purpose use in AC/DC bridge full wave rectification



### DIODES

#### **SMCJxx** – TRANSZORB® Transient Voltage Suppressors, Surface-Mount

- Available in unidirectional and bidirectional versions
- AEC-Q101 qualified



### DIODES

#### **BZD27 Series** – Small Signal Zener Diodes

- Zener and surge current specification, 3.6 V to 200 V
- ESD capability according to AEC-Q101, human body model: > 8 kV
- Wave and reflow solderable

## Control Units



### DIODES

#### **BAT46W** – Small Signal Schottky Diodes

- Very low turn-on voltage
- PN junction guard ring protects against excessive voltage, such as electrostatic discharges
- 100 V, 100 mA



## Air Conditioning Systems



### RECTIFIERS

#### **VS-E4TU2006FP-N3** – PFC Diodes

- Low EMI
- Optimizes PFC efficiency
- $T_J$  max = 175 °C



### RECTIFIERS

#### **VS-C4ZU6006FP-E3** – PFC Diodes

- Low EMI
- Optimizes PFC efficiency
- $T_J$  max = 175 °C



### RECTIFIERS

#### **GSIB2560N** – Glass Passivated Single-Phase, Single in-Line Bridge Rectifiers

- 150 °C operating junction temperature
- High forward surge current capability
- General purpose use in AC/DC bridge full wave rectification

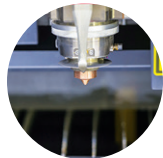


### DIODES

#### **PLZ Series** – Small Signal Zener Diodes

- 500 mW Zener diodes in low profile MicroSMF (DO-219AC) package provide voltage stabilization
- Very tight Zener voltage tolerances of  $\pm 2.5\%$
- ESD and surge rated

## Laser Marking and Coding



### RECTIFIERS

#### **V1FM10** – Surface-Mount TMBS® Rectifiers

- Trench MOS Schottky technology
- Low profile SMF (DO-219AB) package
- For use in high frequency inverters, freewheeling, DC/DC converters, and polarity protection in industrial applications



### DIODES

#### **BAS16** – Small Signal Fast Switching Diodes

- Silicon epitaxial planar diode, ultrafast switching speed
- High conductance



### DIODES

#### **MMBZ** – Small Signal Zener Diodes

- Silicon planar power Zener diodes
- Enhanced Zener voltage tolerance of  $\pm 2\%$  with a “C” suffix (e.g.: MMBZ5225C)



## Collaborative Robots (COBOTS)



### RECTIFIERS

**MSE1PJHM3** – Surface-Mount ESD Capability Rectifiers

- Very low profile: typical height of 0.65 mm
- Low forward voltage drop, low leakage current, ESD capability
- General purpose use, polarity protection, and rail to rail protection



### RECTIFIERS

**SE20PJ** – Surface-Mount ESD Capability Rectifiers

- Very low profile: typical height of 1.0 mm
- Low forward voltage drop, low leakage current, ESD capability
- General purpose use, polarity protection, and rail to rail protection



### RECTIFIERS

**GSIB2580** – Single-Phase, Single in-Line Bridge Rectifiers

- Thin single in-line package; glass passivated chip junction
- High surge current capability; high case dielectric strength of 2500 V<sub>RMS</sub>
- General purpose use in AC/DC bridge full wave rectification



### DIODES

**BAT46W** – Small Signal Schottky Diodes

- Very low turn-on voltage
- PN junction guard ring protects against excessive voltage, such as electrostatic discharges
- 100 V, 100 mA

## Low Voltage UPS



### RECTIFIERS

**SS1P3** – High Current Density, Surface-Mount Schottky Barrier Rectifiers

- Very low profile: typical height of 1.0 mm
- Low forward voltage drop, low power losses, high efficiency
- Low thermal resistance



### RECTIFIERS

**MSS1P3L** – Surface-Mount Schottky Barrier Rectifiers

- Very low profile: typical height of 0.65 mm
- Low forward voltage drop, low power losses, high efficiency



### DIODES

**S07 Series** – Standard Recovery Rectifiers, High Voltage

- Glass passivated
- Low profile SMF (DO-219AB) package
- For surface-mounted applications



### MODULES

**VS-FC420SA15** – Single Switch, MOSFET Modules in SOT-227 Package

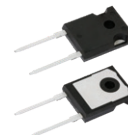
- 150 V ThunderFET Power MOSFET, I<sub>D</sub> = 400 A
- Low R<sub>DS(on)</sub> at 1.93 mΩ, ultra low gate charge (Q<sub>g</sub>)
- Maximum 175 °C junction temperature. 100 V and 200 V also available



### THYRISTORS

**VS-50TPS12L-M3** – Phase Control Thyristors

- 50 A, 1200 V, high temperature operation to +150 °C
- High surge current to 630 A
- TO-247AD package



### RECTIFIERS

**VS-E5PH6012L-N3** – FRED Pt® Gen 5 1200 V Ultrafast Rectifiers

- 60 A, 1200 V, high temperature operation to +175 °C
- Best V<sub>F</sub> and Q<sub>rr</sub> for this application
- TO-247AD 2L package



## FABRICATION

**Welding**

**Cutting**

**3D Printers**

**Melting / Forging / Hardening**



## Welding



### RECTIFIERS

#### **VS-60CPH03** – High Voltage Rectifiers, 60 A

- 175 °C operating junction temperature
- Hyperfast recovery time



### MODULES

#### **VS-UFH280FA30** – FRED Pt® Diode Modules in SOT-227 Package

- 280 A, 300 V
- Hyperfast, soft reverse recovery, high operation junction temperature (175 °C)
- UL-approved file E78996



### DIODES

#### **PLZ Series** – Small Signal Zener Diodes

- 500 mW Zener diodes in low profile MicroSMF (DO-219AC) package provide voltage stabilization
- Very tight Zener voltage tolerances of  $\pm 2.5\%$
- ESD and surge rated



### MODULES

#### **VS-VSUD410CW60** – Ultrafast Soft Recovery FRED Pt® Diode Modules in TO-244 Package

- 400 A, 600 V
- Specifically designed for HF welding and plasma cutting

## Cutting



### RECTIFIERS

#### **SF1600** – Ultrafast Avalanche Sinterglass Diodes

- Hermetically sealed axial-leaded glass
- High reverse voltage



### MODULES

#### **VS-VSKDU300/06PbF** – HEXFRED® Ultrafast Diodes

- 300 A, 600 V in IAP package, H / B configuration
- High surge capability
- UL-approved file E78996



### DIODES

#### **S07 Series** – Standard Recovery Rectifiers, High Voltage

- Glass passivated
- Low profile SMF (DO-219AB) package
- For surface-mounted applications



### MODULES

#### **VS-VSUD400CW60** – FRED Pt® Ultrafast Soft Recovery Diode Modules, 400 A

- UL-approved file E222165
- Specifically designed for HF welding and plasma cutting



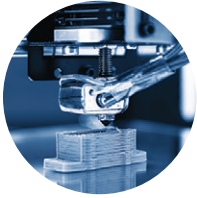
### MODULES

#### **VS-160MT180C, VS-300MT180C** – Three-Phase Bridge Rectifiers

- High blocking voltage up to 1800 V, output current up to 300 A
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## 3D Printers



DIODES

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- Zener and surge current specification, 3.6 V to 200 V
- ESD capability according to AEC-Q101, human body model: > 8 kV
- Wave and reflow solderable

## Melting \ Forging \ Hardening



DIODES

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## DETECTION AND INITIAL SAFETY DEVICES

**Gas**

**Flame / Fire**

**Smoke**

**Radiation**



## Gas



### RECTIFIERS

**EGF1T** – Surface-Mount Glass Passivated Ultrafast Rectifiers

- Avalanche surge energy capability
- Low switching losses, high efficiency



### DIODES

**PLZ Series** – Small Signal Zener Diodes

- 500 mW Zener diodes in low profile MicroSMF (DO-219AC) package provide voltage stabilization
- Very tight Zener voltage tolerances of  $\pm 2.5\%$
- ESD and surge rated

## Flame / Fire



### DIODES

**SMAJ Series** – Surface-Mount TRANSZORB® Transient Voltage Suppressors

- Available in unidirectional and bidirectional versions
- AEC-Q101 qualified



### DIODES

**SMBJ Series** – Surface-Mount TRANSZORB® Transient Voltage Suppressors

- Available in unidirectional and bidirectional versions
- AEC-Q101 qualified



### DIODES

**TA6F Series** – Surface-Mount PAR® Transient Voltage Suppressors

- Unidirectional
- AEC-Q101 qualified
- TA6F is slim type and compatible with SMA footprint



## Smoke



DIODES

**MMSZ5258** – Small Signal Zener Diodes

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



DIODES

**SMAJ Series** – Surface-Mount TRANSZORB® Transient Voltage Suppressors

- Available in unidirectional and bidirectional versions
- AEC-Q101 qualified



DIODES

**SMBJ Series** – Surface-Mount TRANSZORB® Transient Voltage Suppressors

- Available in unidirectional and bidirectional versions
- AEC-Q101 qualified



DIODES

**TA6F Series** – Surface-Mount PAR® Transient Voltage Suppressors

- Unidirectional
- AEC-Q101 qualified
- TA6F is slim type and compatible with SMA footprint

## Radiation



DIODES

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- ESD and surge rated



## SURVEILLANCE SYSTEMS

**Cameras / CCTV**

**Access Control Systems / Door and Gate Openers**

**RFID**



## Cameras / CCTV



### RECTIFIERS

#### **MSS1P4** – Surface Mount Schottky Barrier Rectifiers

- AEC-Q101 qualified
- Very low profile with typical height of 0.65 mm



### RECTIFIERS

#### **VSKY10401406** – FlipKY® Gen 2 Schottky Rectifiers in CLP Package

- 1 A forward current, low forward voltage drop
- Very low dimensions: 1.4 mm x 0.6 mm x 0.29 mm
- Schottky diode for high speed switching

### DIODES



#### **BZX84C18-E3-08** – Small Signal Zener Diodes

- AEC-Q101 qualified
- Silicon planar Zener diodes

## Access Control Systems / Door and Gate Openers



### DIODES

#### **BAT46W** – Small Signal Schottky Diodes

- Very low turn-on voltage
- PN junction guard ring protects against excessive voltage, such as electrostatic discharges
- 100 V, 100 mA

## RFID



### DIODES

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- 500 mW Zener diodes in low profile MicroSMF (DO-219AC) package provide voltage stabilization
- Very tight Zener voltage tolerances of  $\pm 2.5\%$
- ESD and surge rated