

Vishay Intertechnology, Inc.

Alternative Energy

(Power Transmission / Distribution / Grid Quality)









Power Transmission / Distribution / Grid Quality

HVDC Transmission	2
STATCOM SVC	3
(Static VAR Compensator)	
Transformer Stations	
Circuit Breakers	Ę
Charging Stations / Infrastructure for	6
Vehicles and E-Bikes	

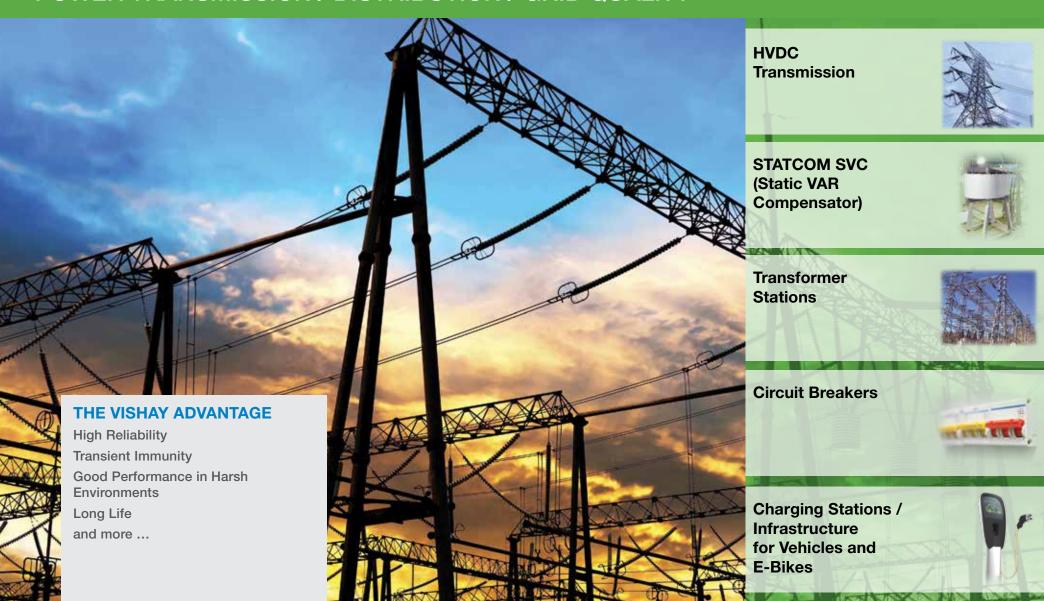
More information on the Engineer's Toolbox, including product datasheet links, can be found at www.vishay.com/ref/et3.

For inquiries, please contact your local sales representative.



Key components for

POWER TRANSMISSION / DISTRIBUTION / GRID QUALITY



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HVDC Transmission View datasheets for these products

ESTA POWER CAPACITORS

Capacitors for Power Electronic (PEC) - Cylindrical

ACMKP Tubular

- Flexible design up to 3.6 kV_{AC}
- Internal safety device



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

VOW136

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

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

OPTOELECTRONICS

Optocoupler with Phototransistor Output with Reinforced, **CAT IV Isolation**

CNY66

- Isolation test voltage of 13.9 kV, rated recurring peak voltage V_{IORM} of 1450 V_{peak}
- For class I IV at mains voltage up to 600 V and class I - III up to 1000 V

ESTA POWER CAPACITORS

HVAC Power Capacitor

MRTB Capacitor

- For high-speed DC switches
- Proven design with high reliability



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

VOW2611

- 8000 V max. transient isolation voltage
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RESISTORS

Aluminum Housed Compact Wirewound Resistor

VACR

- Power rating up to 500 W
- Easy to mount due to rectangular design

RESISTORS

Universal Mount Edgewound **Power Wirewound Resistors**

EDGU

- High current capability
- Enclosures and mounting frames available

ESTA POWER CAPACITORS

HVAC Power Capacitor

HV Harmonic Filter (AC)

- For HVDC lines up to 800 kV
- Harmonic distortion removal

RESISTORS

High-Power Thick Film Resistor with Low Partial Discharge

RCEC 750

- Partial discharge < 10 pC at 5000 V
- Rated dissipation 750 W at 75 °C

ESTA POWER CAPACITORS

HVDC Power Capacitor

HV Harmonic Filter (DC)

- For HVDC lines up to 800 kV
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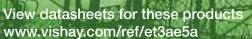


RESISTORS

Very High Power 2500 W, 2000 W, and 1500 W 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 8 resistive functions on the same support













DISPLAYS

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



- Standard or customized glass / modules for specific applications and monitoring
- Can withstand extensive temperatures and extreme conditions

OPTOELECTRONICS

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

VOW2611

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RESISTORS

Universal Mount Edgewound Power Wirewound Resistors

EDGU

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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

ESTA POWER CAPACITORS

HVAC Power Capacitor

Shunt Capacitor Bank

- Reduced power system losses
- Release power system capacity

RESISTORS

Stainless Steel Medium-**Power Resistors**

Medium Power Grid Resistors

- High permanent power dissipation, high pulse energy dissipation
- Rugged construction

HIGH POWER RESISTORS

Stainless Steel Neutral Ground / **Braking / Crowbar Resistor**

ULDCR

- High pulse energy capability up to 3.46 MJ, surface temperature increase below 450K for single pulse
- Operating temperature: -55 °C to +375 °C, modular system - user expandable





Circuit Breakers View datasheets for these products

www.vishay.com/ref/et3ae5d

RECTIFIERS

S07M

Standard Recovery Rectifier High-Voltage Surface-Mount

- AEC-Q101 qualified
- · Wave and reflow solderable



RESISTORS

Professional Thin Film Chip Resistors

MCT0603 1 % 25 ppm/K

- Best-in-class surge handling capability, excellent overall stability class 0.5
- CECC approved acc. EN 140401-801, sulfur resistant



Small Signal Zener Diodes

BZX384C

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



High-Current, Surface-Mount Inductors – Shielded

IDCS-2512

Low-cost filtering and DC/DC conversion inductor



MOSFETs

N-Channel 30 V (D-S) MOSFET

SiS402DN

- TrenchFET® Gen III technology, maximum $R_{DS(on)}$ 6 m Ω
- Thermally enhanced PowerPAK[®] 1212-8 is 1/3 the size of an SO-8



OPTOELECTRONICS

Optocoupler, Power Phototriac



- Optically coupled phototriac driving a power triac in a DIP-8 package
- Load current of 1 A_{RMS} and 5300 V of input-to-output isolation



Internal Design Reduces Risk of Shorts Caused by Board Flex, High Breakdown Voltage

VJ2220Y273KXFAT4X

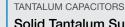
- Polymer termination available for intensive board flex requirements
- 100 % voltage conditioning available up to 630 V_{DC} rating (process code "5H")

NON-LINEAR RESISTORS

VDR Metal Oxide Varistors High Surge

VDRH.....E

- Extended operating temperature to 125 °C
- UL recognized up to 105 °C (selected types)



Solid Tantalum Surface-Mount Chip Capacitors, Tantamount®, Molded Case, Low ESR

TR3D

- Molded tantalum capacitor, low ESR
- Automation and control, SMPS, motion and drives, telecom infrastructure, networking and multiplexer, general purpose

RESISTORS

Thick Film Chip Resistors, High-Voltage

CRHV

- High-voltage capability (up to 3 kV), with outstanding stability (< 0.5 %)
- Can be customized to meet specific customer needs

CERAMIC CAPACITORS

Approved IEC 60384-14

VJ2220 X7R Safety

- Surface-mount design: simpler assembly and reduced board space requirement
- GREEN compliant products

INDUCTORS

Wirewound, Surface-Mount, Molded Inductors

IMC-1812

- RF Inductor for high density filter applications
- Vertical bobbin construction eliminates cross talk with nearby components







MODULES.

EMIPAK1B

Alternative Energy



Charging Stations / Infrastructure for Vehicles and E-Bikes View datasheets for these products

www.vishay.com/ref/et3ae5e

NON-LINEAR RESISTORS

NTCS0603E3...

SMD 0603, Glass Protected **NTC Thermistors**

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



EMIPAK-1B PressFit Power Module, Neutral Point Clamp Topology, 30 A

PressFit pins technology

• UL approved file E78996



OPTOELECTRONICS

Widebody IGBT and MOSFET Driver with High Creepage and Clearance of 10 mm

VOW3120

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

DIODES

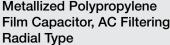
Small-Signal Zener Diodes



BZX84C8V2-HE3

- ESD capability acc. to AEC-Q101
- AEC-Q101 qualified

FILM CAPACITORS

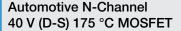




MKP1847

- AC filter capacitor with high RMS current capabilities
- Safe design using segmented film

MOSFETs





SQM200N04-1m1L

- TrenchFET® Gen III technology, maximum $R_{DS(on)}$ 1.1 m Ω
- 7-leaded D²PAK packaging

RESISTORS

Thin Film MELF Resistors



SMM0207

- · Unrivaled surge handling capability, ultimate stability over lifetime
- Automotive Grade quality, halogen-free, **GREEN** product

RECTIFIERS





SS2H10HE3

- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified

OPTOFI FCTRONICS

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

VOW2611

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- Integrated Faraday shield provides very high input-to-output noise isolation of 40 kV/µs

CERAMIC CAPACITORS

Internal Design Reduces Risk of Shorts Caused by Board Flex, High Breakdown Voltage



MLCC OMD Capacitors

- Polymer termination available for intensive board flex requirements
- to 630 V_{pc} rating (process code "5H")

INDUCTORS

Low-Profile, High-Current IHLP® Inductors



IHLP-5050

• High-current, low-saturation inductor for DC/DC conversion and filtering

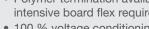


Power Metal Strip® Battery Shunt Resistor, Very Low Value (100 $\mu\Omega$, 125 $\mu\Omega$, and 250 $\mu\Omega$)

WSBM

RESISTORS

- · Includes a molded enclosure, providing easy PCB connection to the shunt resistor
- Extremely low resistance values: 50 μ Ω to 1000 μ Ω



• 100 % voltage conditioning available up







Vishay Intertechnology, Inc.



A WORLD OF
SOLUTIONS