



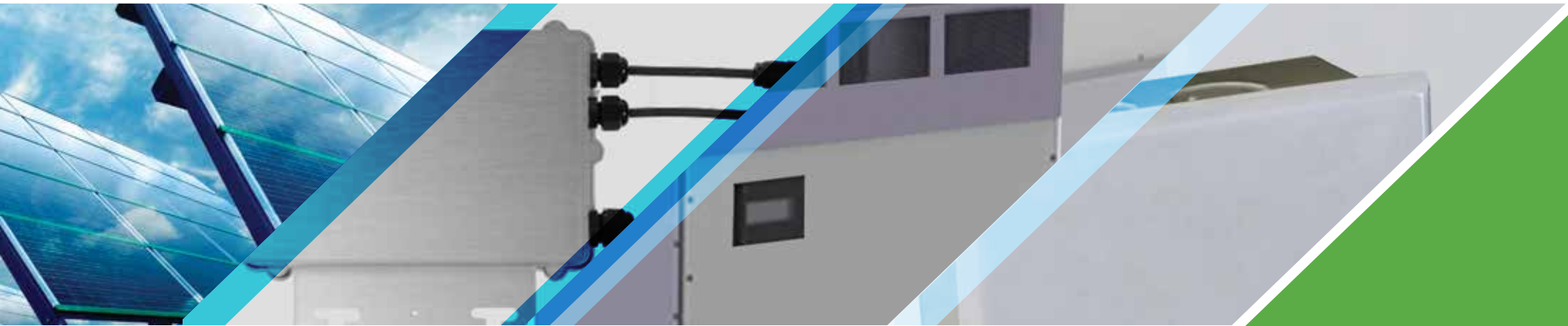
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Vishay Intertechnology, Inc.

Alternative Energy

(Solar Energy)



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





**Alternative
Energy**

Solar Energy

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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 SOLAR ENERGY



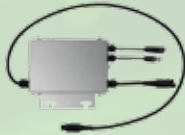
THE VISHAY ADVANTAGE

- High Working Voltage
- Long Useful Life
- High Reliability
- Safety Approvals
- High Surge Current Capability
- Wide Operating Temperature
- Range-Ruggedized Construction
- and more....

Main Inverters
up to 50 kW



Micro Inverters



**PV Storage /
PV Batteries**



Junction Boxes





Main Inverters up to 50 kW



RESISTORS

Thin Film Mini-MELF Resistors



[MM / SM](#)

- Unrivaled surge handling capability, ultimate stability over lifetime
- AEC-Q200 qualified, approved acc. EN 140401-803, sulfur resistant, GREEN product

MOSFETs

E Series 600 V Power MOSFET



[SiHG47N60E](#)

- High-performance E Series high-voltage technology, maximum $R_{DS(on)}$ 64 m Ω
- Popular TO-247 packaging, maximum continuous current of 47 A

INDUCTORS

Low-Profile, High-Current IHLP® Inductors



[IHLP-5050](#)

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

RECTIFIERS

High-Voltage Input Rectifier Diodes, 40 A, 60 A up to 1600 V



[40EPSxxPbF / 60EPSxxPbF](#)

- 150 °C maximum operating junction temperature
- Very low forward voltage drop

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
- 100 % voltage conditioning available up to 630 V_{DC} rating (process code “5H”)

OPTOELECTRONICS

Optocoupler with Phototransistor Output and Trigger Current of I_F = 5 mA



[VOL617A](#)

- High current transfer ratio, and high isolation voltage of 5000 V_{RMS}
- Operating temp. from -55 °C to +110 °C in a 4-pin LSOP, mini-flat package

ESTA POWER CAPACITORS

LVAC Power Capacitors



[PhMKP](#)

- Single-phase and 3-phase capacitors
- Conforms to UL 810 and CSA C22.2 standards

MODULES

3-Level Half-Bridge Inverter Stage, 60 A, 57 A



[VS-EMF050J60U](#)

- Operating frequency 60 kHz to 150 kHz
- UL approved file E78996

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

MODULES

Standard Diodes up to 600 A, up to 2000 V, H/B Configuration in SUPER MAGN-A-PAK



[VSKD270 / VSKD600](#)

- High-current capability, high-voltage (up to 2000 V)
- Industrial standard package SUPER MAGN-A-PAK

NON-LINEAR RESISTORS

NTC Thermistors, Standard Lug Sensors



[NTCALUG01A](#)

- Robust surface temperature sensor
- AEC-Q200 compliant, UL recognized

FILM CAPACITORS

Metallized Polypropylene Film DC-Link Capacitor



[MKP1848](#)

- High-performance DC-Link capacitor with high RMS current capabilities
- Automotive Grade AEC-Q200 compliant

View datasheets for these products
www.vishay.com/ref/et3ae1a



Micro Inverters



MOSFETs
N-Channel 150 V (D-S) MOSFET
[SiR872ADP](#)

- ThunderFET® technology with very low maximum $R_{DS(on)}$ of 18 mΩ and low gate charge
- Low losses for single-ended switched mode topologies, PowerPAK® SO-8 pkg.



RESISTORS
Power Metal Strip® Resistors, Low Value (Down to 0.001 Ω), Surface-Mount
[WSR](#)

- High power ratings to 5 W in molded 4527 size package
- Molded package with compliant leads that give superior thermal shock resilience



MOSFETs
E Series 600 V Power MOSFET
[SiHB22N60E](#)

- High-performance E Series high-voltage technology, maximum $R_{DS(on)}$ 180 mΩ
- Popular D²PAK packaging, maximum continuous current of 21 A



FILM CAPACITORS
Metallized Polypropylene Film DC-Link Capacitor
[MKP1848S](#)

- Slim high-performance DC-Link for low-building-height applications



CERAMIC CAPACITORS
AC Line Rated Disc Capacitors, Class X1, 760 V_{AC}, Class Y1, 500 V_{AC}
[VY1](#)

- X1 / Y1 safety rating according to IEC 60384-14, 3rd edition
- Highest reliability and lifetime, operating temperature: -40 °C to +125 °C



ICs
100 V, Integrated Half-Bridge Power Stage
[SiC41001](#)

- 75 V input voltage capable with integration of 100 V ThunderFET MOSFETs
- Capable of delivering up to 200 W continuous power



OPTOELECTRONICS
Optocoupler with Phototransistor Output and Trigger Current of I_F = 5 mA
[VOL617A](#)

- High current transfer ratio, and high isolation voltage of 5000 V_{RMS}
- Operating temp. from -55 °C to +110 °C in a 4-pin LSOP, mini-flat package



TANTALUM CAPACITORS
Solid Tantalum Surface-Mount Chip Capacitors TANTAMOUNT®, Molded Case, Low ESR
[TR3](#)

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



DIODES
Surface-Mount TRANSZORB® Transient Voltage Suppressors
[SMBJ5.0CA / 1.5SMC540A](#)

- 600 W peak pulse power capability with a 10/1000 μs waveform
- AEC-Q101 qualified



INDUCTORS
Low-Profile, High-Current IHLP® Inductors
[IHLP-6767GZ-5A](#)

- Very high current, low saturation inductor for DC/DC conversion and filtering
- High temperature continuous operation at 155 °C



CERAMIC CAPACITORS
IEC 60384-14:2005, CAN/CSA/cCSAus, and ANSI/UL CB Certificates
[MLCC SMD Safety Capacitor](#)

- Surface-mount design: simpler assembly and reduced board space requirement
- Available in NP0 (C0G) or X7R dielectrics



NON-LINEAR RESISTORS
VDR Metal Oxide Varistors High Surge
[VDRH](#)

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



View datasheets for these products www.vishay.com/ref/et3ae1b



PV Storage / PV Batteries



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/ μ s common mode rejection



RESISTORS

High-Ohmic / High-Voltage Metal Glaze Leaded Resistors

[VR37](#)

- UL 1676, VDE 0860, CQC safety approvals
- High pulse loading capability (10 kV)



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
- 100 % voltage conditioning available up to 630 V_{DC} rating (process code "5H")



RESISTORS

Power Metal Strip® Battery Shunt Resistor, Very Low Value

[WSBS](#)

- Extremely low resistance values: 50 $\mu\Omega$ to 1000 $\mu\Omega$
- Low thermal EMF, < 3 μ V/ $^{\circ}$ C, for accurate current sensing



FILM CAPACITORS

Metallized Polypropylene Film DC-Link Capacitor

[MKP1848S](#)

- Slim high-performance DC-Link for low-building-height applications



OPTOELECTRONICS

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/ μ s



CERAMIC CAPACITORS

AC Line Rated Disc Capacitors Class X1, 440 V_{AC}, Class Y2, 300 V_{AC}

[VY2](#)

- X1 / Y2 safety rating according to IEC 60384-14, 3rd edition
- Highest reliability and lifetime, operating temperature: -40 $^{\circ}$ C to +125 $^{\circ}$ C



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_{RMS} and integrated turn-off circuitry for high-speed switching



NON-LINEAR RESISTORS

SMD 0603, Glass Protected NTC Thermistors

[NTCS0603E3...](#)

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



OPTOELECTRONICS

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

[VOW2611](#)

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

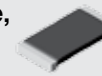


RESISTORS

Power Metal Strip® Resistors, Very High Power, Low Value, Surface-Mount

[WSLP](#)

- Very high power rating to 3 W in WSLP0603 to WSLP2512 size packages
- Extremely low resistance values from 0.0005 Ω to 0.1 Ω and tolerance of 1 %



ALUMINUM CAPACITORS

Aluminum Capacitors, Power, Ultra Long Life, Snap-In

[159 PUL-SI](#)

- Most popular series; long life snap-in, up to 500 V at 105 $^{\circ}$ C
- Custom made parts based on the need of your application are available on request



View datasheets for these products www.vishay.com/ref/et3ae1c




Junction Boxes



RECTIFIERS

Photovoltaic Solar Cell Protection Schottky Rectifier, Ultra Low $V_F = 0.30\text{ V}$ at $I_F = 5.0\text{ A}$




[VSB2045Y](#)

- High junction temperature 230 °C maximum at DC forward current
- Trench MOS Schottky technology

CERAMIC CAPACITORS

AC Line Rated Disc Capacitors, Class X1, 760 V_{AC} , Class Y1, 500 V_{AC}




[VY1](#)

- X1 / Y1 safety rating according to IEC 60384-14, 3rd edition
- Highest reliability and lifetime, operating temperature: -40 °C to +125 °C

MOSFETs

N-Channel 100 V (D-S) MOSFET




[SiR846ADP](#)

- ThunderFET® technology providing maximum $R_{DS(on)}$ of 7.8 mΩ and low gate charge
- Efficient high-frequency switching in the PowerPAK® SO-8 package

OPTOELECTRONICS

Optocoupler with Photodarlington Output and High CTR of 100 %



[SFH619](#)

- High collector emitter voltage, $V_{CEO} = 300\text{ V}$, high isolation test voltage: 5300 V_{RMS}
- Standard plastic DIP-4 package

MOSFETs

P-Channel 30 V (D-S) MOSFET




[Si4425DDY](#)

- TrenchFET® technology with low maximum $R_{DS(on)}$ of 9.8 mΩ
- Popular SO-8 package

RESISTORS

High-Ohmic / High-Voltage Metal Glaze Leaded Resistors




[VR37](#)

- UL 1676, VDE 0860, CQC safety approvals
- High pulse loading capability (10 kV)

MOSFETs

N-Channel 30 V (D-S) MOSFET




[SiRA10DP](#)

- TrenchFET Gen IV power MOSFET, 100 % R_g and UIS tested
- Low $R_{DS(on)}$

DIODES

Surface-Mount TRANSZORB® Transient Voltage Suppressors




[SMP TVS](#)

- Meets MSL level 1, per J-STD-020C, LF maximum peak of 260 °C
- Very low profile – typical height of 0.65 mm

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

OPTOELECTRONICS

Optocoupler with Phototransistor Output and Trigger Current of $I_F = 1\text{ mA}$



[VOL618A](#)

- High current transfer ratio, and high isolation voltage of 5000 V_{RMS}
- Operating temp. from -55 °C to +110 °C in a 4-pin LSOP, mini-flat package

MELF RESISTORS

Professional Thin Film MELF Resistors



[MMB0207](#)

- Approved according to EN 140401-803, AEC-Q200 qualified
- High surge voltage capability

View datasheets for these products www.vishay.com/ref/et3ae1d



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ABOUT TTI, INC.

TTI Inc., a subsidiary of Berkshire Hathaway, is a world leading specialist distributor of connectors and passive, electromechanical and discrete components. TTI's philosophy is "Lead by Design", and the company differentiates itself by focusing on people, parts and processes. The company's aim is to become the distributor of choice for customers and suppliers in Europe alike by introducing new product technologies and by stocking broad and deep across its franchise base. TTI employs sophisticated inventory management processes which ensure that the company can react immediately to changes in component demand due to fluctuating markets and supply chains. For further information about TTI, please refer to: www.ttieurope.com.



**A WORLD OF
SOLUTIONS**

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