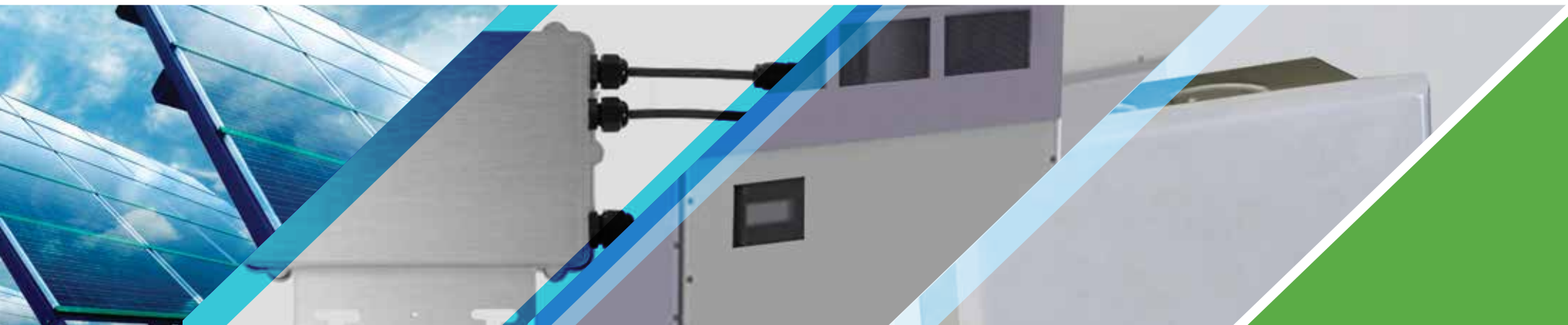




Vishay Intertechnology, Inc.

Alternative Energy

(Solar Energy)



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





**Alternative
Energy**

Solar Energy

Main Inverters up to 50 kW	2
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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



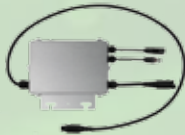
THE VISHAY ADVANTAGE

- 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



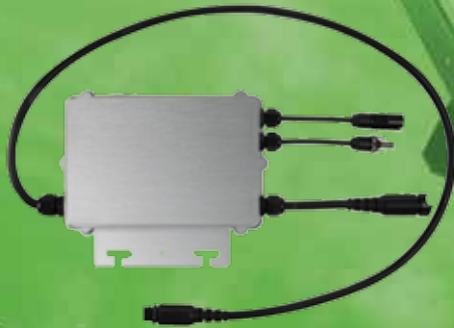
[MKP1848](#)

- 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

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

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

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

High-Ohmic / High-Voltage Metal Glaze Leaded Resistors



[VR37](#)

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

FILM CAPACITORS

Metallized Polypropylene Film DC-Link Capacitor



[MKP1848S](#)

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

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

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 %

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

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

NON-LINEAR RESISTORS

SMD 0603, Glass Protected NTC Thermistors



[NTCS0603E3...](#)

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

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

OPTOELECTRONICS

Optocoupler with Photodarlington Output and High CTR of 100 %



[SFH619](#)

- High collector emitter voltage, $V_{CE0} = 300 \text{ V}$, high isolation test voltage: $5300 \text{ V}_{\text{RMS}}$
- Standard plastic DIP-4 package

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

CERAMIC CAPACITORS

AC Line Rated Disc Capacitors, Class X1, $760 \text{ V}_{\text{AC}}$, Class Y1, $500 \text{ V}_{\text{AC}}$



[VY1](#)

- X1 / Y1 safety rating according to IEC 60384-14, 3rd edition
- Highest reliability and lifetime, operating temperature: -40°C to $+125^\circ\text{C}$

MOSFETs

P-Channel 30 V (D-S) MOSFET



[Si4425DDY](#)

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

RESISTORS

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



[WSL2512](#)

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

MOSFETs

N-Channel 100 V (D-S) MOSFET



[SiR846ADP](#)

- ThunderFET® technology providing maximum $R_{\text{DS(on)}}$ of $7.8 \text{ m}\Omega$ and low gate charge
- Efficient high-frequency switching in the PowerPAK® 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)

OPTOELECTRONICS

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



[VOL618A](#)

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

MOSFETs

N-Channel 30 V (D-S) MOSFET



[SiRA10DP](#)

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

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



Vishay Intertechnology, Inc.



A *WORLD OF*
SOLUTIONS