



VISHAY[®]

Vishay Intertechnology, Inc.

SUPER 12

Featured Products

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Super 12 Featured Products



597D and T97 Multi-Anode Tantalum Capacitors

Industry's First 75-V-Rated Tantalum Capacitors

DrMOS 6x6 – SiC769

*Industry-Best Power Density for Mainstream
Multi-phase Vcore Applications*



WSMS and WSBS High-Current Shunts (Current Sense)

*High-Current Shunt for Power Meter and
Battery Management Applications*

eSMP™ Ultra-Low- V_F SMD Schottky Barrier Rectifiers

*Ultra-Low 0.35-V (V_F), High-Current-Density
1-A Devices in eSMP package*



IHLP®-6767 Power Inductors

*Increased Current Rating, Excellent Saturation
and Stability*

High-Performance Gen 5.0 Schottky Diodes, 20 A

*Industry's First 40-V Diode in D-PAK with
Current to 20 A*





LPS Series Resistors

*Up to 800 W in Small-Size,
Low-Weight Package*

IGBT/MOSFET Drivers, VO3120 and VO3150A

*Widest supply voltage range with high
operating temperature*

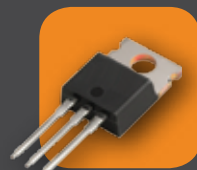


MKP 1848 DC-link Film Capacitors

*Metallized Polypropylene Film Capacitors for
Power Electronics*

Super Junction FET™ Gen 9 Power MOSFETs

*22-A, 600-V MOSFETs with Super Junction
technology for improved $R_{DS(on)} \times Q_g$ figure of merit*



Non-Magnetic MLCCs

*Surface-Mount Multilayer Ceramic Chip
Capacitors for Non-Magnetic Applications*

TrenchFET® Gen III P-Channel MOSFETs

Industry's Lowest On-Resistance





597D and T97 Multi-Anode Tantalum Capacitors

Industry's First 75-V-Rated Tantalum Capacitors

597D (Industrial Grade),
T97D (Hi-Rel COTS Series)



Features:

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- Voltage ratings to 75 V (ideal for + 28-V applications)
- Highest capacitance-voltage product available: 1500 μF at 4 V; up to 15 μF at 75 V (enables reduced component count)
- Robust design/hi-rel screening (long-term reliability)
- Ultra-low ESR: down to 15 m Ω (improved efficiency in design)
- Multiple case sizes (provides flexibility in board layout)

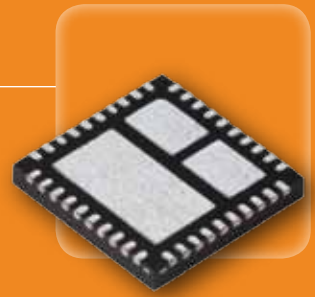
Applications:

- Power supply designs
- Automation and control
- Avionics
- Military/aerospace
- Industrial

PASSIVES

DrMOS 6x6 – SiC769

Industry-Best Power Density for Mainstream Multi-phase Vcore Applications



Integrated MOSFET and
Driver IC Solution

Features:

- Device complies with Intel DrMOS standard
- Delivers up to 35 A with switching frequency of 300 kHz to 1.0 MHz
- Superior efficiency and thermal performance
- Very low VSW overshoot and ringing
- Space saving PowerPAK® MLP66-40 (6 mm x 6 mm)

Applications:

- Blade and rack server CPU and DDR memory
- Notebook and desktop Vcore regulators
- Game consoles and graphics cards

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WSMS and WSBS High-Current Shunts (Current Sense)

High-Current Shunt for Power Meter and Battery Management Applications



WSMS (Power Meter Shunts) and
WSBS (Automotive Battery Shunts)

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Features:

- Resistance: 0.00002Ω to 0.001Ω
- Current capability: up to 1000 A
- Low-TCR metal resistive element: $< 20 \text{ ppm}/^\circ\text{C}$
- Low thermal EMF: $< 0.3 \mu\text{V}/^\circ\text{C}$
- Operating temperature range: $- 65 \text{ }^\circ\text{C}$ to $+ 170 \text{ }^\circ\text{C}$
- Very low inductance: $< 5\text{nH}$
- Non-standard package sizes available

Applications:

- Industrial and commercial power meters (smart grid digital meters)
- Automotive/industrial hybrid and electric battery management
- Alternative energy metering

PASSIVES

eSMP™ Ultra-Low- V_F SMD Schottky Barrier Rectifiers

**Ultra-Low 0.35-V (V_F),
High-Current-Density 1-A
Devices in eSMP package**



MSS1P2U and MSS1P3U, MicroSMP

Features:

- ▣ Very low profile: typical height of 0.65 mm
- ▣ Ultra-low forward voltage drop: 0.35 V at + 85 °C, 0.4 V at + 25 °C
- ▣ Low power losses
- ▣ Meet MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- ▣ Caution: high reverse leakage, I_R (typical) = 12 mA at + 85 °C
- ▣ RoHS-compliant in accordance with 2002/95/EC and WEEE 2002/96/EC

Applications:

- ▣ Snubbers in LCD TVs and HDDs for notebook PCs
- ▣ Secondary rectifiers for miniature SMPS, adaptors, and chargers
- ▣ Polarity protection for GPS, MP3, PMP, DSC, and cell phones
- ▣ Industrial system polarity protection of power and signal lines

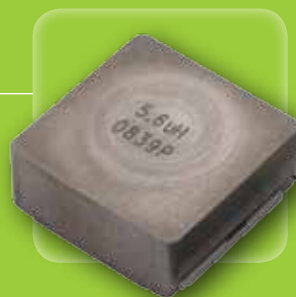
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IHLP®-6767 Power Inductors

*Increased Current Rating,
Excellent Saturation
and Stability*

Highest-Rated-Current SMD Power
Inductors Available



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Features:

- Highest-rated-current SMD power inductors: up to 80 A
- Low profiles: 4.0 mm and 7.0 mm available
- Inductance values: up to 100 μ H
- Excellent temperature stability for saturation current and inductance
- Energy storage efficiency: up to 1.5 MHz for dc-to-dc
- Low DCR for efficient high-current filters

Applications:

- Server Vcore power supplies
- High-current filters
- Automotive high-current filters and dc-to-dc converters

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High-Performance Gen 5.0 Schottky Diodes, 20 A

*Industry's First 40-V Diode in
D-PAK with Current to 20 A*

20WT04FN



Features:

- ▣ $T_{j,max} = 175\text{ }^{\circ}\text{C}$
- ▣ Very low forward voltage drop
(V_F max: 0.530 V @ 20 A, 125 °C)
- ▣ Extremely low reverse leakage
(I_R max: 7 mA @ 45 V, 125 °C)
- ▣ Optimized V_F vs. I_R trade-off for high efficiency
- ▣ Increased ruggedness for reverse avalanche capability
- ▣ RBSOA available
- ▣ Negligible switching losses
- ▣ Sub-micron trench technology

Applications:

- ▣ Photovoltaic cell bypass diodes
- ▣ High-efficiency SMPS
- ▣ Automotive (AEC-Q101 qualified)
- ▣ High-frequency switching
- ▣ Output rectification
- ▣ Reverse battery protection

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SEMIS



LPS Series Resistors

*Up to 800 W in Small-Size,
Low-Weight Package*

High-Power Planar
Thick Film Resistors



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Features:

- High power dissipation:
300 W, 600 W, and 800 W at 85 °C
- Small size of 57 mm x 60 mm for low weight
of 83 g
- High dielectric strength: up to 12 kV_{RMS}
- Non-inductive: < 1 μH
- Cost-competitive

Applications:

- Converters, snubber resistors for:
 - UPS
 - Medical X-ray/scanner power supplies
 - Railway traction
- Inverters, power converters, discharge
resistors for:
 - Wind turbines
- Battery high-voltage control for:
 - Electric vehicles

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IGBT/MOSFET Drivers, VO3120 and VO3150A

*Widest supply voltage
range with high
operating temperature*



2.5-A and 0.5-A IGBT / MOSFET Drivers

Features:

- Widest supply voltage range from 15 V to 32 V
- Wide operating temperature range from - 40 °C to + 110 °C
 - Competitors typically feature only 100 °C maximum
- Low supply current of 2.5 mA or less

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Applications:

- Motor drives for AC motors and brushless DC motors
- Induction stove tops
- Power supplies (UPS and SMPS)
- Inverters and DC/DC converters
- Welding equipment
- Plasma displays

SEMIS



MKP 1848 DC-Link Film Capacitors

*Metallized Polypropylene
Film Capacitors for
Power Electronics*



Features:

- ▣ Rated capacitance: 1 μF to 400 μF ;
2 or 4 pins for PCB mounting
- ▣ Rated capacitance: 500 μF to 6000 μF ; bus bar
for direct IGBT mounting (customized)
- ▣ DC voltage rating:
450 V_{dc} to 1200 V_{dc} @ 85 °C
- ▣ IEC 61071 standard

Applications:

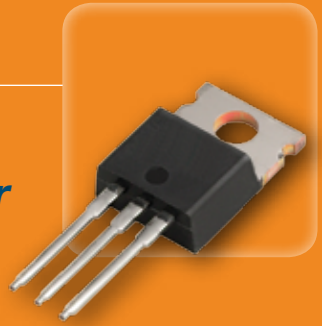
- ▣ Industrial
 - Power supplies: UPS, battery chargers
 - Power generators: wind energy, solar inverters
 - Motor drives: pumps, forklifts
 - Others: welders, x-ray equipment
- ▣ Automotive
 - Hybrid electric vehicles (HEV)

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Super Junction FET™ Gen 9 Power MOSFETs

22-A, 600-V MOSFETs with Super Junction technology for improved $R_{DS(on)} \times Qg$ figure of merit (FOM)



SiHF22N60S-E3, SiHP22N60S-E3,
SiHG22N60S-E3, and SiHB22N60S-E3

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Features:

- $R_{DS(on)}$ as low as 0.19 Ω (max)
- 100 % avalanche tested and high peak current capability
- Lower $R_{DS(on)} \times Qg$ FOM

Applications:

- Power factor correction (PFC) MOSFETs in switch mode power supplies (SMPS), lighting ballasts, ATX, servers, and LCD TVs



Non-Magnetic MLCCs

Surface-Mount Multilayer Ceramic Chip Capacitors for Non-Magnetic Applications



VJ Non-Magnetic Series
C0G (NP0)/X7R/X5R Dielectric

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Features:

- Manufactured with non-magnetic materials
 - Electrodes, terminations, etc.
- Conductive epoxy or IR reflow assembly
- Safety screened for magnetic properties
- Wide range of products
 - Body size, voltage rating, cap. values
- Noble metal technology and wet build process
 - High reliability
 - Medical grade available

Applications:

- Applications that require no magnetic interference
- Medical imaging applications
- MRI machines
- Equipment in MRI environment
- Implantable medical devices
- Ferromagnetic-sensitive instrumentation

TrenchFET® Gen III P-Channel MOSFETs

Industry's Lowest On-Resistance

New-Technology P-Channel MOSFETs



Features:

- Reduced on-resistance up to 45 % for p-channel devices
 - Provide lower conduction losses, saving power
 - » Longer time between charges for battery powered applications
 - » Greener use of power
- Variety of package sizes, from PowerPAK SO-8 down to 1.6 mm x 1.6 mm PowerPAK SC-75
- Breakdown voltage: 12 V to 30 V

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Applications:

- Battery chargers, adaptor and load switches for notebooks, laptops and netbooks
- Load switches for charging circuits and handheld devices such as smart phones, PDAs, MP3 players, digital cameras and camcorders
- Load switches and hot swapping for industrial products



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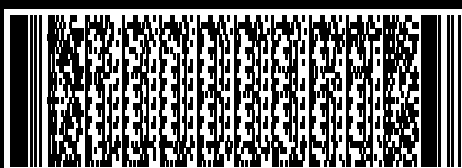
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