



VISHAY[®]

Vishay Intertechnology, Inc.

SUPER 12

Featured Products

version 3.0

S12





Super 12 Featured Products



146 CTI SMD Chip Polarized Aluminum Capacitor

*High temperature (up to + 125 °C), low impedance
(down to 35 mΩ), AEC-Q200 qualified*

SiR662DP 60 V Power MOSFET

*Industry lowest on-resistance and FOM for 60 V
in PowerPAK® SO-8 type package*



IHLP®-6767GZ-51 Power Inductor

*Highest combination of temperature range
and current rating of any surface-mount power
inductor on the market*

45 V Trench MOS Barrier Schottky Rectifier

*45 V TMBS® in low-profile SMPC, P600 axial,
and power packages*



ACAS AT Thin Film Chip Resistor Array

*Precision matched resistors in one package for
voltage dividers and feedback circuits*

VCNL4000 Proximity/Ambient Light Sensor

*Fully integrated sensor including infrared emitter,
ambient light sensor, proximity photo-diode and
signal processing*





NTC Mini Lug Sensor

Accurate surface temperature sensing in the smallest lug type available

DG9454 Triple SPDT (2:1 Multiplexer)

12 V V+, 1.8 V logic, ultra-low current consumption, fast switching speed, in mQFN-16



TP3 Molded Case SMD Capacitor

Automotive grade TANTAMOUNT® high performance solid tantalum capacitor

600 V FRED Pt® Ultrafast Diode

Optimized for low conduction losses, low switching losses, or both



Power Metal Strip® Resistors – WSLP, WSLT, WSLS, WSH

Enhanced power-handling and environmental performance

PowerPAIR® 6 x 3.7 SiZ730DT Asymmetric Dual Power MOSFETs

Saves space while increasing performance





146 CTI SMD Chip Polarized Aluminum Capacitor

High temperature (up to + 125 °C), low impedance (down to 35 mΩ), AEC-Q200 qualified



Features:

- ▶ Very long useful life: 1500 h to 6000 h at + 125 °C
- ▶ Charge- and discharge-proof
- ▶ Very low ESR: 0.035 Ω
- ▶ Vibration-proof, 4 pin and 6 pin versions
- ▶ 10 mm x 10 mm up to 18 mm x 21 mm case sizes available
- ▶ Leadfree solderable per JEDEC J-STD-020

Applications:

- ▶ Machinery/automation and motion control
- ▶ Energy-saving applications
- ▶ Equipment for renewable energy
- ▶ Power train
- ▶ Chassis electronics
- ▶ Vehicle dynamics

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PASSIVES

SiR662DP 60 V Power MOSFET

*Industry lowest on-resistance
and FOM for 60 V in PowerPAK®
SO-8 type package*



Features:

- ▶ On-resistance up to 27 % better than next best device
 - Lowers conduction losses
- ▶ Figure of merit (FOM) up to 57 % better than next best device
 - Lowers switching losses, especially at higher frequency
- ▶ On-resistance ratings down to $V_{GS} = 4.5 \text{ V}$

Applications:

- ▶ Isolated DC/DC converters: primary side switch and secondary side synchronous rectification for IBC and POL
- ▶ AC/DC adaptors and industrial electronic systems
- ▶ Boost converters and load switches for LED backlighting

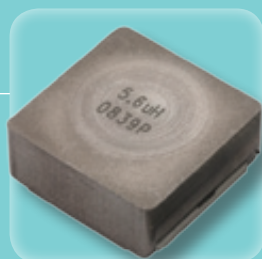
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IHLP[®]-6767GZ-51 Power Inductor

Highest combination of temperature range and current rating of any surface-mount power inductor on the market



Features:

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- ▶ High temperature rating, up to 155 °C
- ▶ Shielded construction
- ▶ DC/DC converter frequency range up to 750 kHz
- ▶ Lowest DCR/ μ H in this package size
- ▶ Handles high transient current spikes without saturation
- ▶ Ultra low buzz noise, due to composite construction
- ▶ High-temperature automotive*

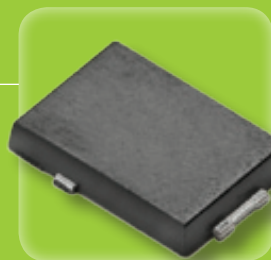
Applications:

- ▶ Industrial DC/DC converters
- ▶ High-current POL converters
- ▶ Low-profile, high-current power supplies
- ▶ High-current noise filters
- ▶ DC/DC converters in distributed power systems
- ▶ Automotive applications*

*IHLP-6767GZ-5A Series

45 V Trench MOS Barrier Schottky Rectifier

45 V TMBS® in low-profile SMPC, P600 axial, and Power packages



Features:

- ▶ Trench MOS Schottky technology
- ▶ Very low-profile SMPC package with typical height of 1.1 mm; also available in P600 axial and power packages (TO-220AB, ITO-220AB, TO-262AA, TO263AB)
- ▶ Low forward voltage drop: down to 0.39 V at 15 A, + 125 °C
- ▶ Low power losses
- ▶ 150 °C maximum operating junction temperature
- ▶ RoHS-compliant in accordance with 2002/95/EC and WEEE 2002/96/EC

Applications:

- ▶ Low-voltage, high-frequency DC/DC converters
- ▶ Switchmode power supplies
- ▶ Freewheeling diodes
- ▶ OR-ing diodes and reverse battery protection
- ▶ Solar cell junction box as a bypass diode for protection

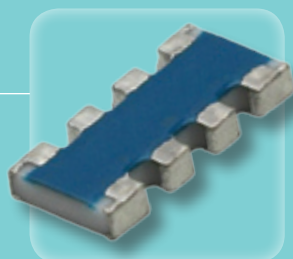
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ACAS AT Thin Film Chip Resistor Array

Precision matched resistors in one package for voltage dividers and feedback circuits



Features:

- ▶ Two or four resistor values on one substrate
- ▶ Superior moisture resistivity: < 0.5 % (85 °C; 85 % RH; 56 days)
- ▶ High power rating: $P_{70} = 125$ mW per resistor
- ▶ ESD capability: 1000 V, human body model
- ▶ AEC-Q200 qualified
- ▶ TCR tracking down to 10 ppm/K (± 5 ppm/K) and tolerance matching down to 0.1 % (± 0.05 %)
- ▶ RoHS-compliant components, compatible with lead (Pb)-free and lead-bearing soldering processes

Applications:

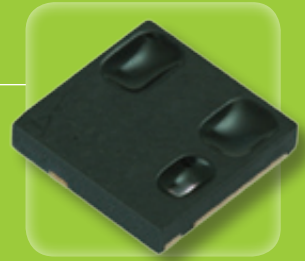
- ▶ Precision analog circuits
- ▶ Voltage dividers
- ▶ Feedback circuits
- ▶ DC/DC converters
- ▶ Signal conditioning

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PASSIVES

VCNL4000 Proximity/Ambient Light Sensor

Fully integrated sensor including infrared emitter, ambient light sensor, proximity photodiode and signal processing



Features:

- ▶ No mechanical barriers required; no crosstalk concerns
- ▶ Proximity range up to 20 cm (7.9 in)
- ▶ Programmable LED drive current: 10 mA to 200 mA in 10 mA steps
- ▶ Programmable measurement rate from 1 Hz to 250 Hz
- ▶ 16 bit resolution with I²C interface
- ▶ Ambient light sensing from 0 klx to 13 klx with 0.33 lx resolution

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Applications:

- ▶ Determine presence of an object to turn on/off display
- ▶ Measure ambient light to optimize display brightness
- ▶ Smart phones, digital cameras, tablet PCs, LCD displays, event-driven industrial controls

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NTC Mini Lug Sensor

Accurate surface temperature sensing in the smallest lug type available



Features:

- ▶ Smallest mounting space of 65 mm² / 0.1 in² only
- ▶ Reduced thermal gradient less than 5 % of ΔT , due to small size and nickel conductor, enable accurate surface temperature measurement
- ▶ Short response time, less than 4 s
- ▶ Extended temperature range from - 40 °C to + 125 °C
- ▶ Electrically insulated to minimum 1 kV_{AC}
- ▶ Optional ZHR-2 connector and customized lead lengths

Applications:

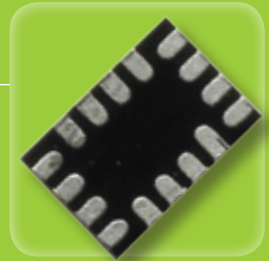
- ▶ Heatsink thermal management
- ▶ Power electronics thermal management
- ▶ Housing surface temperature measurement
- ▶ Pipe and power conductor temperature control
- ▶ Test and measurement equipment
- ▶ Power inverters
- ▶ Power supplies
- ▶ Battery pole temperature monitoring

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PASSIVES

DG9454 Triple SPDT (2:1 Multiplexer)

12 V V+, 1.8 V logic, ultra-low current consumption, fast switching speed, in mQFN-16



Features:

- ▶ Operates with
 - V_+ : 2.7 V to 13.2 V
 - V_L : 2.5 V to 5.5 V
- ▶ High bandwidth: 270 MHz
- ▶ Low charge injection over the full signal range (less than 1.2 pQ)
- ▶ Low switch capacitance ($C_{s(off)}$ 2 pF typ.)
- ▶ Good isolation and crosstalk performance (typ. - 44 dB at 10 MHz)

Applications:

- ▶ 3DTV active shutter glasses
- ▶ Data acquisition
- ▶ Medical and healthcare devices
- ▶ Control and automation equipment
- ▶ Test instruments
- ▶ Touch panels

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TP3 Molded Case SMD Capacitor

**Automotive grade
TANTAMOUNT® high-
performance solid tantalum
capacitor**



Features:

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- ▶ AEC-Q200 qualified
- ▶ Robust construction
- ▶ High reliability
- ▶ Low ESR
- ▶ 100 % surge current tested (B, C, D and E case sizes)
- ▶ Compliant to RoHS directive 2002/95/EC
- ▶ Industry-standard case sizes A to E (EIA 535BAAC dimensions)

Applications:

- ▶ Automotive
- ▶ Engine controls
- ▶ Safety systems
- ▶ High end automation
- ▶ High end industrial
- ▶ Robotics

PASSIVES

600 V FRED Pt® Ultrafast Diode

Optimized for low conduction losses, low switching losses, or both



Features:

- ▶ FRED Pt® technology
- ▶ Rated T_j max + 175 °C
- ▶ Extremely low leakage current: e.g. 20 μ A typical at 600 V, + 150 °C
- ▶ Low forward voltage drop: e.g. 0.85 V typical at 8 A, + 150 °C
- ▶ Extremely low Q_{rr} and T_{rr} : e.g. 22 nC and 17 ns typical at 8 A, 200 A/ μ s, 390 V switching, + 25 °C
- ▶ New “U” series for optimized soft switching
- ▶ RoHS compliant, halogen free. Totally lead (Pb)-free (TO247 only)
- ▶ Most devices qualified to AEC-Q101 level
- ▶ Also available in bare die or bare wafers

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Applications:

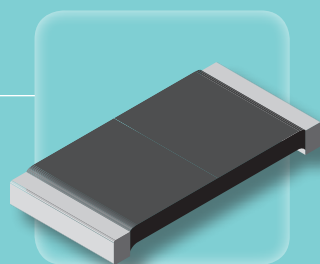
- ▶ DCM, CRM, and CCM PFC stage output rectification and anti-parallel diodes for:
 - Adapters and slim adapters
 - Desktop PCs, servers, and telecom power supplies
 - UPS and air conditioning
 - Automotive

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Power Metal Strip[®] Resistors – WSLP, WSLT, WSLS, WSH

*Enhanced power handling and
environmental performance*



Features:

- ▶ WSLT: high temperature (to + 275 °C)
- ▶ WSLP: very high power (to 1 W in 1206)
- ▶ WSLS: improved stability (0.25 % and 0.5 %)
- ▶ WSH: high power (to 5 W in 2818)

Applications:

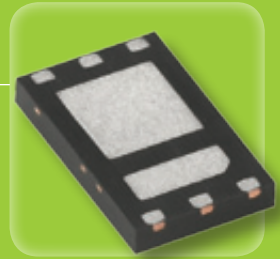
- ▶ Current sensing and pulse applications
 - Switching and linear power supplies
 - Instruments
 - Power amplifiers and shunts
- ▶ DC/DC converters
- ▶ Li-ion batteries

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PASSIVES

PowerPAIR[®] 6 x 3.7 SiZ730DT Asymmetric Dual Power MOSFETs

Saves space while increasing performance



Features:

- ▶ High- and low-side MOSFETs are combined in one compact 6 mm x 3.7 mm package
- ▶ One package is 1/3 smaller than two discrete PowerPAK[®] 1212-8 packages, or 2/3 smaller than two discrete SO-8 packages
- ▶ Optimized asymmetric design provides on-resistance over 30 % lower than using a PowerPAK 1212-8 for the low side
- ▶ Reduces package count, pinning arrangement simplifies layout and saves PCB space
 - Reduced parasitic inductance increases efficiency and reduces ringing

Applications:

- ▶ System power, POL low-current DC/DC and synchronous buck applications in
 - Notebooks
 - VRMs
 - Power modules
 - Graphics cards
 - Servers
 - Gaming consoles

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