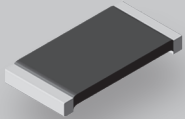




# 2014 SUPER 12

2014 **SUPER 12**  
Featured Products

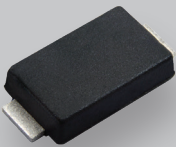
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### **WSLP**

*High-Power Surface-Mount Power Metal Strip<sup>®</sup> Current Sensing Resistor*



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### **TMBS<sup>®</sup> in SMPA**

*Trench MOS Barrier Schottky Rectifiers in Low-Profile SMPA Package for Automotive and Commercial Applications*



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### **PRAHT**

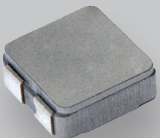
*Industry-First High-Temperature Chip Resistor Array (230 °C)*



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### **TCPT1350X01 / TCUT1350X01**

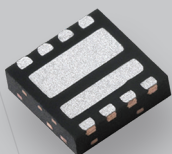
*Industry's Only Transmissive Sensor with Operating Temperature up to 125 °C*



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### **IHCL Series**

*Composite-Coupled Inductor Designed for SEPIC DC/DC Converters*



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### **SiZ340DT**

*Dual N-Channel 30 V (D-S) MOSFETs*

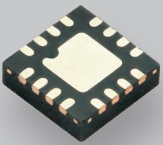
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### **MKP1848C**

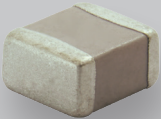
*Metallized Polypropylene DC-Link  
Film Capacitor*



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### **SiP12109**

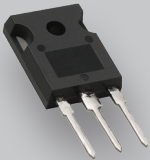
*Compact, High-Performance Buck Regulator*



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### **QUAD HiFREQ Series**

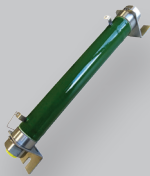
*MLCCs for RF Applications*



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### **SiHG47N60E / E Series**

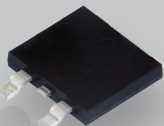
*High-Voltage MOSFETs with Low  
Conduction and Switching Losses*



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### **WCR**

*Water-Cooled Power Resistor, Up to  
2500 W, for Use in Large Drives and  
HVDC Applications*

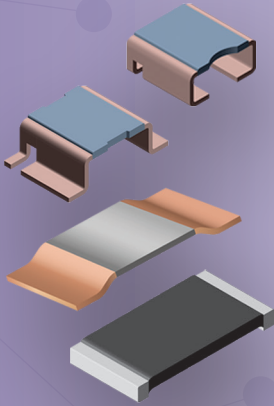


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### **TMBS<sup>®</sup> in SMPD**

*Trench MOS Barrier Schottky Rectifiers  
in Low-Profile SMPD Package for  
Commercial Applications*

## Resistors



### WSLP

*Very High-Power Surface-Mount Power Metal Strip<sup>®</sup> Current Sensing Resistor*

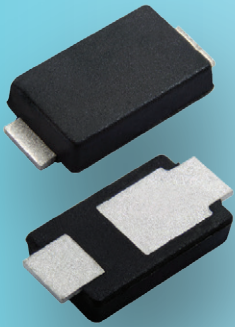
#### Features:

- ▶ High power in small case sizes: up to 10 W
- ▶ Very low resistance values: 0.0003  $\Omega$  to 0.1  $\Omega$
- ▶ Tight resistance tolerance: down to  $\pm 0.5\%$

#### Applications / Market Segments:

- ▶ Automotive
  - Electronic controls (engine controls, climate controls, anti-lock brakes, etc.)
  - Brushless DC motor controls (electronic power steering, electric vehicles: water pump/oil pump/air conditioning, etc.)
  - Electric and hybrid controls (battery management)
- ▶ Computer
  - DC/DC converter, VRMs for servers
  - Li-Ion battery management / safety
- ▶ Industrial
  - Oil and gas well drilling (down-hole test / measurement equipment)
  - Air conditioning / heat pump (inverter control)
  - Brushless DC motor controls
- ▶ Consumer
  - Air conditioning / heat pump (inverter control)
  - White goods (inverter control)

## Rectifiers



### TMBS<sup>®</sup> in SMPA

*Low-Profile SMPA Package  
for Automotive and  
Commercial Applications*

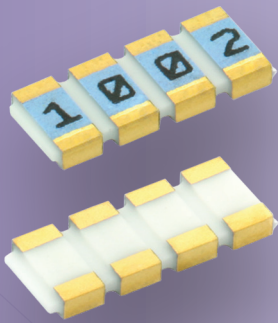
#### Features:

- ▶ Very low-profile, surface-mount SMPA package with typical height of 0.95 mm
- ▶ 45 V and 50 V Trench MOS Barrier Schottky technology
- ▶ Low forward voltage drop down to 0.37 V (typical) at 3 A, 125 °C
- ▶ Maximum junction temperature of 150 °C
- ▶ 45 V devices are AEC-Q101 qualified

#### Applications / Market Segments:

- ▶ Automotive
  - Polarity protection
- ▶ Commercial
  - Switching power supplies
  - Tablet / PC chargers
  - Smart phone chargers

## Resistors



### PRAHT

*Industry-First  
High-Temperature  
Chip Resistor Array (230 °C)*

#### Features:

- ▶ Operating temperature range:  $-55\text{ °C}$  to  $+215\text{ °C}$
- ▶ Storage temperature range:  $-55\text{ °C}$  to  $+230\text{ °C}$
- ▶ Two to four resistors (same or different ohmic values)
- ▶ Tolerance ratio down to 0.05 %
- ▶ TCR: down to 2 ppm/°C ( $-55\text{ °C}$  to  $+230\text{ °C}$ )

#### Applications / Market Segments:

- ▶ Multi-chip modules (MCM) for down-hole applications
- ▶ Pressure and temperature sensors, measurement equipment
- ▶ Operational amplifier gain – analog / digital conversion
- ▶ MEA (more electric aircraft) – engine controls closer to the engine
- ▶ Braking systems of aircraft – temperature sensor, measurement equipment



## TCPT1350X01 / TCUT1350X01

*Industry's Only Transmissive  
Sensor with Operating  
Temperature up to 125 °C*

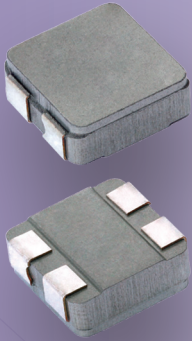
### Features:

- ▶ Single and dual channel
  - Direction and speed
- ▶ Operating temperature from  $-40\text{ °C}$  to  $+125\text{ °C}$
- ▶ Wide 3 mm gap
  - Compatible with typical mechanical tolerances
- ▶ Unlimited floor life; MSL1
- ▶ AEC-Q101 automotive grade quality
  - Final tests include x-ray scanning and electrical
- ▶ Compact, surface-mount package
  - 5.5 mm x 4 mm x 4 mm
- ▶ Output current: 1.6 mA typical

### Applications / Market Segments:

- ▶ Optically transmissive encoder
  - High-temperature motor environments
- ▶ Industrial-slotted interrupter
  - Optical switch
- ▶ Automotive
  - Ignition locks
  - Adaptive headlights
  - Electrical vehicle battery compartments

Inductors



## IHCL Series

*Composite-Coupled Inductor  
Designed for SEPIC DC/DC  
Converters*

### Features:

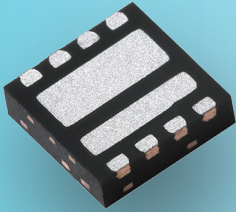
- ▶ Two inductors in one package with 94 % coupling ideal for SEPIC circuits
- ▶ IHLP® technology for excellent efficiency and performance
- ▶ AEC-Q200 qualified
- ▶ High-temperature operation: 155 °C continuous operation
- ▶ Improved size and efficiency over other technologies

### Applications / Market Segments:

- ▶ SEPIC converters for LED lighting applications



## MOSFETs



## SiZ340DT

*Lowest Low-Side On-Resistance at  $V_{GS} = 4.5 V$  Among Devices with Compatible Footprints*

### Features:

- ▶ 5 % efficiency improvement from previous generation
  - TrenchFET® Gen IV technology reduces  $R_{DS(on)}$  of low-side MOSFET by 60 % from previous generation
  - Reduces conduction and switching losses, increases power density
  - Immediate performance upgrade without changing PCB
  - MOSFETs run potentially 30 % cooler
- ▶ Enables best overall efficiency for applications up to 10 A
  - Improves light load and low current load efficiency
  - Optimized for duty cycles below 30 %
  - Preserves battery life of mobile devices, as they operate a light load a high percentage of the time
- ▶ Reduces PCB area required for MOSFETs
  - For 10 A to 15 A sockets, the compact 3 mm x 3 mm outline reduces PCB area by as much as 77 % compared to discretes
  - Reduces the number of devices in parallel
  - High efficiency at high switching frequencies enables smaller inductors and capacitors

### Applications / Market Segments:

- ▶ Power stages for synchronous buck converters operating with 5 V to 19 V input, under a wide range of duty cycles and switching frequency beyond 450 kHz
  - Narrow voltage DC charging, reference designs, graphic cards, POL for DC/DC modules, telecom embedded DC/DC, server / computer system power, DC/DC for FPGA and automation

## Capacitors



### MKP1848C

*A Compact Version of the  
DC-Link Best Seller MKP1848*

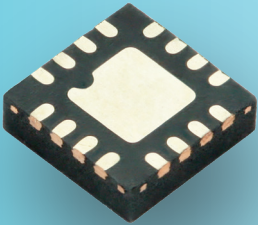
#### Features:

- ▶ High-density DC-link capacitor (more C per volume)
- ▶ High ripple current
- ▶ Long useful life: up to 100 000 h at  $U_{NDC}$  and 70 °C
- ▶ High C-values
- ▶ Environmentally friendly

#### Applications / Market Segments:

- ▶ Power inverters (PV, wind turbines)
- ▶ Battery chargers
- ▶ Motor drives
- ▶ Welding equipment
- ▶ Electric fencing
- ▶ LED drives
- ▶ UPS

### Power ICs



## SiP12109

### *Compact, High-Performance Buck Regulator*

#### Features:

- ▶ Maximum load: 4 A
- ▶ Supports single supply 4.5 V to 15 V input voltage
- ▶ High-performance integrated FETs
- ▶ H/S at 45 mΩ, L/S at 26 mΩ
- ▶ Advanced current-mode COT control loop
  - Ultra-fast transient response
  - Excellent line / load regulation
  - All ceramic solution (No ESR)
  - Power-save-mode at light load with advanced ripple control
- ▶ Full protection set: OVP, OCP, UVP, OTP, SCP
- ▶ Vishay PowerCAD Simulator available
  - Free online simulation tool for microBUCK® DC/DC family
  - DC, transient, and start-up simulation
  - Efficiency analysis and optimization
  - Online component ordering and FAE support

#### Applications / Market Segments:

- ▶ Power for network processors, DSPs, FPGAs, and ASICs, industrial PCs, storage (SSD PCIE interface), ePOS, distributed power systems, home entertainment (TV and set-top boxes), IP cameras, servers, workstations, and general purpose 5 V and 12 V rail input applications



## **QUAD HiFREQ Series**

*MLCCs for RF Applications*

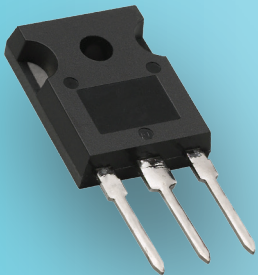
### **Features:**

- ▶ Ultra-stable high Q dielectric material
- ▶ Ultra-low ESR and ESL
- ▶ Very high serial and parallel resonance frequency (SRF, PRF)
- ▶ 0505 and 1111 cases sizes available

### **Applications / Market Segments:**

- ▶ MRI coils and generators
- ▶ RF instrumentation
- ▶ RF / microwave power amplifiers
- ▶ Mixers, precision timing circuits, oscillators
- ▶ Filter networks, impedance matching networks
- ▶ Medical
  - MRI
  - CT
  - X-ray
- ▶ Instrumentation
  - Network analyzers
  - RF measurement equipment
- ▶ Telecommunications
- ▶ Military
  - Radar
  - Communications

### MOSFETs



## SiHG47N60E / E Series

*Low Conduction and Switching Losses for Use in a Wide Range of Products*

### Features:

- ▶ High performance
  - Low  $R_{DS(on)}$ ,  $Q_{SW}$  and  $C_{oss}$  for high efficiency
    - » Low FOM (low  $R_{DS(on)} \times Q_g$ )
    - » Low input capacitance
    - » Avalanche test rated
- ▶ RoHS-compliant and halogen-free TO-247 packaging

### Applications / Market Segments:

- ▶ SMPS
  - Hard-switched topologies
- ▶ PFC topology
- ▶ Telecommunications
  - Servers
- ▶ Industrial
  - Battery chargers
  - UPS
- ▶ Renewable energy
  - Central and string inverters

## Resistors



### WCR

*Water-Cooled Power Resistor,  
Up to 2500 W, for Use in  
Large Drives and HVDC / SVC  
Applications*

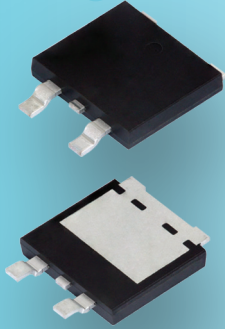
#### Features:

- ▶ Very high power dissipation up to 2500 W at 60 °C water inlet temperature and 5 l/min
- ▶ High pulse tolerant: up to 5000 W for 10 s
- ▶ Non-inductive option: below 250 nH

#### Applications / Market Segments:

- ▶ Snubber and DC grading resistor for HVDC / SVC
- ▶ Discharge and balancing resistor
- ▶ Snubber resistor for drives and large drives
- ▶ Filter resistor

## Rectifiers



### TMBS<sup>®</sup> in SMPD

*Low-Profile SMPD Package for Commercial Applications*

#### Features:

- ▶ Very low-profile, surface-mount SMPD package with typical height of 1.7 mm
- ▶ 45 V, 50 V, 60 V, 100 V, and 120 V Trench MOS Barrier Schottky technology
- ▶ Low forward voltage drop down to 0.4 V (typical) at 15 A, 125 °C
- ▶ Maximum junction temperature of 150 °C

#### Applications / Market Segments:

- ▶ Switching power supplies
- ▶ Tablet / PC chargers
- ▶ Smart phone chargers



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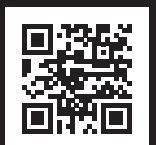
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