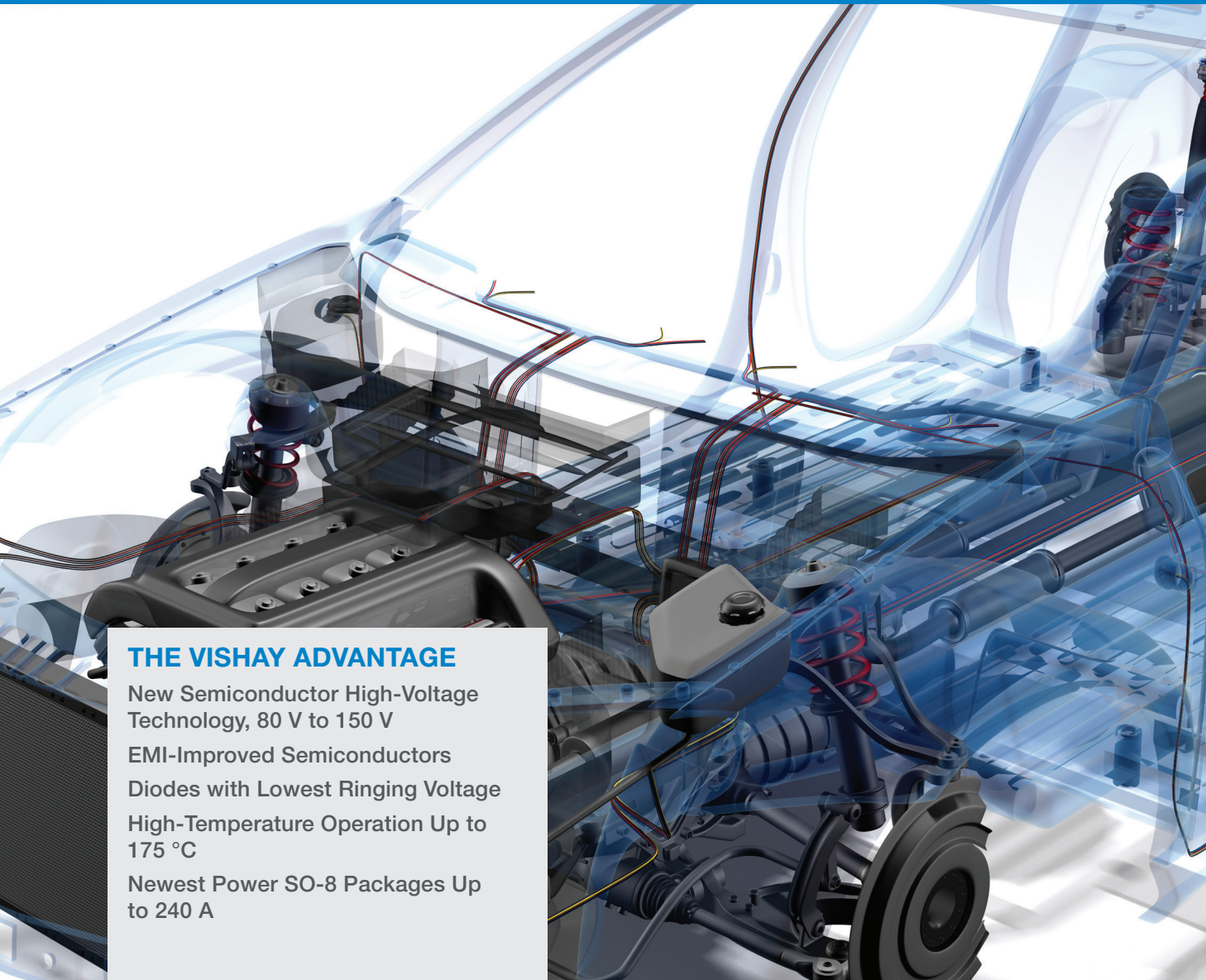




Key components for 48 V_{DC} BOARDNET



**Integrated Starter
Generators
(48 V_{DC})**



**DC/DC
Converters,
Bidirectional
(48 V_{DC})**



**HVAC
(E-Compressor
for 48 V_{DC})**



THE VISHAY ADVANTAGE

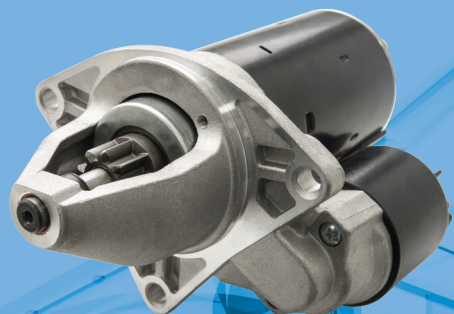
New Semiconductor High-Voltage
Technology, 80 V to 150 V

EMI-Improved Semiconductors
Diodes with Lowest Ringing Voltage
High-Temperature Operation Up to
175 °C

Newest Power SO-8 Packages Up
to 240 A



Integrated Starter Generators (48 V_{DC})



MOSFETs

N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 80 V, 7 mΩ

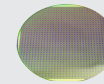


[SQJA80EP](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Ultra-low R_{DS(on)}, thermally enhanced PowerPAK® 8x8L replaces D²PAK in less than half of the area

MOSFETs

N-Channel MOSFETs as Known Good Die, 100 V, 3.6 mΩ



[SQC260N10_3m6KDG](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Efficient KGD packaging allows high power density and reduced parasitics

RESISTORS

Power Metal Strip® Meter Shunt Resistor, Very Low Value (Down to 100 μΩ)



[WSMS2908](#)

- Extremely low resistance values: 100 μΩ to 1000 μΩ
- 3 W power capability with sensing terminals to mount on PCB

NON-LINEAR RESISTORS

SMD Glass-Protected NTC Thermistors



[NTCS...e3](#)

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

INDUCTORS

EMI Filters with Flat Copper Wire, SMD or Leaded Up to 260 A



[Customized EMI Filters](#)

- Customized solutions for 48 V applications, low DCR, high current

CERAMIC CAPACITORS

AEC-Q200 Qualified, Broad Range of Sizes and Working Voltages, C0G (NPO), X7R, and X8R

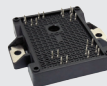


[VJ...31X RoHS Automotive MLCCs](#)

- RoHS and Green compliant parts available
- AgPd termination available for epoxy bonding

MODULES

MOSFET H Bridges or B6 Bridges Based on Customer Specifications



[EMIPAK 1B/2B Customized](#)

- 80 V to 100 V MOSFET power modules

FILM CAPACITORS

DC-Link Polyester Film Capacitors, Operating Temperature Up to 150 °C, High Ripple Current



[MKT1820S](#)

- Low voltage DC-link capacitors with high-temperature capabilities
- Customized solutions for 48 V applications

RECTIFIERS

TVS Clamping Diodes, Up to 1.5 kW



[1.5 SMC Series](#)

- DO-214AB (SMCJ) package to protect ICs, MOSFETs, and signal lines of sensor units against voltage transients induced by inductive load switching and lightning

CERAMIC CAPACITORS

High Operating Temperature, Automotive Grade Leaded MLCC Capacitors



[HOTcap® K...H, A...R, K...R](#)

- High-reliability MLCC insert with wet build process
- High operating temperature (up to 175 °C for K...H and up to 160 °C for A...R and K...R), rated voltages: 50 V, 100 V, 200 V

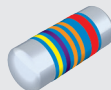


DC/DC Converters, Bidirectional (48 V_{DC})



RESISTORS

Professional High-Temperature Mini-MELF Resistors

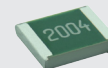


[MMA 0204 HT](#)

- Operating temperature up to 175 °C, power handling of 500 mW, high surge capability
- AEC-Q200 qualified, high overall stability $|\Delta R/R| \leq 0.1 \%$, intrinsically sulfur-resistant

RESISTORS

Thin Film Resistors, 4.7 Ω to 3.01 M Ω , 0402 to 1210 Case Sizes, 50 V to 200 V



[TNPW e3](#)

- Excellent stability $|\Delta R/R| \leq 0.05 \%$ after 1000 h at 70 °C, 0402 to 1210 case sizes

INDUCTORS

Low-Profile, High-Current IHLP® Inductors

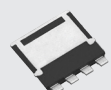


[IHLP-8787MZ-5A](#)

- Highest current composite inductor available
- High temperature operation up to 155 °C, shielded construction

MOSFETs

N-Channel MOSFETs in 8 mm x 8 mm PowerPAK® 8x8L, 80 V, 150 A, 2.7 m Ω

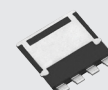


[SQJQ480E](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Ultra-low $R_{DS(on)}$, thermally enhanced package reduces board area

MOSFETs

N-Channel MOSFETs in 8 mm x 8 mm PowerPAK®, 40 V, 160 A, 1.2 m Ω

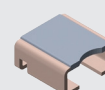


[SQJQ100EL](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Ultra-low $R_{DS(on)}$, thermally enhanced PowerPAK® 8x8L replaces D²PAK in less than half of the area

RESISTORS

Power Metal Strip® SMD Resistors, 4-Terminal, Low Values (Down to 0.0001 Ω)

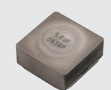


[WSK1216](#)

- High power rating of 3 W to 5 W with TCR = 20 ppm/K
- Very low resistance values, 0.0001 Ω to 0.004 Ω , with tolerance of 1 %

INDUCTORS

Shielded SMD Low-Profile, High-Current IHLP® Inductors, EMI Filter, 155 °C, Low DCR

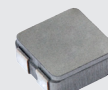


[IHLP-6767GZ-5A](#)

- Very high-current and high-temperature operation for filters

INDUCTORS

Coupled Inductors for SEPIC Converter



[IHCL-3232DZ-5A](#)

- High-temperature operation up to 155 °C
- Frequency range up to 5.0 MHz

INDUCTORS

EMI Filters with Flat Copper Wire as SMD or Leaded, Up to 260 A



[Customized EMI Filters](#)

- Customized solutions for 48 V applications, low DCR, high current

FILM CAPACITORS

DC-Link Polyester Film Capacitors, Operating Temperature Up to 150 °C, High Ripple Current



[MKT1820S](#)

- Low voltage DC-link capacitors with high-temperature capabilities
- Customized solutions for 48 V applications

FILM CAPACITORS

SMD Aluminum Capacitors, High Temperature Up to 150 °C, Low ESR



[260 CLA-V](#)

- High ripple current up to 1400 mA at 150 °C, capacitance up to 3300 μ F
- Useful life up to 2000 h at 150 °C, high vibration capability

CERAMIC CAPACITORS

X1/Y2 AC Line Rated Ceramic Disc Capacitors for Automotive Applications



[AY2](#)

- AEC-Q200 qualified, X1/Y2 safety rating according to IEC 60384-14, 3rd edition
- Proven to withstand 3000 temperature cycles from -55 °C to +125 °C



HVAC (E-Compressor for 48 V_{DC})



CERAMIC CAPACITORS

**High Operating Temperature,
Automotive Grade Leaded
MLCC Capacitors**



[HOTcap® K...H, A...R, K...R](#)

- High-reliability MLCC insert with wet build process
- High operating temperature (up to 175 °C for K...H and up to 160 °C for A...R and K...R), rated voltages: 50 V, 100 V, 200 V

NON-LINEAR RESISTORS

**SMD Glass-Protected NTC
Thermistors**



[NTCS...e3](#)

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

CAPACITORS MLCC

**AEC-Q200 Qualified, Broad
Range of Sizes and Working
Voltages, C0G (NPO), X7R,
and X8R**



[VJ...31X RoHS Automotive MLCCs](#)

- RoHS and Green compliant parts available
- AgPd termination available for epoxy bonding

CERAMIC CAPACITORS

**High Operating Temperature,
Automotive Grade Leaded
MLCC Capacitors**

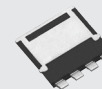


[HOTcap® K...H, A...R, K...R](#)

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8x8L, 80 V, 150 A, 2.7 mΩ**



[SQJQ480E](#)

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- Ultra-low R_{DS(on)}, thermally enhanced package reduces board area

INDUCTORS

**Low Profile, High Current
IHL® Inductors**



[IHL-8787MZ-5A](#)

- Highest current composite inductor available
- High temperature operation up to 155 °C, shielded construction

FILM CAPACITORS

**DC-Link Polyester Film
Capacitors, Operating
Temperature Up to 150 °C,
High Ripple Current**

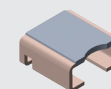


[MKT1820](#)

- Automotive general purpose capacitors with high temperature capabilities
- Capacitance up to 560 µF

RESISTORS

**Power Metal Strip® SMD
Resistors, 4-Terminal; Low
Value (Down to 0.0001 Ω)**



[WSK1216](#)

- High power rating of 3 W to 5 W with TCR = 20 ppm/K
- Very low resistance values, 0.0001 Ω to 0.004 Ω, with tolerance of 1 %

INDUCTORS

**Shielded EMI Filters Up to
190 A I_{DCR}, 2.2µH, Ultra-Low
DCR (0.22 mΩ)**



[IHL-2000VZ-5A](#)

- Very high-current and high-temperature operation for filters and energy storage

ALUMINUM CAPACITORS

**SMD Aluminum Capacitors,
High Temperature Up to
150 °C, Low ESR**



[260 CLA-V](#)

- High ripple current up to 1400 mA at 150 °C, capacitance up to 3300 µF
- Useful life up to 2000 h at 150 °C, high vibration capability