



+



Vishay Intertechnology, Inc.

Automotive

(Full Electric Vehicles (FEVs))



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





Automotive

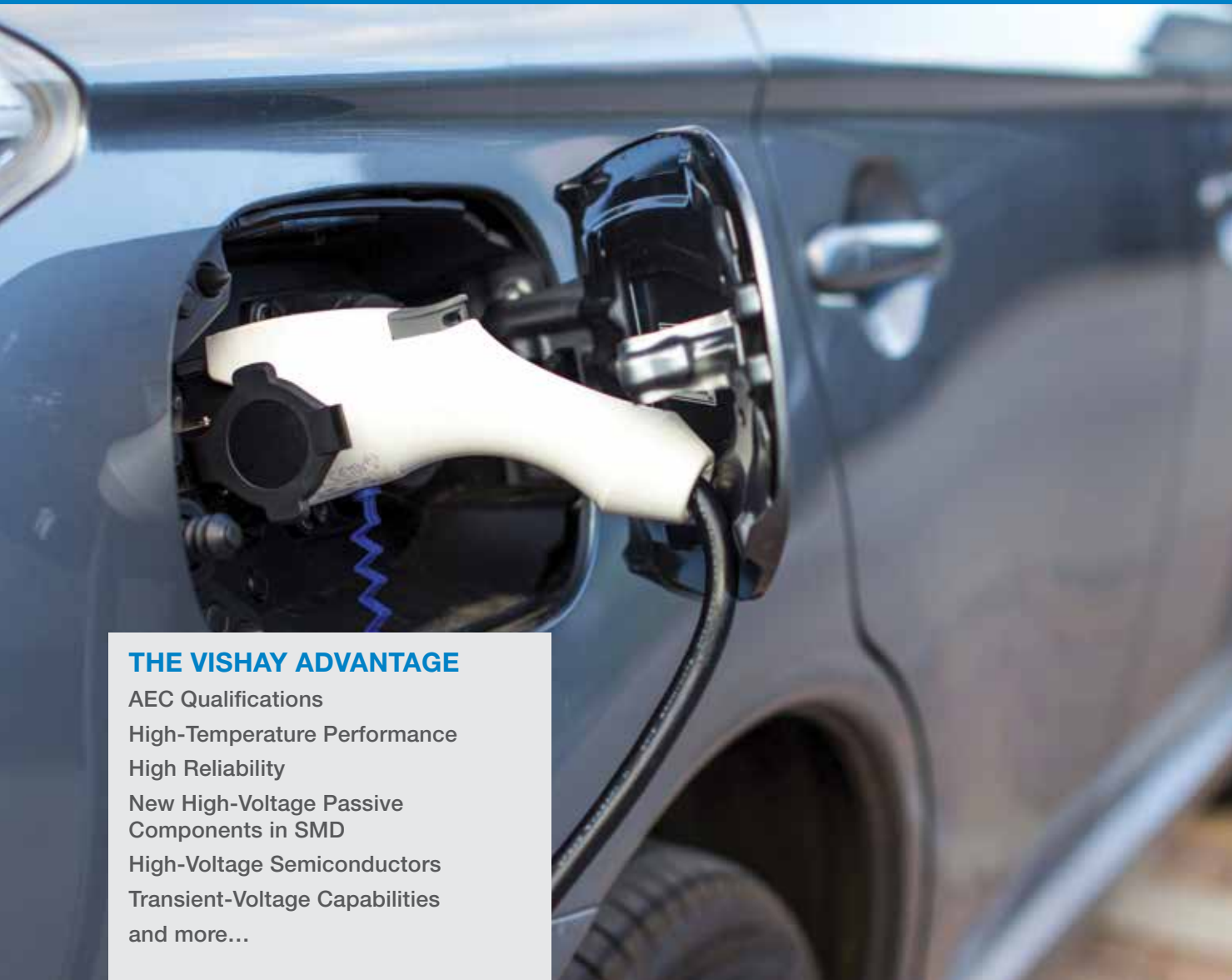
Full Electric Vehicles (FEVs)

| | |
|---------------------------------|---|
| Electrical Motor Drives (DC/AC) | 2 |
| Battery Management and DC/DC | 3 |
| On-Board Chargers | 4 |

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 FULL ELECTRIC VEHICLES (FEVs)



THE VISHAY ADVANTAGE

- AEC Qualifications
- High-Temperature Performance
- High Reliability
- New High-Voltage Passive Components in SMD
- High-Voltage Semiconductors
- Transient-Voltage Capabilities and more...

Electrical Motor Drives (DC/AC)



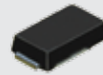
Battery Management and DC/DC



On-Board Chargers



Electric Motor Drives (DC/AC)


RECTIFIERS
Surface-Mount Ultrafast Avalanche Rectifiers

[AU1PK](#)

- Very low profile – typical height of 1.0 mm
- AEC-Q101 qualified

RESISTORS
High-Stability Thin Film Flat Chip Resistors

[TNPW e3](#)

- Excellent overall stability, endurance < 0.05 %, resistance range from 10 Ω to 3 M Ω
- AEC-Q200 qualified, sulfur resistant, halogen-free

CERAMIC CAPACITORS
Radial Leaded Multilayer Ceramic Capacitors for Automotive Applications

[K...V](#)

- High-reliability MLCC insert with wet build process
- High operating temp. up to 160 °C, rated voltages: 50 V, 100 V, and 200 V

RESISTORS
Surface-Mount Molded Divider, High Voltage

[CDMH4527](#)

- High voltage up to 3000 V, sulfur resistant
- Automotive-compliant terminations with wide range of resistance values and ratios

CERAMIC CAPACITORS
AEC-Q200 Qualified, Broad Range of Sizes and Working Voltages, C0G (NP0), X7R, and X8R

[VJ...31/VJ...34 Automotive MLCC](#)

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

NON-LINEAR RESISTORS
NTC Thermistors, Low Thermal Gradient Lug Sensors

[NTCALUG02A](#)

- Low thermal gradient surface temperature sensor
- High insulation voltage

RESISTORS
Power Thick Film Resistor

[LTO100](#)

- TO-247 package: 100 W at 25 °C case temperature and heatsink mounted
- Compliant to RoHS AEC-Q200

INDUCTORS
Custom Magnetics


- Many custom designs for low-loss, high-efficiency filtering and transformers
- Litz wire and flat conductor designs available for best efficiency

FILM CAPACITORS
Metallized Polypropylene Film Capacitors, DC-Link Capacitor

[MKP1848](#)

- High-performance DC-link capacitor with high RMS current capabilities
- Automotive Grade, AEC-Q200 compliant

FILM CAPACITORS
Customized High-Voltage DC-Link Capacitor

[MKP1849](#)

- High capacitance up to 6 mF, excellent V/I pulse performance
- Operating voltage up to 1200 V_{DC}, operating temperature up to 105 °C

RESISTORS
Precision Automotive Thin Film Chip Resistors, AEC-Q200 Qualified, 2 kV ESD Rating

[PAT](#)

- Moisture-resistant tantalum nitride film and added silicon nitride layer for ESD
- Wide resistance range from 2.5 Ω to 3 M Ω with tolerance down to ± 0.1 %


View datasheets for these products
www.vishay.com/ref/et3au10a

Battery Management and DC/DC



CERAMIC CAPACITORS

X1 / Y2 AC Line Rated Disc Capacitors for Automotive Applications




[AY2](#)

- AEC-Q200 qualified, X1 / Y2 safety rating according to IEC 60384-14, 3rd edition
- Proven to withstand more than 2000 temp. cycles from -55 °C to +125 °C

RESISTORS

Professional Wide-Terminal Thin Film Chip Resistors



[MCW 0406 AT](#)

- Power handling up to 300 mW, extreme thermocycling robustness up to 3000 cycles
- Avail. to 1 Ω, TCR to 25 ppm/K and 0.1 % tol., AEC-Q200 qualified, sulfur resistant

TANTALUM CAPACITORS

Solid Tantalum Surface-Mount Chip Capacitors, TANTAMOUNT® Molded Case, Automotive Grade



[TH4](#)

- High-temperature molded tantalum capacitor, HI-TMP® up to 175 °C
- Applications: filtering, decoupling, LDO-regulators, braking systems

DIODES

Surface-Mount TRANSZORB® Transient Voltage Suppressors




[1.5SMC86A](#)

- 1500 W peak pulse power capability with a 10/1000 μs waveform
- AEC-Q101 qualified

FILM CAPACITORS

DC Film Capacitors, MKT Radial Potted Type




[MKT1820](#)

- Automotive general purpose MKT capacitor with high-temperature capabilities
- Featuring capacitance up to 560 μF

RESISTORS

Power Metal Strip® Battery Shunt Resistor, Very Low Value (100 μΩ, 125 μΩ, and 250 μΩ)



[WSBS8518](#)

- Extremely low resistance values: 50 μΩ to 1000 μΩ
- 36 W (850 A) power capability in an 8518 package

RESISTORS

Surface-Mount Power Resistor Thick Film Technology



[D2TO](#)

- AEC-Q200-qualified D²PAK TO-263 standard package, 20 W and 35 W at 25 °C case temperature
- High-pulse capability up to 10 J for short pulse, high-temp. soldering, RoHS comp.

INDUCTORS

Custom Filters

- Many options available for low-loss, high-efficiency filtering
- Litz wire and flat conductor designs available for best efficiency

CERAMIC CAPACITORS

Axial Leaded Multilayer Ceramic Capacitors for Automotive Applications




[A...V](#)

- High-reliability MLCC insert with wet build process
- High operating temp. up to 160 °C, rated voltages: 50 V, 100 V, and 200 V

NON-LINEAR RESISTORS

SMD Glass Protected NTC Thermistors




[NTCS...e3](#)

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

ALUMINUM CAPACITORS

Advanced Temperature Range Up to 150 °C




[160 CLA](#)

- High ripple current: up to 1.4 A at 150 °C / 100 kHz
- Useful life up to 2000 h at 150 °C

NON-LINEAR RESISTORS

NTC Thermistors, Standard Lug Sensors



[NTCALUG](#)

- Robust surface temperature sensor
- AEC-Q200 compliant, UL recognized


View datasheets for these products
www.vishay.com/ref/et3au10b



On-Board Chargers




DIODES

Surface-Mount TRANSZORB® Transient Voltage Suppressors 

[1.5SMC540A](#)

- 1500 W peak pulse power capability with a 10/1000 μ s waveform
- AEC-Q101 qualified


RESISTORS

Wirebondable Gate Resistor for IGBT Applications 

IGBR

- Back contact resistor for single wirebond assembly with power rating up to 4 W
- Available case sizes from 0202 to 2010

CERAMIC CAPACITORS

AEC-Q200 Qualified, Broad Range of Sizes and Working Voltages, C0G (NP0), X7R, and X8R 

[VJ...31/VJ...34 Automotive MLCC](#)

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


RESISTORS

Precision Thin Film Chip Resistor Array, Superior Moisture Resistivity 

[ACAS...AT](#)

- Arbitrary resistance ratio up to 1:20, superior tracking stability over lifetime
- Relative TCR down to ± 5 ppm/K (tracking), AEC-Q200 qualified, sulfur resistant

FILM CAPACITORS

Interference Suppression Film Capacitor, Class X2 MKT 310 V_{AC}, High-Stability Grade 

[F1772](#)

- RFI X2 film capacitors for continuous across-the-line and series impedance app.
- Withstanding 85 °C / 85 % RH for 1000 h at 240 V_{AC}


RESISTORS

Surface-Mount Power Resistor Thick Film Technology 

[D2TO20](#)

- AEC-Q200-qualified D²PAK TO-263 standard package, 20 W and 35 W at 25 °C case temperature
- High-pulse capability up to 10 J for short pulse, high-temp. soldering, RoHS comp.


CERAMIC CAPACITORS

X1 / Y2 AC Line Rated Disc Capacitors for Automotive Applications 

[AY2](#)

- AEC-Q200 qualified, X1 / Y2 safety rating according to IEC 60384-14, 3rd edition
- Proven to withstand more than 2000 temp. cycles from -55 °C to +125 °C


RESISTORS

Power Metal Strip® SMD Resistors, Very High Power (to 3 W), Low Value (to 0.0005 Ω) 

[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 %


INDUCTORS

2 kW to 5 kW Standard Power Planar Transformer and Custom Power Planar Inductor 

[PLA](#)

- Planar and flat wire designs available for improved efficiency
- Power supply topology: full-bridge; push-pull; half-bridge; forward


FILM CAPACITORS

Customized High-Voltage DC-Link Capacitor 

[MKP1849](#)

- High capacitance up to 6 mF
- Operating voltage up to 1200 V_{DC}, operating temperature up to 105 °C


FILM CAPACITORS

Interference Suppression Film Capacitors, MKP Radial Potted Type 

[MKP339](#)

- RFI X2 capacitor for standard across-the-line applications
- Automotive Grade with AEC-Q200 compliance

NON-LINEAR RESISTORS

SMD Glass Protected NTC Thermistors 

[NTCS...e3](#)

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

View datasheets for these products www.vishay.com/ref/et3au10c





+



ABOUT TTI, INC.

TTI Inc., a subsidiary of Berkshire Hathaway, is a world leading specialist distributor of connectors and passive, electromechanical and discrete components. TTI's philosophy is "Lead by Design", and the company differentiates itself by focusing on people, parts and processes. The company's aim is to become the distributor of choice for customers and suppliers in Europe alike by introducing new product technologies and by stocking broad and deep across its franchise base. TTI employs sophisticated inventory management processes which ensure that the company can react immediately to changes in component demand due to fluctuating markets and supply chains. For further information about TTI, please refer to: www.ttieurope.com.



A WORLD OF
SOLUTIONS

TTI, INC.

Ganghoferstr. 34
82216 Maisach-Gernlinden
Germany
Tel.: +49 (0)8142 6680 – 0
Fax: +49 (0)8142 6680 – 490
Email: sales@de.ttiinc.com
www.ttieurope.com