

電気自動車 (FEVs) 用主要部品



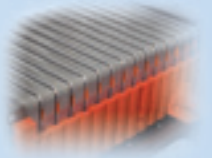
THE VISHAY ADVANTAGE

- AEC準拠
- 高温動作対応
- 高信頼性
- SMDパッケージの高電圧受動部品
- 高耐圧半導体
- 優れた過渡電圧性能

電気モータードライブ
(DC/AC)



バッテリーマネジメントと
DC/DC



車載充電器



電気モータードライブ (DC/AC)



<p>CERAMIC CAPACITORS</p> <p>High Operating Temperature, Automotive Grade Leaded MLCC Capacitors</p> <p>HOTcap® K...H, A...R, K...R</p> <ul style="list-style-type: none"> • 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 	<p>RESISTORS</p> <p>Surface-Mount Molded Dividers, High-Voltage</p> <p>CDMx</p> <ul style="list-style-type: none"> • High voltage up to 3000 V, sulfur-resistant • Automotive compliant terminations, wide range of resistance values and ratios <p><i>*Preliminary</i></p>	<p>RESISTORS</p> <p>Wirebondable Gate Resistors for IGBT Applications</p> <p>IGBR</p> <ul style="list-style-type: none"> • Back-contact resistors for single wirebond assembly with power ratings up to 4 W • Available case sizes from 0202 to 2010
<p>NON-LINEAR RESISTORS</p> <p>NTC Thermistors, Low Thermal Gradient Lug Sensors</p> <p>NTCALUG02A</p> <ul style="list-style-type: none"> • Low thermal gradient surface temperature sensor • High insulation voltage 	<p>INDUCTORS</p> <p>EMI Filters with Flat Copper Wire as SMD or Leaded Up to 260 A</p> <p>Customized EMI Filters</p> <ul style="list-style-type: none"> • Customized solutions for 48 V applications, low DCR, high current 	<p>FILM CAPACITORS</p> <p>Metallized Polypropylene DC-Link Film Capacitors, 450 V_{DC} to 1000 V_{DC}</p> <p>MKP1848S</p> <ul style="list-style-type: none"> • OBC and HEV inverter DC link • High ripple current and high capacitance up to 100 µF
<p>MODULES</p> <p>Trench FS IGBT Modules</p> <p>VS-GC30C065TB</p> <ul style="list-style-type: none"> • Optimized for use with FRED Pt® Gen 4 ultrafast diodes • Low collector-to-emitter voltages, extremely low conduction losses 	<p>FILM CAPACITORS</p> <p>High Performance DC-Link Capacitors for Automotive Traction Applications (EV/HEV)</p> <p>MKP1849</p> <ul style="list-style-type: none"> • High voltage, high capacitance, high ripple current 	<p>RECTIFIERS</p> <p>600 V, 30 A Hyperfast Rectifiers</p> <p>VS-ETH3006SHM3</p> <ul style="list-style-type: none"> • TO-263AB (D²PAK) power package optimized for fast battery charging systems and main inverter applications up to 20 kW

バッテリーマネージメントと DC/DC



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

RESISTORS

Long-Side Termination Thick Film Resistors, 250 mW to 2 W in 0406 to 1225 sizes, 1 Ω - 1 MΩ




[RCL e3](#)

- Operating temperature up to 155 °C , TCR = 100 ppm/K to 200 ppm/K

MOSFETS

Dual N-Channel MOSFETs in 5 mm x 6 mm PowerPAK SO-8L, 40 V, 33 mΩ




[SQJ946EP](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Optimized for high-frequency DC/DC applications, lower switching losses

RESISTORS

High Pulse Load Carbon Film MELF Resistors, Pulse Handling Up to 3 kW, ESD Up to 16 kV




[CMB 0207](#)

- 1.0 W rated dissipation in MELF 0207 package
- Resistance from 2.2 Ω to 1.5 MΩ

RESISTORS

Thin Film Chip Resistors, Resistance = 1 Ω to 10 MΩ, TCR = 25 ppm/K to 50 ppm/K




[MCT 0603 AT](#)

- Tolerance = 0.5 % to 1 %
- Power rating 125 mW

RESISTORS

SMD Power Resistors, 35 W, 10 mΩ to 550 KΩ, Non-Inductive




[D2TO35](#)

- TO-263 package, TCR = 150 ppm/K
- AEC-Q200 qualified

DIODES

400 W PAR® TVS Diodes, Voltage = 6.8 V to 43 V, T_j = 185 °C




[TPSMA6.8](#)

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

RESISTORS

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




[WSBS8518](#)

- High power to resistor size ratio
- Low thermal EMF, < 3 μV / °C, for accurate current sensing

NON-LINEAR RESISTORS

NTC Thermistors, Mini Lug Sensors




[NTCALUG03](#)

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

DIODES

500 mW Zener diodes in < 0.6 mm low-profile MicroSMF package



[PLZ Series Zener Diode](#)

- Excellent stability for voltage stabilization and reference voltage generation
- AEC-Q101 qualified versions available




車載充電器



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


RESISTORS
Power Resistors, 100 W, 15 mΩ to 1 MΩ, Non-Inductive

[LTO100](#)

- TO-247 package, TCR = 150 ppm/K
- AEC-Q200 qualified


RESISTORS
Wirebondable Gate Resistor for IGBT Applications

[IGBR](#)


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

INDUCTORS
High Isolation as Press-Fit or SMD Version Flyback Transformers

[Customized Transformers](#)


- Customized solutions up to kW ranges

RESISTORS
High Pulse Load Carbon Film MELF Resistors, Pulse Handling Up to 3 kW, ESD Up to 16 kV

[CMB 0207](#)


- 1.0 W rated dissipation in MELF 0207 package
- Resistance from 2.2 Ω to 1.5 MΩ

RECTIFIERS
15 A, 1200 V FRED Pt® Hyperfast Rectifiers

[VS-15ETU12HN3](#)


- AEC-Q101 qualified, hyperfast and soft recovery time with reduced Q_{rr} in TO-220AC package
- 175 °C maximum operating temperature

NON-LINEAR RESISTORS
NTCALUG, Custom Capabilities NTC LUG Ring Tongue

[NTCALUG](#)

- Minimum breakdown voltages: 500 V_{AC} Up to 3000 V_{AC}

MODULES
Press-Fit Semiconductor Power Modules for IGBT or MOSFET Drives

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

- 600 V to 650 V, or lower voltages upon customer request

RESISTORS
SMD Power Resistors, 35 W, 10 mΩ to 550 kΩ, Non-Inductive

[D2TO35](#)


- TO-263 package, TCR = 150 ppm/K
- AEC-Q200 qualified

RESISTORS
Surface-Mount Molded Dividers, High-Voltage


[CDMx](#)

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

**Preliminary*

INDUCTORS
1 kW to 3 kW Standard Power Planar Transformers and Custom Power Planar Inductors

[Planar Series](#)

- Planar and flat wire designs available for improved efficiency

FILM CAPACITORS
Interference Suppression Film Capacitors, MKP Radial Potted Type

[MKP339](#)

- RFI X2 capacitor for standard across-the-line applications
- Automotive grade, AEC-Q200 compliant

世界一の信頼性、高性能MELF薄膜抵抗器



ビシェイ社は車載市場向けに、優れた精度、安定性、信頼性、パルス負荷耐量等の厳しい要件を満たしたMELF抵抗器を25年以上に亘り供給しています。円筒形のMELFは、実装面積に対して最適化された定格電力とパルス負荷耐量を提供します。継続的な開発によって、より改善された長期的安定性と耐湿性、+ 175 °Cの高温動作を実現しています。

主な製品の特徴:

- 予測可能な部品性能
- ゼロデフェクトを目指す品質活動
- 厳しい動作環境に対応
- 長期安定性
- 湿耐性
- MM_HVシリーズは1 kvまでの動作電圧
- 鉛フリーアセンブリプロセスでの温度サイクル
- 500 Vまでの絶縁電圧

認証

- EN 140401-803
- AEC-Q200

すべての製品は完全に鉛フリーで、RoHS への完全準拠を含むGlobal Automotive Declarable 物質リスト (GADSL) に対応します。

温度係数, 許容差、および安定性

±5ppm/Kまでの抵抗温度係数、± 0.02 %までの許容差での製品の提供が可能です。長期安定性を特長とする高精度 MELF抵抗器の最大抵抗値変化 ($\Delta R/R$) は、8000時間で < ± 0.05 %です。

パルス負荷耐量

MELF抵抗器のもう一つの特徴としては、様々な過負荷状況に対する信頼性です。薄膜技術を使った円筒形構造が、標準的な薄膜・厚膜チップ抵抗器と比べて優れたパルス負荷耐性を実現します。先端炭素皮膜技術で生産されたMELF抵抗器も供給可能で、1206パッドサイズで6 kVまでのESD耐量、2512パッドサイズで10 kVのサージ耐量を実現します。次の図が示すように、薄膜やカーボンフィルムMELF抵抗器は、厚膜チップ抵抗器、薄膜チップ抵抗器よりも遥かに優れたパルス負荷耐量を提供します。

技術的な質問に関しては melf@vishay.com までご連絡下さい。

