Automotive/Transportation
Off-Road Equipment
The Engineer's Toolbox highlights, by market application, some innovative components Vishay manufactures that help design engineers develop superior end products. We recognize that offering unique component solutions helps improve the performance of next-generation devices, overcome technical barriers, and create new markets.

More information on the Engineer's Toolbox, including product datasheet links, can be found at www.vishay.com/ref/et2. For inquiries, please contact your local sales representative.
オフロード車両向け
主要部品

THE VISHAY ADVANTAGE
AEC準拠
頑丈な設計
高信頼性
耐久性
長寿命
RESISTORS, VARIABLE
981 HE Throttle Position Sensor
Non-Contacting Technology: Hall Effect
Features
• Accurate linearity down to: ± 0.5 %
• Designed for applications in harsh environments
• Spring-loaded types available

RESISTORS, NON-LINEAR
NTCS0603E3
Glass-Protected SMD 0603 NTC Thermistors
Features
• Tolerance on $R_{25}$ down to 1 %, and on $B_{25/85}$ down to 1 %
• High operating temperature: up to 150 °C
• AEC-Q200 qualified

OPTOELEMENTS
TCUT1300
Compact Transmissive Sensor
Features
• Single- and dual-channel
• Wide gap of 3 mm
• High temperature operation: up to 105 °C
• Compact surface-mount package

OPTOELEMENTS
TCNT2000
Reflective Sensor in Miniature SMD Package
Features
• Range from 0.2 mm to 5 mm
• Integrated visible light blocking filter
• Dimensions: 3.4 mm (L) x 2.7 mm (W) x 1.5 mm (H)

MOSFETs
SQJ461EP-T1-GE3
- 60 V P-Channel PowerPAK® SO-8L: 0.016 Ω, 30 A
Features
• AEC-Q101 qualified
• 5 mm x 6 mm, 30 V p-channel for any high-side load switch in automotive
• 175 °C maximum temperature

DIODES
TPSMA
400 W Surface-Mount PAR® TVS
Features
• Junction passivation optimized design passivated anisotropic rectifier technology
• $T_{j} = 185$ °C capability; suitable for high-reliability and automotive requirements
• Available in unidirectional polarity only
• 400 W peak pulse power capability with 10/1000 μs waveform

RESISTORS, VARIABLE
981 HE Throttle Position Sensor
Non-Contacting Technology: Hall Effect
Features
• Moisture-resistant tantalum nitride thin film chip resistor
• Wide resistance range from 10 Ω to 3 MΩ; tolerance down to 0.1 %
• 0.05 % stability at 2000 h, 70 °C
• AEC-Q200 qualified

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### RESISTORS, VARIABLE

**34 THE**  
Bushing Mount Hall Effect Sensor  
**Features**  
- 准確な線形性をもつ \( \pm 0.5\% \)  
- 長寿命: サーボ用 50 M サイクル、ライニング用 10 M サイクル  
- 全電気角は 360°まで  
- 要求される長い寿命を設計

### RESISTORS, NON-LINEAR

**NTHS0603**  
SMD NTC 0603 Chip Thermistor  
**Features**  
- たんタル nitride fi lm  
- 1000 h, 125 ºC の高安定性 0.05 %  
- 5 ppm/ºC のTCR 記録  
- 比率の許容差 0.05 %

### CAPACITORS

**VJ...31/VJ...34**  
AEC-Q200 資格 マルチレイヤー セラミック クイチ  
**Features**  
- COG (NP0), X7R, and X8R 電気率  
- 案内尺寸: 0402 to 1812; 電圧上限まで 3000 V  
- 機器温度上限 +175 °C (above +125 °C derating)  
- AgPd 終端はエポキシ接続に使用できます

### OPTOELECTRONICS

**VEMT3700**  
高速 Photo transistor in PLCC2 Package  
**Features**  
- 450 nm から 1080 nm の Spectral sensitivity  
- 半角 60°  
- Collector light current, typical, 0.5 mA  
  \( \text{with } E_x = 1 \text{ mW/cm}^2 \)

### RECTIFIERS

**S1G**  
400 V, 1 A Standard Rectifier in SMA  
**Features**  
- Glass-passivated chip technology  
- Ideal for automated placement  
- Meets MSL level 1  
- RoHS-compliant

### DIODES

**BZX84Bxxx**  
Silicon Planar Small-Signal Zener Diode  
**Features**  
- ディオード電圧は国際 E 24 standard  
- Standard Zener voltage tolerance is ± 5 %;  
  replace “C” with “B” for 2 % tolerance  
- AEC-Q101 資格  
- RoHS-compliant
### INDUCTORS
**IHLP-1616AB**  
Low-Profile, High-Current IHLP® Inductor  
**Features**  
- AEC-Q200 qualified  
- Shielded construction  
- Handles high transient current spikes without saturation  
- Ultra-low buzz noise due to composite construction

### RECTIFIERS
**US1G**  
400 V, 1 A Ultrafast Rectifier in SMA  
**Features**  
- Junction passivation optimized design passivated anisotropic rectifier technology  
- $T_J = 185\, ^\circ C$ capability; suitable for high-reliability and automotive requirements  
- Available in unidirectional polarity only  
- 3000 W peak pulse power capability with a 10/1000 $\mu$s waveform

### OPTOELECTRONICS
**VLMW41R1T1**  
White LED in PLCC-2 Package Based on InGaN Technology  
**Features**  
- Typical color temperature: 5500 K  
- Luminous intensity of 180 mcd to 450 mcd  
- Viewing angle: ±60°  
- Operating temperature from 40 °C to 100 °C

### RESISTORS
**MM_/SMM**  
Professional Thin Film MELF Resistors  
**Features**  
- AEC-Q200 qualified, automotive grade  
- Available from 0R1 to 15M  
- TCR down to 25 ppm/K  
- Unrivaled pulse load robustness

### DIODES
**3KASMC24**  
3000 W Surface-Mount PAR® TVS  
**Features**  
- Junction passivation optimized design passivated anisotropic rectifier technology  
- $T_J = 185\, ^\circ C$ capability; suitable for high-reliability and automotive requirements  
- Available in unidirectional polarity only  
- 3000 W peak pulse power capability with a 10/1000 $\mu$s waveform

### RESISTORS, VARIABLE
**P11/PE30**  
Potentiometers  
**Features**  
- 12.5 mm and 19.7 mm single-turn panel controls  
- Tested according to CECC 41000 or IEC 60393-1  
- RoHS-compliant  
- High power and versatile options

### OPTOELECTRONICS
**TCUT1300X01**  
Compact Transmissive Sensor  
**Features**  
- Dual channel  
- Wide gap of 3 mm  
- High-temperature operation up to 105 °C  
- Compact surface-mount package

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**主要ウェブサイト**  
AEC検証製品概要  
www.vishay.com/doc?49923  
車載グレード品概要  
www.vishay.com/doc?49924  

**アプリケーション詳細情報**  
ディーゼルECUと燃料噴射ドライバ  
www.vishay.com/applications/automotive/diesel_ecuandfuelinjextordrivers/  
電動パワーステアリング (EPS)  
www.vishay.com/applications/automotive/eps_electricpowersteering/  
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HVAC温度調節器  
www.vishay.com/applications/automotive/hvac_climatecontrol/  

**デザインサポートツール**  
熱シミュレーションツール、性能計算ツール、SPICEモデル、3Dモデル  
www.vishay.com/how/design-support-tools/  
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