

## パワートレイン 噴射制御と燃料ポンプ向けの主要部品



直接噴射制御



圧電注入制御



燃料ポンプ制御  
(BLDC)







### THE VISHAY ADVANTAGE

- AEC準拠
- 高温動作対応
- 高信頼性
- 薄型
- 長寿命
- 高電圧対応SMD構成部品

## 直接噴射制御



<p>ALUMINUM CAPACITORS</p> <p><b>SMD Aluminum Capacitors, High Temperature Up to 150 °C, Low ESR</b></p>  <p><a href="#">260 CLA-V</a></p> <ul style="list-style-type: none"> <li>• High ripple current up to 1400 mA at 150 °C, capacitance up to 3300 <math>\mu</math>F</li> <li>• Useful life up to 2000 h at 150 °C, high vibration capability</li> </ul>	<p>RESISTORS</p> <p><b>Precision Thin Film Chip Resistor Arrays, Superior Moisture Resistivity</b></p>  <p><a href="#">ACAS0612 AT Precision</a></p> <ul style="list-style-type: none"> <li>• Resistance ratio up to 1:20, superior tracking stability over lifetime</li> <li>• Relative TCR to <math>\pm 5</math> ppm/K (tracking), AEC-Q200 qualified, sulfur-resistant</li> </ul>	<p>MOSFETS</p> <p><b>Dual N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 60 V, 12 m<math>\Omega</math></b></p>  <p><a href="#">SQJB60EP</a></p> <ul style="list-style-type: none"> <li>• AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation</li> <li>• Dual configuration in thermally enhanced PowerPAK® SO-8L saves board space</li> </ul>
<p>RECTIFIERS</p> <p><b>200 V, 2 x 3 A Fred Pt® Hyperfast Rectifiers</b></p>  <p><a href="#">VS-6CSH02HM3</a></p> <ul style="list-style-type: none"> <li>• Hyperfast recovery time, <math>t_{rr} = 27</math> ns, reduced <math>Q_{rr}</math>, and soft recovery</li> <li>• Low forward voltage drop and low leakage current</li> </ul>	<p>RECTIFIERS</p> <p><b>200 V, 2 x 3 A Fred Pt® Hyperfast Rectifiers</b></p>  <p><a href="#">VS-8DKH02</a></p> <ul style="list-style-type: none"> <li>• Dual 5x6 (FlatPAK™) package</li> <li>• <math>T_j = 175</math> °C</li> </ul>	<p>DIODES</p> <p><b>Surface-Mount PAR® TVS, 600 W, 6.8 V to 51 V</b></p>  <p><a href="#">TA6Fxx</a></p> <ul style="list-style-type: none"> <li>• Very low-profile DO-221AC (SlimSMA™) package - typical height of 0.95 mm</li> <li>• <math>T_j = 185</math> °C</li> </ul>
<p>RESISTORS</p> <p><b>Power Metal Strip® SMD Resistors, Wide Terminal, 1 m<math>\Omega</math> to 3 m<math>\Omega</math>, 1 W</b></p>  <p><a href="#">WSL0612</a></p> <ul style="list-style-type: none"> <li>• Low EMF, high temperature up to 170 °C</li> </ul>	<p>INDUCTORS</p> <p><b>Low-Profile, High-Current IHLP® Inductors</b></p>  <p><a href="#">IHLP-5050FD-5A</a></p> <ul style="list-style-type: none"> <li>• Excellent high-temperature performance and noise filtering</li> </ul>	<p>CERAMIC CAPACITORS</p> <p><b>AEC-Q200 Qualified, Broad Range of Sizes and Working Voltages, C0G (NPO), X7R, and X8R</b></p>  <p><a href="#">VJ...31X RoHS Automotive MLCCs</a></p> <ul style="list-style-type: none"> <li>• RoHS and Green compliant parts available</li> <li>• AgPd termination available for epoxy bonding</li> </ul>
<p>MOSFETs</p> <p><b>N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 80 V, 7 m<math>\Omega</math></b></p>  <p><a href="#">SQJA80EP</a></p> <ul style="list-style-type: none"> <li>• AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation</li> <li>• Ultra-low <math>R_{DS(on)}</math>, thermally enhanced PowerPAK® 8x8L replaces D<sup>2</sup>PAK in less than half of the area</li> </ul>	<p>NON-LINEAR RESISTORS</p> <p><b>SMD Glass-Protected NTC Thermistors</b></p>  <p><a href="#">NTCS...e3</a></p> <ul style="list-style-type: none"> <li>• Standard series, AEC-Q200 compliant</li> <li>• Glass-protected with soft terminations</li> </ul>	<p>MOSFETS</p> <p><b>Dual N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 40 V, 9.66 m<math>\Omega</math></b></p>  <p><a href="#">SQJB42EP</a></p> <ul style="list-style-type: none"> <li>• AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation</li> <li>• Dual configuration in thermally enhanced PowerPAK® SO-8L saves board space</li> </ul>

# 圧電注入制御



<p>RESISTORS</p> <p><b>Professional High-Temperature Mini-MELF Resistors</b></p>  <p><a href="#">MMA 0204 HT</a></p> <ul style="list-style-type: none"> <li>Operating temperature up to 175°C, power handling of 500 mW</li> <li>AEC-Q200 qualified, high overall stability <math> \Delta R/R  \leq 0.1\%</math>, intrinsically sulfur-resistant</li> </ul>	<p>MOSFETs</p> <p><b>N-Channel MOSFETs in DPAK Package Rated at 300 V, 10 A, 330 mΩ</b></p>  <p><a href="#">SQD10N30-330H</a></p> <ul style="list-style-type: none"> <li>AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation</li> <li>Up to 300 V operation in DPAK package</li> </ul>	<p>RECTIFIERS</p> <p><b>600 V, 2 A FRED Pt® Ultrafast Rectifiers</b></p>  <p><a href="#">VS-2EFU06HM3</a></p> <ul style="list-style-type: none"> <li>SMF (DO-219AB) package, operating temperature up to 175 °C</li> <li>Pulse current up to 30 A (6 ms)</li> </ul>
<p>RESISTORS</p> <p><b>Power Metal Strip® SMD Resistors, 0.5 mΩ to 500 mΩ, 1 W</b></p>  <p><a href="#">WSL2512</a></p> <ul style="list-style-type: none"> <li>2512 package size, also available in 2816 with 2 W</li> </ul>	<p>INDUCTORS</p> <p><b>High-Isolation Flyback Transformers in Press-Fit and SMD Versions</b></p>  <p><a href="#">Customized Transformers</a></p> <ul style="list-style-type: none"> <li>Customized solutions up to kW ranges</li> </ul>	<p>INDUCTORS</p> <p><b>Low-Profile, High-Current IHLP® Inductors</b></p>  <p><a href="#">IHLP-5050FD-5A</a></p> <ul style="list-style-type: none"> <li>Excellent high-temperature performance and noise filtering</li> </ul>
<p>NON-LINEAR RESISTORS</p> <p><b>SMD Glass-Protected NTC Thermistors</b></p>  <p><a href="#">NTCS...e3</a></p> <ul style="list-style-type: none"> <li>Standard series, AEC-Q200 compliant</li> <li>Glass-protected with soft terminations</li> </ul>	<p>INDUCTORS</p> <p><b>Low-Profile, High-Current IHLP® Inductors</b></p>  <p><a href="#">IHLP-2525CZ-5A</a></p> <ul style="list-style-type: none"> <li>Excellent high-temperature performance for DC/DC converter input and output filters</li> </ul>	<p>CERAMIC CAPACITORS</p> <p><b>AEC-Q200 Qualified, Broad Range of Sizes and Working Voltages, C0G (NPO), X7R, and X8R</b></p>  <p><a href="#">VJ...31X RoHS Automotive MLCCs</a></p> <ul style="list-style-type: none"> <li>RoHS and Green compliant parts available</li> <li>AgPd termination available for epoxy bonding</li> </ul>
<p>DIODES</p> <p><b>Unidirectional and Bidirectional Power SMD TVS Diodes, SMA Package, Up to 400 W</b></p>  <p><a href="#">SMAJxx</a></p> <ul style="list-style-type: none"> <li>DO-214AC (SMA) package, high-voltage clamping</li> <li>6.4 V to 231 V</li> </ul>	<p>ALUMINUM CAPACITORS</p> <p><b>Radial Miniature, High-Voltage, Up to 450 V with CR Up to 220 μF</b></p>  <p><a href="#">152RMH</a></p> <ul style="list-style-type: none"> <li>High voltage applications, 105 °C long life</li> <li>Miniaturized, ultra-high CV product per unit volume</li> </ul>	<p>MOSFETs</p> <p><b>N-Channel MOSFETs in 5 mm x 6 mm PowerPAK®, 100 V, 32 A, 11 mΩ</b></p>  <p><a href="#">SQJ402EP</a></p> <ul style="list-style-type: none"> <li>AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation</li> <li>100 V MOSFETs for use in low-side flyback converters</li> </ul>



# 燃料ポンプ制御 (BLDC)



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

MOSFETs

**N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 40 V, 3.2 mΩ**




[SQJ444EP](#)

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

MOSFETs

**N-Channel MOSFETs in 5 mm x 6 mm PowerPAK® SO-8L Rated at 40 V, 3.0 mΩ**



[SQJ446EP](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- Thermally enhanced PowerPAK® SO-8L replaces DPAK in less than half of the area

RESISTORS

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



[WSLP2512](#)

- Very high power rating of 3 W in 2512 package
- Extremely low resistance values from 0.0005 Ω to 0.01 Ω and tolerance of 1 %

RECTIFIERS

**1 A, 200 V FRED Pt® Hyperfast Rectifiers**



[VS-1EFH02HM3](#)

- Hyperfast recovery time,  $t_{rr} = 25$  ns, reduced  $Q_{rr}$ , and soft recovery
- DO-219AB (SMF) package, high  $T_j$  of 175 °C

RESISTORS

**Power Metal Strip® SMD Resistors, Wide Terminal, 1 mΩ to 6 mΩ, 6 W**




[WSL1020](#)

- TCR < 20 ppm/K, high-temperature performance up to 170 °C

MOSFETs

**Dual N-Channel MOSFETs in 8 mm x 8 mm PowerPAK®, 40 V, 100 A, 3.4 mΩ**



[SQJQ904E](#)

- AEC-Q101 qualified, 100 % UIS and RG tested with up to 175 °C operation
- High power density dual PowerPAK® 8x8L offers significant reduction in PCB area

NON-LINEAR RESISTORS

**SMD Glass-Protected NTC Thermistors**



[NTCS...e3](#)

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

INDUCTORS

**Power SMD IHLP® Storage Inductors, E-Field Shielded, Inductance of 0.22 µH to 22 µH**



[IHLE-4040DD-5A](#)

- Shielded housing provides excellent protection against EMI (B and E fields)
- Optimized for high frequency

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

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