



Vishay Intertechnology, Inc.

Automotive Body Electronics





Automotive Body Electronics

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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.



Key components for BODY ELECTRONICS



COMFORT, DOOR, WINDOW CONTROLS



LIGHTING



INFOTAINMENT; NAVIGATION; AUDIO

THE VISHAY ADVANTAGE

- AEC Qualifications
- High Power Density
- Small Size
- Durability
- Customization
- and more...*



COMFORT, DOOR, WINDOW CONTROLS

CAPACITORS

146 CTI - High-Temperature SMD Aluminum Capacitor

125 °C, Low Impedance, High Ripple, SMD

Features

- Soldering heat resistant according to IPC/JEDEC J-STD-020 (up to 260 °C/40 s)
- Long useful life: up to 6000 h at 125 °C
- AEC-Q200 qualified
- Sizes 10 mm x 10 mm up to 18 mm x 21 mm; vibration-proof, 4-pin and 6-pin versions



INDUCTORS

IHLP-4040DZ-5A

Low-Profile, High-Current IHLP® Inductor

Features

- AEC-Q200 qualified
- High temperature, up to 155 °C
- Shielded construction
- Handles high transient current spikes without saturation



OPTOELECTRONICS

TCUT1300X01

Dual Channel Transmissive Sensor

Features

- Resolve direction and speed with dual channel transmissive (interrupter) sensor
- Wide gap of 3 mm; compatible with mechanical tolerances
- Wide operating temperature range from - 40 °C to 105 °C; enhanced temperature release
- Unlimited floor life; moisture sensitivity Level 1 per J-STD-020



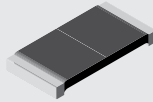
RESISTORS

WSLPxxxx

SMD, Power Metal Strip® Resistor

Features

- Extremely high power ratings, from 0.4 W to 10 W, for SMD devices
- Available in many cases: 0603 to 5931
- Very low resistance value range: 0.3 mΩ to 50 mΩ
- Standard tolerance of 1.0 % with 0.5 % available



CAPACITORS

VJ...31/VJ...34

AEC-Q200 Qualified Multilayer Ceramic Chip Capacitors

Features

- C0G (NP0), X7R and X8R dielectric
- Case sizes: 0402 to 1812 and voltages up to 3000 V_{DC}
- Operating temperature up to + 175 °C (above + 125 °C derating)
- 100 % tin and epoxy layer termination for boardflex sensitive applications



RESISTORS, NON-LINEAR

NTCS0603E3

Glass-Protected SMD 0603 NTC Thermistor

Features

- Tolerance on R₂₅ down to 1 %, and on B_{25/85} down to 1 %
- High-operating temperature up to 150 °C
- AEC-Q200 qualified



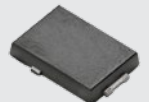
RECTIFIERS

SS3P4L

High Current Density Surface-Mount Schottky

Features

- Very low profile: typical height of 1.1 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- Meets MSL level 1, RoHS-compliant, halogen-free



RESISTORS

CRCW-HP

Pulse-Proof, High-Power Chip Resistor

Features

- Combines high power ratings with small case sizes
- Superior anti-surge and pulse characteristics compared to standard resistors
- Saves space on PCB; suitable for densely populated PCBs
- 1 max in 0 Ω jumper is 2 to 3 times higher than in standard jumper



CAPACITORS

TH3

SMD Tantalum Molded Case - High Temperature, 150 °C

Features

- Automotive and industrial applications
- Operating temperature: up to 150 °C
- AEC-Q200 qualified
- 100 % surge current tested (B, C, D, E case sizes), RoHS-compliant



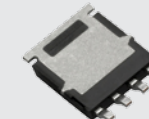
MOSFETs

SQJ409EP

40 V P-Channel PowerPAK® SO-8L: 0.0076 Ω, 60 A

Features

- AEC-Q101 qualified
- Low R_{DS(on)} for reverse battery protection or HS driver
- 175 °C maximum temperature



DIODES

SMxS24A

PAR® Transient Voltage Suppressor

Features

- Junction passivation optimized design passivated anisotropic rectifier technology
- T_J = 175 °C capability suitable for high reliability and automotive requirements
- Available in uni-directional polarity only
- Low leakage current, low forward voltage drop and high-surge capability





LIGHTING

CAPACITORS

146 CTI - High-Temperature SMD Aluminum Capacitor

125 °C, Low Impedance, High Ripple, SMD



Features

- Soldering heat resistant according to IPC/JEDEC J-STD-020 (up to 260 °C/40 s)
- Long useful life: up to 6000 h at 125 °C
- AEC-Q200 qualified
- Sizes 10 mm x 10 mm up to 18 mm x 21 mm; vibration-proof, 4-pin and 6-pin versions

INDUCTORS

IHCL-4040DZ-5A

Low-Profile, High-Current Coupled Inductor



Features

- High temperature, up to 155 °C
- Shielded construction
- Handles high transient current spikes without saturation
- Ultra-low buzz noise due to composite construction

OPTOELECTRONICS

VLMW321ABBB

Cool White LED in PLCC4 Package



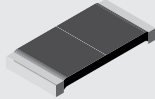
Features

- Luminous flux of 7 lm ($I_f = 30$ mA)
- Viewing angle $\pm 60^\circ$
- Chromaticity coordinates per CIE1931: $x = 0.33, y = 0.33$, typical
- Operating temperature from - 40 °C to 110 °C

RESISTORS

WSLT2010...18

SMD, Power Metal Strip® Resistor



Features

- Operating temperature range: - 65 °C to + 275 °C
- 1 W current sensing resistor in the 2010 package size
- Very low resistance value range: 1 mΩ to 500 mΩ
- Standard tolerance of 1.0 % with 0.5 % available

CAPACITORS

VJ...H (X8R)

Multilayer Ceramic Chip Capacitors



Features

- X8R dielectric
- Case sizes: 0603 to 1210
- Operating temperature up to + 150 °C
- AgPd termination available for epoxy bonding

RESISTORS, NON-LINEAR

NTCS0603E3

Glass-Protected SMD 0603 NTC Thermistor



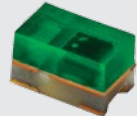
Features

- 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

OPTOELECTRONICS

TEMT6200FX01

Ambient Light Sensor - Optimize Backlighting



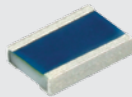
Features

- Sensitive to visible light much like the human eye
- Peak sensitivity at 550 nm; angle of half sensitivity $\pm 60^\circ$
- Proprietary infrared suppressing filter
- Low profile, 0805 surface-mount package: 2 mm x 1.25 mm x 0.85 mm

RESISTORS

MCW 0406 AT Professional and Precision

Wide Terminal Thin Film Chip Resistors



Features

- Rated dissipation: up to 300 mW
- Superior temperature cycling robustness
- Operating temperature: up to 175 °C for 1000 h
- AEC-Q200 qualified (pending)

CAPACITORS

TP3

SMD Solid Tantalum Molded Case - High Performance



Features

- Ideal for automotive grade applications
- AEC-Q200 qualified
- Low ESR
- 100 % surge current tested (B, C, D, and E case sizes)

MOSFETs

SQJQ488EP

100 V PowerPAK® 8 x 8L: 0.0045 Ω, 200 A



Features

- AEC-Q101 qualified
- 8 mm x 8 mm surface-mount package for high power density
- 175 °C maximum temperature

RECTIFIERS

SS10PH10

High Current Density Surface-Mount Schottky



Features

- Very low profile: typical height of 1.1 mm
- Ideal for automated placement
- High barrier technology, low leakage current, T_j max = 175 °C
- Meets MSL level 1, RoHS-compliant, halogen-free



INFOTAINMENT; NAVIGATION; AUDIO

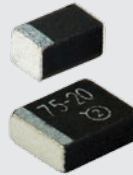
CAPACITORS

TP8 Series Automotive Grade MICROTAN®

Ideal for Space Constrained Applications

Features

- Industry's best volumetric efficiency
- Small sizes including 0603 footprint
- AEC-Q200 qualified



OPTOELECTRONICS

VLMK51Z1AA

Amber LED in PLCC2 Package for Backlighting

Features

- Dominant wavelength: 610 minimum to 621 maximum
- Typical luminous flux of 20 lm and intensity of 7100 mcd ($I_F = 140 \text{ mA}$)
- Viewing angle $\pm 60^\circ$; Operating temperature from -40°C to 110°C
- Also available in red and yellow



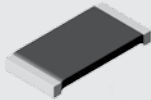
RESISTORS

WSL...18

SMD, Power Metal Strip® Resistor

Features

- Available in many case sizes from 0603 to 2512
- Very high power ratings, from 0.2 W to 3 W, for SMD devices
- Very low resistance value range: 0.5 mΩ to 500 mΩ
- Standard tolerance of 1.0 % with 0.5 % available



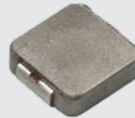
INDUCTORS

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



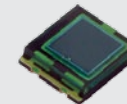
OPTOELECTRONICS

TEMD5510FX01

Ambient Light Sensor - PIN Photodiode

Features

- Sensitive to visible light much like the human eye
- Peak sensitivity at 540 nm; angle of half sensitivity $\pm 65^\circ$
- 7.5 mm² radiant sensitive area
- Low profile, surface-mount package: 5 mm x 4.24 mm x 1.12 mm



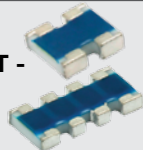
RESISTORS

ACAS 0606 AT, ACAS 0612 AT - Precision

Precision Thin Film Chip Resistor Arrays

Features

- TCR tracking down to 10 ppm/K ($\pm 5 \text{ ppm/K}$)
- Tolerance matching down to 0.1 % ($\pm 0.05 \%$)
- AEC-Q200 qualified
- Resistance ratio up to 1:20



MOSFETs

SQJ942EP

40 V Asymmetric Dual PowerPAK® SO-8L: 0.015 Ω

Features

- AEC-Q101 qualified
- Dual n-channel optimized for synchronous rectification
- 175 °C maximum temperature



RECTIFIERS

MSS1P4

1 A, 40 V Surface-Mount Schottky in MicroSMP

Features

- Very low profile: typical height of 0.65 mm
- Ideal for automated placement
- Low forward voltage drop, low power losses
- Meets MSL level 1, RoHS-compliant, halogen-free



Vishay Intertechnology's reputation for innovation, reliability and quality is complemented by a decades-long record of service to the automotive industry.

Key Website Content

AEC-Qualified products overview www.vishay.com/doc?49923

Automotive grade products overview www.vishay.com/doc?49924

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