<table>
<thead>
<tr>
<th>Table of Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>constant current source, buck boost converter</td>
</tr>
<tr>
<td>constant current source, EMI filter</td>
</tr>
<tr>
<td>constant current source, reverse polarity protection</td>
</tr>
<tr>
<td>constant current source, transient protection</td>
</tr>
<tr>
<td>input conditioning, ESD Protection</td>
</tr>
<tr>
<td>input conditioning, Filter</td>
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<tr>
<td>input conditioning, pull-up/down resistor</td>
</tr>
<tr>
<td>laser lighting, blue light sensor</td>
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<tr>
<td>laser lighting, current sensor</td>
</tr>
<tr>
<td>laser lighting, position sensor</td>
</tr>
<tr>
<td>laser lighting, RGBW sensor</td>
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<tr>
<td>power supply, EMI filter</td>
</tr>
<tr>
<td>power supply, reverse polarity protection</td>
</tr>
<tr>
<td>power supply, SMPS buck converter</td>
</tr>
<tr>
<td>power supply, transient protection</td>
</tr>
</tbody>
</table>
Laser Lighting - NEW

Vishay Components Used:

• Optical sensors
• Power MOSFETs
• Diodes
• Capacitors
• Inductors
• Transient Protection Devices
• ESD Protection Devices
• Reverse Polarity Protection Devices
• Precision Resistors

Application Overview

Laser lighting is used as additional high beam in combination with LED frontlighting. The beam of a blue laserdiode converted by phosphor to white light. Vishay power components ensure you have the constant current source to stay within the tight tolerances for the laser diode. For safety reason it is very important blue laser beam may not shine out of the lighting unit. For this reason a complex optical sensing is used. This safety concept is set up with Vishay automotive qualified RGBW sensor and enhanced blue photodiode.
### Diodes

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Status</th>
<th>Description</th>
<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS5P6HM3</td>
<td>S</td>
<td>High Current Density Surface Mount Schottky Barrier Rectifiers</td>
<td>If=5A; Vf=0.56V; Vrrm=60V</td>
<td>SMPC</td>
<td></td>
</tr>
</tbody>
</table>

### Inductors

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Status</th>
<th>Description</th>
<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHLP-4040DZ-5A</td>
<td></td>
<td>Low Profile, High Current High Transient Current Spike Cabable Shielded, Low DCR</td>
<td>0.47uH…47uH Idc=2.5A…30A</td>
<td>4040</td>
<td></td>
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</tbody>
</table>

### MOSFET

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Status</th>
<th>Description</th>
<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQA460EP</td>
<td></td>
<td>N-Channel 60-V (D-S) 175°C MOSFET</td>
<td>Rdson=8.7mOhm</td>
<td>PowerPAK SO-8L</td>
<td></td>
</tr>
</tbody>
</table>
Laser Lighting - NEW : constant current source, EMI filter

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<thead>
<tr>
<th>Product Name</th>
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<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHLP-3232DZ-5A</td>
<td></td>
<td>Low Profile, High Current</td>
<td>0.22uH…33uH</td>
<td></td>
<td>3232</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High Transient Current Spike Capable</td>
<td>Idc=36A…3.1A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shielded, Low DCR</td>
<td></td>
<td>3232</td>
<td></td>
</tr>
</tbody>
</table>
Laser Lighting - NEW: constant current source, reverse polarity protection

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SQJQ402E</td>
<td></td>
<td>N-Channel 40-V (D-S) 175°C MOSFET</td>
<td>Rdson=1.7mOhm</td>
<td>PPAK 8x8L</td>
<td></td>
</tr>
</tbody>
</table>
### Laser Lighting - NEW: constant current source, transient protection

#### TVS Diode

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPSMP6.8 thru TP43A</td>
<td></td>
<td>surface mount TransZorb</td>
<td>250W</td>
<td>SMP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transient Voltage Suppressor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Laser Lighting - NEW: input conditioning, ESD Protection

<table>
<thead>
<tr>
<th>Product Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>GSOT03 to GSOT36</td>
<td></td>
<td>Single-line ESP Protection</td>
<td>Ippm=30A, Ppp=369W</td>
<td>SOT-23</td>
<td></td>
</tr>
</tbody>
</table>
## Laser Lighting - NEW: input conditioning, Filter

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHLP2020CZ-5A</td>
<td>Low Profile, High Current High Transient Current Spike Capable Shielded, Low DCR</td>
<td>0.1uH...10uH ldc=25A...2.25A</td>
<td>2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IHLP2525CZ-5A</td>
<td>Low Profile, High Current High Transient Current Spike Capable Shielded, Low DCR</td>
<td>0.1uH...4.7uH ldc=18A...3A</td>
<td>2525</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MLCC

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>VJ...31X RoHS Automotive MLCC</td>
<td>Surface Mount Multilayer Ceramic Chip Capacitors for Automotive Applications</td>
<td>120pF...1uF; 16V…1000V</td>
<td>0402 to 1812</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Laser Lighting - NEW: input conditioning, pull-up/down resistor

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACAS AT</td>
<td></td>
<td>Precision Thin Film Chip Resistor Array</td>
<td>47Ohm…150Ohm relative tolerance: +/-0.05%</td>
<td>0606 and 0612</td>
<td></td>
</tr>
</tbody>
</table>
Laser Lighting - NEW: laser lighting, blue light sensor

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Package</th>
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</tr>
</thead>
<tbody>
<tr>
<td>TEMD5080X01</td>
<td></td>
<td>Silicon PIN photodiode blue enhanced</td>
<td>peak sensitivity 400nm</td>
<td>5x4.24x1.12mm</td>
<td></td>
</tr>
</tbody>
</table>
Shunt resistor

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSK2512</td>
<td></td>
<td>Power Metal Strip® Resistors Low Value (down to 0.0005 #) Surface Mount, 4-Terminal</td>
<td>10mOhm…200mOhm 0.1%</td>
<td>2512</td>
<td></td>
</tr>
</tbody>
</table>
Laser Lighting - NEW: laser lighting, position sensor

<table>
<thead>
<tr>
<th>Product Name</th>
<th>Status</th>
<th>Description</th>
<th>Features</th>
<th>Package</th>
<th>Q-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCUT1350X01</td>
<td></td>
<td>Subminiature Dual Channel Transmissive Optical Sensor with Photo transistor Outputs</td>
<td>gap: 3mm</td>
<td>5.5x4x4mm</td>
<td></td>
</tr>
</tbody>
</table>
## Laser Lighting - NEW: laser lighting, RGBW sensor

<table>
<thead>
<tr>
<th>Product Name</th>
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<th>Package</th>
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</tr>
</thead>
<tbody>
<tr>
<td>VEML6045X01</td>
<td></td>
<td>RGBW Color Sensor with I2C Interface</td>
<td>peak sensitivity 650nm, 550nm, 450nm</td>
<td>2x1.25x1mm</td>
<td></td>
</tr>
</tbody>
</table>
**Laser Lighting - NEW** : power supply, EMI filter

### Al Cap

<table>
<thead>
<tr>
<th>Product Name</th>
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</tr>
</thead>
<tbody>
<tr>
<td>260 CLA-V</td>
<td></td>
<td>Aluminum Capacitor SMD vibration proof high temperature</td>
<td>150…3300uF; 16V…80V</td>
<td>16x16x16 to 18x18x21</td>
<td></td>
</tr>
</tbody>
</table>

### Inductors

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<tr>
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<td>IHLP-3232DZ-5A</td>
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<td>0.22uH…33uH</td>
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<td></td>
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### MLCC

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Laser Lighting - NEW: power supply, reverse polarity protection

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<tbody>
<tr>
<td>SOJQ402E</td>
<td></td>
<td>N-Channel 40-V (D-S) 175°C MOSFET</td>
<td>Rdson=3.4mOhm</td>
<td>PPAK 8x8L</td>
<td></td>
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</table>
**Laser Lighting - NEW**: power supply, SMPS buck converter

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<td>0.1uH...10uH; ld=25A...2.25A</td>
<td>2020</td>
<td></td>
</tr>
<tr>
<td>IHLP2525CZ-5A</td>
<td></td>
<td>Low Profile, High Current High Transient Current Spike Cabable Shielded, Low DCR</td>
<td>0.1uH...4.7uH; ld=18A...3A</td>
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### MOSFET

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</tr>
</thead>
<tbody>
<tr>
<td>SQJ148EP</td>
<td></td>
<td>N-Channel 80-V (D-S) 175°C MOSFET</td>
<td>Rdson=3.4mOhm</td>
<td>PPAK 8x8L</td>
<td></td>
</tr>
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</table>

### Schottky Diode

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<tr>
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<th>Package</th>
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</tr>
</thead>
<tbody>
<tr>
<td>SS2P4</td>
<td></td>
<td>High Current Density Surface Mount Schottky Barrier Rectifier</td>
<td>If=2A; Vf=0.5V; Vrrm=40V</td>
<td>DO-220AA (SMP)</td>
<td></td>
</tr>
</tbody>
</table>
**Laser Lighting - NEW** : power supply, transient protection

### TVS Diode

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<tbody>
<tr>
<td>TPSMP6.8 thru</td>
<td></td>
<td>surface mounted TransZorb Transient Voltage Supressor</td>
<td>250W</td>
<td>SMP</td>
<td></td>
</tr>
<tr>
<td>TPSMP43A</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
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</table>