The ZXTR2000 family are high-voltage linear regulator transistors that boost power circuit densities, through reductions in component count and footprint.

With the ability to take <100V input and generate a fixed output voltages of 5V, 8V and 12V ±10%, the regulator transistors provide a high-voltage regulation solution where standard linear regulators cannot be used.

These regulator transistors suit 48V DC power system design in telecoms, networking, data storage and PoE, particularly for supplying a regulated voltage into the primary-side, fan or micro controllers.

For samples and quotations please contact your nearest Diodes sales office or representative.

The Diodes’ Advantage

The ZXTR2000 family of devices are series linear regulators using an emitter-follower stage as the pass-through element.

- **Smaller footprint**
  Monolithically integrating a transistor, Zener and resistor into a single package helps to reduce component count and footprint.

- **100V Vin**
  High voltage capability means that the input will effectively tolerate spurious voltages up to a maximum of 100V, ensuring a good safety margin in the event of transient over-voltage conditions.

- **Line and Load regulation**
  Output voltage is regulated under both line and load fluctuations ensuring the continued supply and preventing latch-up due to transient voltage drops.

Applications

- Supply regulation in 48V DC:
  - Telecoms
  - Networking & Data Storage
  - Power Over Ethernet (PoE)

Compliance

- AEC-Q101 qualified
- Fully RoHS compliant
- “Green” Device
- ESD rugged
Examples of Regulator Transistor Circuits

+5V power supply to a primary side micro-controller in a DC-DC converter

Regulator Transistors

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</thead>
<tbody>
<tr>
<td>Input Voltage Range</td>
<td>10 to 100V</td>
<td>12 to 100V</td>
<td>15 to 100V</td>
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<tr>
<td>Regulated Output Voltage</td>
<td>5V ± 10%</td>
<td>8.2V ± 10%</td>
<td>12.3V ± 10%</td>
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<tr>
<td>Continuous Output Current</td>
<td>Z = 30mA</td>
<td>P5 = 40mA</td>
<td>K = 50mA</td>
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<tr>
<td>Quiescent current</td>
<td>&lt;500µA</td>
<td>&lt;500µA</td>
<td>&lt;400µA</td>
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<tr>
<td>Line Regulation</td>
<td>&lt;300mV</td>
<td>&lt;300mV</td>
<td>&lt;750mV</td>
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<tr>
<td>Temperature Coefficient</td>
<td>7mV/°C</td>
<td>10mV/°C</td>
<td>8mV/°C</td>
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<tr>
<td>Load Regulation</td>
<td>&lt;350mV</td>
<td>&lt;400mV</td>
<td>&lt;600mV</td>
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<tr>
<td>PSRR</td>
<td>45dB</td>
<td>38dB</td>
<td>45dB</td>
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<td>Temperature Range</td>
<td>-40 to 125°C</td>
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<tr>
<td>Package &amp; Key Difference</td>
<td>Z = SOT89</td>
<td>P5 = PowerDI®5</td>
<td>K = TO252 (DPAK)</td>
<td>Small footprint</td>
<td>1.1mm low profile</td>
<td>Pd &gt; 2W reduces Tj</td>
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Key Differences

- SOT89
  - Small footprint
- PowerDI®5
  - 1.1mm low profile
- TO252 (DPAK)
  - Pd > 2W reduces Tj