



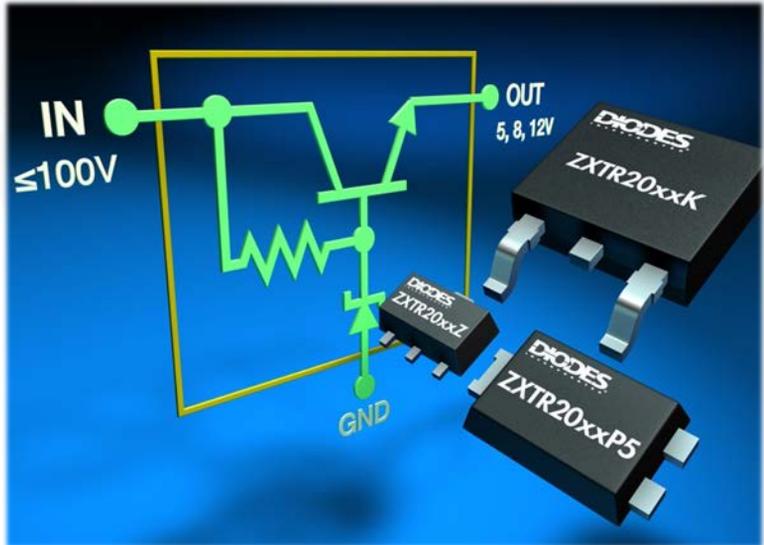
High-Voltage Linear Regulator Transistors

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 $\pm 10\%$, 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 V_{in}**
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

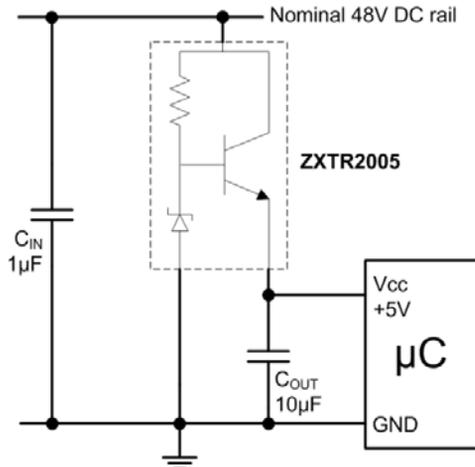
- Supply regulation in 48V DC:
 - Telecoms
 - Networking & Data Storage
 - Power Over Ethernet (PoE)

Compliance

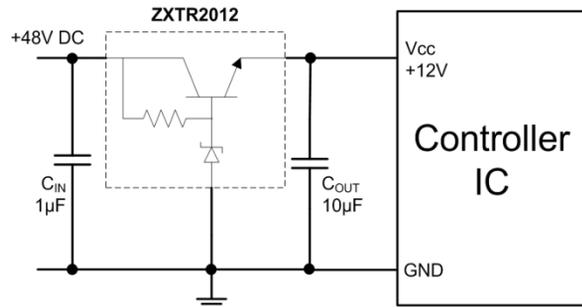
- AEC-Q101 qualified
- Fully RoHS compliant
- "Green" Device
- ESD rugged



Examples of Regulator Transistor Circuits



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



+12V power supply to a controller from a 48V DC telecoms rail

Regulator Transistors

Parameter	ZXTR2005Z ZXTR2005P5 ZXTR2005K	ZXTR2008Z ZXTR2008P5 ZXTR2008K	ZXTR2012Z ZXTR2012P5 ZXTR2012K
Input Voltage Range	10 to 100V	12 to 100V	15 to 100V
Regulated Output Voltage	5V ± 10%	8.2V ± 10%	12.3V ± 10%
Continuous Output Current	Z = 30mA, P5 = 40mA, K = 50mA		
Quiescent current	<500µA	<500µA	<400µA
Line Regulation	<300mV	<300mV	<750mV
Temperature Coefficient	7mV/°C	10mV/°C	8mV/°C
Load Regulation	<350mV	<400mV	<600mV
PSRR	45dB	38dB	45dB
Temperature Range	-40 to 125°C		
Package & Key Difference	Z = SOT89 P5 = PowerDI®5 K = TO252 (DPAK)	Small footprint 1.1mm low profile Pd > 2W reduces Tj	

Key Differences



SOT89

Small footprint



PowerDI®5

1.1mm low profile



TO252 (DPAK)

Pd > 2W reduces Tj