

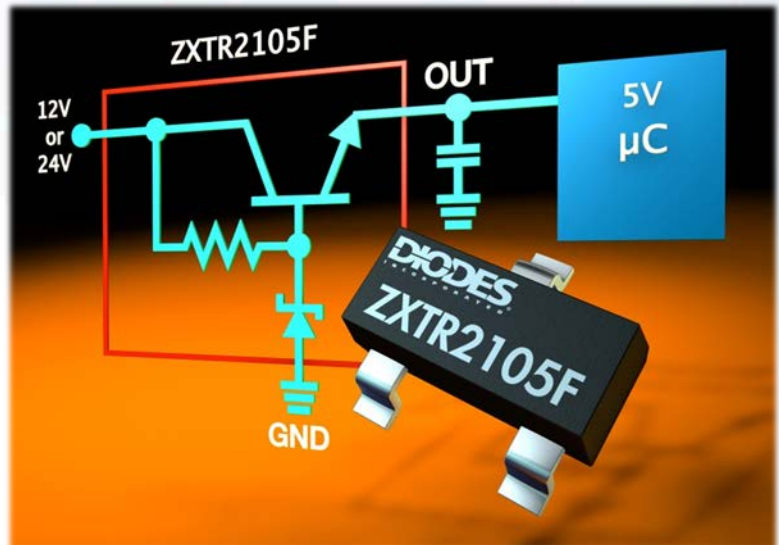


HV Linear Regulator Transistor for MCUs

The ZXTR2105F is a regulator transistor that provides a fixed 5V output from 7 to 60V input rails.

Designed to replace three discrete components, the ZXTR2105F, when typically used to produce a stable supply of between 4.7 and 5.3V from 12V or 24V inputs, not only minimizes the solution footprint but also increases system power density and reliability.

The device's 60V maximum input rating ensures sufficient headroom in the event of transient over-voltage conditions whilst its excellent line and load regulation safeguards continuous operation by ensuring transient voltage drops cannot cause latch-up, further contributing to system reliability.



The Diodes' Advantage

The ZXTR2105F is a 5V output linear regulator using an emitter-follower stage as the pass-through element.

▪ **Smaller footprint**

Monolithically integrating a transistor, Zener diode and resistor into a SOT23 package to reduce footprint whilst increasing power density and reliability.

▪ **5V ±5% V_{out}**

Stable 4.7 to 5.3V output for MCUs from 12V or 24V inputs.

▪ **Line and Load regulation**

Safeguards continuous operation by eliminating latch-up during transient voltage drops.

▪ **60V V_{in}**

Ensures sufficient headroom in the event of over-voltage conditions.

Applications

Supply voltage regulation in:

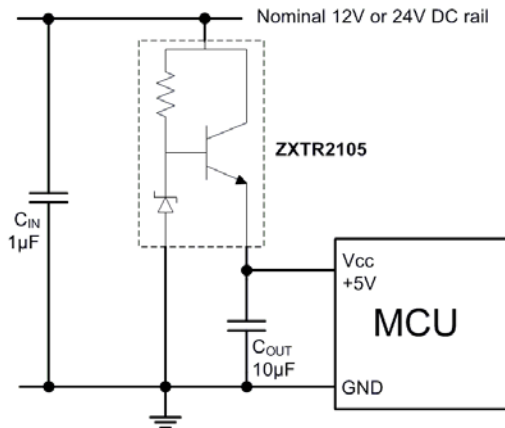
- 12V to 5V Rails
- 24V to 5V Rails
- Other customised input rails

Compliance

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



Example of a Regulator Transistor Circuit



+5V power supply to a micro-controller

Regulator Transistors

Parameter	ZXR2105F	ZXR2005Z ZXR2005P5 ZXR2005K	ZXR2008Z ZXR2008P5 ZXR2008K	ZXR2012Z ZXR2012P5 ZXR2012K
Input Voltage Range	7 to 60V	10 to 100V	12 to 100V	15 to 100V
Regulated Output Voltage	5V ± 5%	5V ± 10%	8.2V ± 10%	12.3V ± 10%
Continuous Output Current	15mA	Z = 30mA, P5 = 40mA, K = 50mA		
Quiescent current	<800µA	<500µA	<500µA	<400µA
Line Regulation	<220mV	<300mV	<300mV	<750mV
Temperature Coefficient	3.5mV/°C	7mV/°C	10mV/°C	8mV/°C
Load Regulation	<130mV	<350mV	<400mV	<600mV
PSRR	46dB	45dB	38dB	45dB
Temperature Range	-65 to 150°C			
Package & Key Difference	F = SOT23 Z = SOT89 P5 = PowerDI®5 K = TO252 (DPAK)	Smallest footprint Smallest power package footprint 1.1mm low profile Pd > 2W reduces Tj		