3A LOW DROPOUT LINEAR REGULATOR AZ1085

General Description

The AZ1085 is a series of low dropout positive voltage regulators with a maximum dropout of 1.5V at 3A of load current.

The series features on-chip thermal shutdown. It also includes a bandgap reference and a current limiting circuit.

The AZ1085 is available in 1.5V, 1.8V, 2.5V, 3.3V, 5.0V and adjustable versions. The fixed versions integrate the adjust resistors. The adjustable version can set the output voltage with two external resistors.

The AZ1085 series is available in standard packages of TO-263-2, TO-263-3, TO-220-3, TO-252-2 (1), TO-252-2 (2), TO-252-2 (3) and TO-252-2 (4).

Features

- Low Dropout Voltage: Typical 1.3V at 3A
- Current Limiting and Thermal Protection
- Output Current: 3A
- Current Limit: 4.5A
- Operating Junction Temperature: 0 to 125°C
- Line Regulation: 0.015% (Typical)
- Load Regulation: 0.1% (Typical)

Applications

- High Efficiency Linear Regulators
- Battery Charger
- Post Regulation for Switching Supplies
- Microprocessor Supply
- Mother Board Power Supplies
- DVD-Video Player
- Telecom Equipment
- Set Top boxes and Web Boxes Modules' Supply

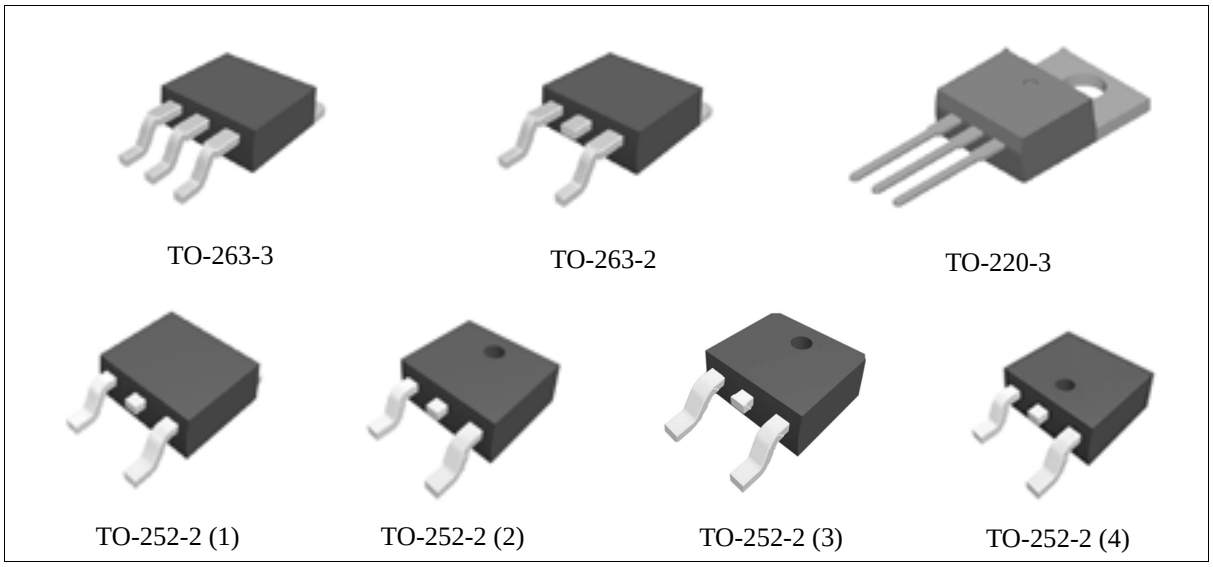
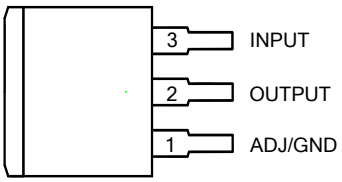


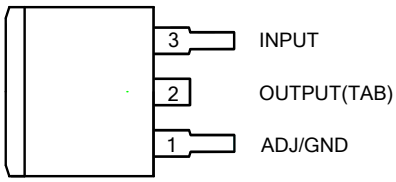
Figure 1. Package Types of AZ1085

Pin Configuration

S Package
(TO-263-3)

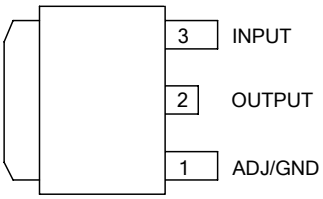


S2 Package
(TO-263-2)

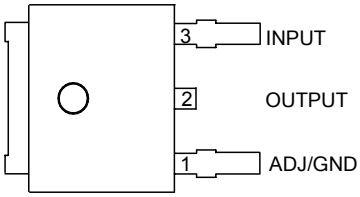


D Package

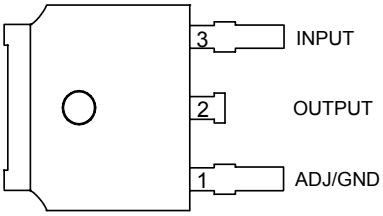
(TO-252-2 (1))



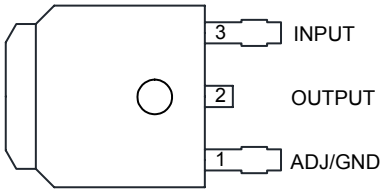
(TO-252-2 (2))



(TO-252-2 (3))



(TO-252-2 (4))



T Package
(TO-220-3)

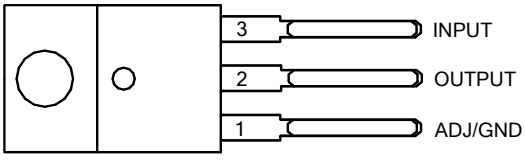


Figure 2. Pin Configuration of AZ1085 (Top View)

Functional Block Diagram

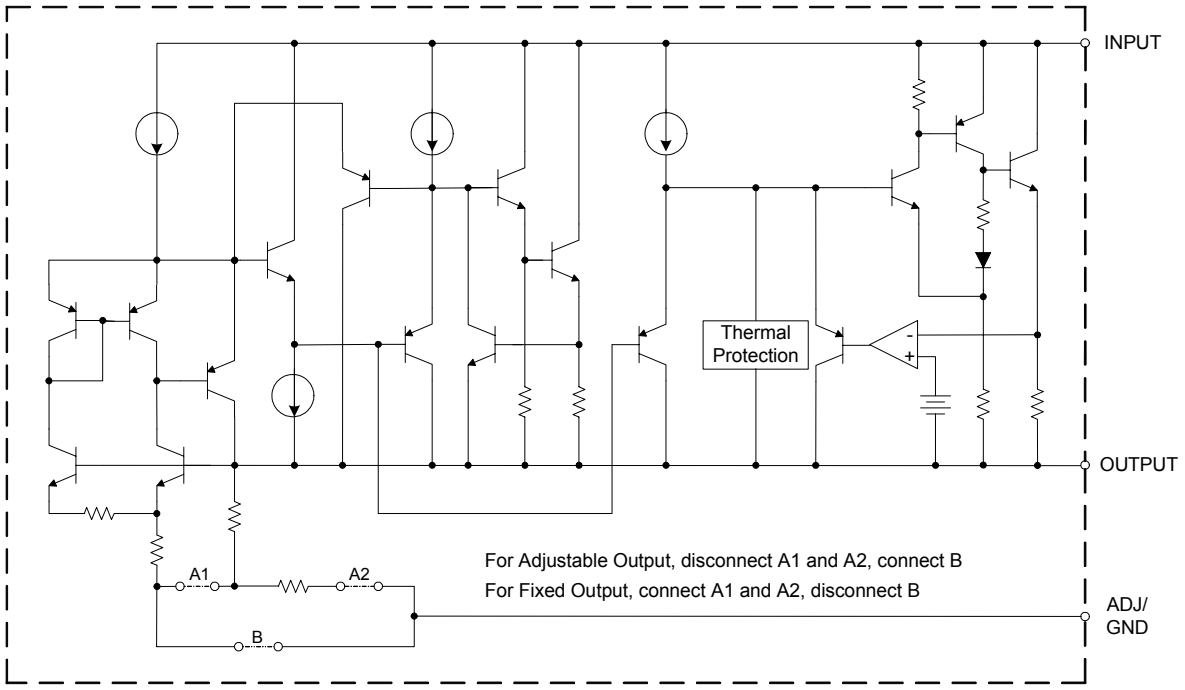
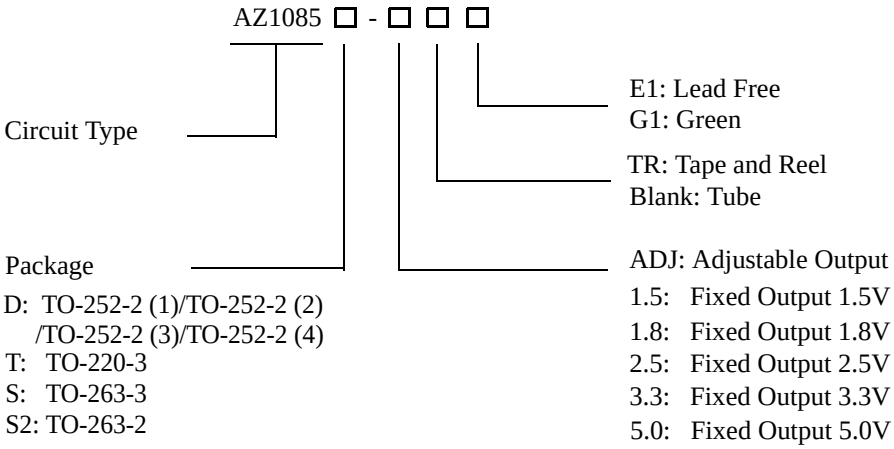


Figure 3. Functional Block Diagram of AZ1085

Ordering Information



Package	Tempera-ture Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
TO-252-2 (1)/ TO-252-2 (2)/ TO-252-2 (3)/ TO-252-2 (4)	0 to 125°C	AZ1085D-ADJE1	AZ1085D-ADJG1	AZ1085D-ADJE1	AZ1085D-ADJG1	Tube
		AZ1085D-ADJTRE1	AZ1085D-ADJTRG1	AZ1085D-ADJE1	AZ1085D-ADJG1	Tape & Reel
		AZ1085D-1.5E1	AZ1085D-1.5G1	AZ1085D-1.5E1	AZ1085D-1.5G1	Tube
		AZ1085D-1.5TRE1	AZ1085D-1.5TRG1	AZ1085D-1.5E1	AZ1085D-1.5G1	Tape & Reel
		AZ1085D-1.8E1	AZ1085D-1.8G1	AZ1085D-1.8E1	AZ1085D-1.8G1	Tube
		AZ1085D-1.8TRE1	AZ1085D-1.8TRG1	AZ1085D-1.8E1	AZ1085D-1.8G1	Tape & Reel
		AZ1085D-2.5E1	AZ1085D-2.5G1	AZ1085D-2.5E1	AZ1085D-2.5G1	Tube
		AZ1085D-2.5TRE1	AZ1085D-2.5TRG1	AZ1085D-2.5E1	AZ1085D-2.5G1	Tape & Reel
		AZ1085D-3.3E1	AZ1085D-3.3G1	AZ1085D-3.3E1	AZ1085D-3.3G1	Tube
		AZ1085D-3.3TRE1	AZ1085D-3.3TRG1	AZ1085D-3.3E1	AZ1085D-3.3G1	Tape & Reel
		AZ1085D-5.0E1	AZ1085D-5.0G1	AZ1085D-5.0E1	AZ1085D-5.0G1	Tube
		AZ1085D-5.0TRE1	AZ1085D-5.0TRG1	AZ1085D-5.0E1	AZ1085D-5.0G1	Tape & Reel
TO-220-3	0 to 125°C	AZ1085T-ADJE1	AZ1085T-ADJG1	AZ1085T-ADJE1	AZ1085T-ADJG1	Tube
		AZ1085T-1.5E1	AZ1085T-1.5G1	AZ1085T-1.5E1	AZ1085T-1.5G1	Tube
		AZ1085T-1.8E1	AZ1085T-1.8G1	AZ1085T-1.8E1	AZ1085T-1.8G1	Tube
		AZ1085T-2.5E1	AZ1085T-2.5G1	AZ1085T-2.5E1	AZ1085T-2.5G1	Tube
		AZ1085T-3.3E1	AZ1085T-3.3G1	AZ1085T-3.3E1	AZ1085T-3.3G1	Tube
		AZ1085T-5.0E1	AZ1085T-5.0G1	AZ1085T-5.0E1	AZ1085T-5.0G1	Tube

Ordering Information (Continued)

Package	Tempera-ture Range	Part Number		Marking ID		Packing Type
		Lead Free	Green	Lead Free	Green	
TO-263-3	0 to 125°C	AZ1085S-ADJE1	AZ1085S-ADJG1	AZ1085S-ADJE1	AZ1085S-ADJG1	Tube
		AZ1085S-ADJTRE1	AZ1085S-ADJTRG1	AZ1085S-ADJE1	AZ1085S-ADJG1	Tape & Reel
		AZ1085S-1.5E1	AZ1085S-1.5G1	AZ1085S-1.5E1	AZ1085S-1.5G1	Tube
		AZ1085S-1.5TRE1	AZ1085S-1.5TRG1	AZ1085S-1.5E1	AZ1085S-1.5G1	Tape & Reel
		AZ1085S-1.8E1	AZ1085S-1.8G1	AZ1085S-1.8E1	AZ1085S-1.8G1	Tube
		AZ1085S-1.8TRE1	AZ1085S-1.8TRG1	AZ1085S-1.8E1	AZ1085S-1.8G1	Tape & Reel
		AZ1085S-2.5E1	AZ1085S-2.5G1	AZ1085S-2.5E1	AZ1085S-2.5G1	Tube
		AZ1085S-2.5TRE1	AZ1085S-2.5TRG1	AZ1085S-2.5E1	AZ1085S-2.5G1	Tape & Reel
		AZ1085S-3.3E1	AZ1085S-3.3G1	AZ1085S-3.3E1	AZ1085S-3.3G1	Tube
		AZ1085S-3.3TRE1	AZ1085S-3.3TRG1	AZ1085S-3.3E1	AZ1085S-3.3G1	Tape & Reel
		AZ1085S-5.0E1	AZ1085S-5.0G1	AZ1085S-5.0E1	AZ1085S-5.0G1	Tube
		AZ1085S-5.0TRE1	AZ1085S-5.0TRG1	AZ1085S-5.0E1	AZ1085S-5.0G1	Tape & Reel
TO-263-2	0 to 125°C	AZ1085S2-ADJE1	AZ1085S2-ADJG1	AZ1085S2-ADJE1	AZ1085S2-ADJG1	Tube
		AZ1085S2-ADJTRE1	AZ1085S2-ADJTRG1	AZ1085S2-ADJE1	AZ1085S2-ADJG1	Tape & Reel
		AZ1085S2-1.5E1	AZ1085S2-1.5G1	AZ1085S2-1.5E1	AZ1085S2-1.5G1	Tube
		AZ1085S2-1.5TRE1	AZ1085S2-1.5TRG1	AZ1085S2-1.5E1	AZ1085S2-1.5G1	Tape & Reel
		AZ1085S2-1.8E1	AZ1085S2-1.8G1	AZ1085S2-1.8E1	AZ1085S2-1.8G1	Tube
		AZ1085S2-1.8TRE1	AZ1085S2-1.8TRG1	AZ1085S2-1.8E1	AZ1085S2-1.8G1	Tape & Reel
		AZ1085S2-2.5E1	AZ1085S2-2.5G1	AZ1085S2-2.5E1	AZ1085S2-2.5G1	Tube
		AZ1085S2-2.5TRE1	AZ1085S2-2.5TRG1	AZ1085S2-2.5E1	AZ1085S2-2.5G1	Tape & Reel
		AZ1085S2-3.3E1	AZ1085S2-3.3G1	AZ1085S2-3.3E1	AZ1085S2-3.3G1	Tube
		AZ1085S2-3.3TRE1	AZ1085S2-3.3TRG1	AZ1085S2-3.3E1	AZ1085S2-3.3G1	Tape & Reel
		AZ1085S2-5.0E1	AZ1085S2-5.0G1	AZ1085S2-5.0E1	AZ1085S2-5.0G1	Tube
		AZ1085S2-5.0TRE1	AZ1085S2-5.0TRG1	AZ1085S2-5.0E1	AZ1085S2-5.0G1	Tape & Reel

BCD Semiconductor's Pb-free products, as designated with "E1" suffix in the part number, are RoHS compliant. Products with "G1" suffix are available in green packages.

Typical Performance Characteristics (Continued)

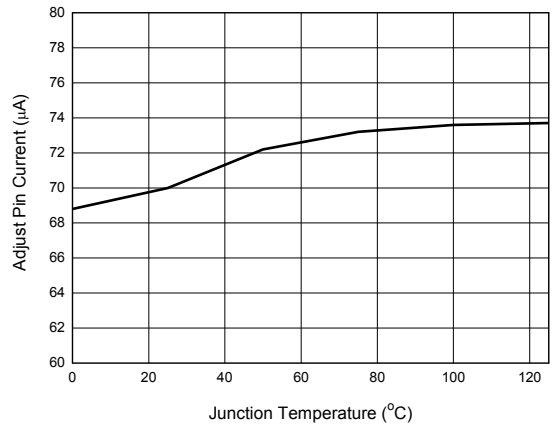


Figure12. Adjust Pin Current vs. Junction Temperature

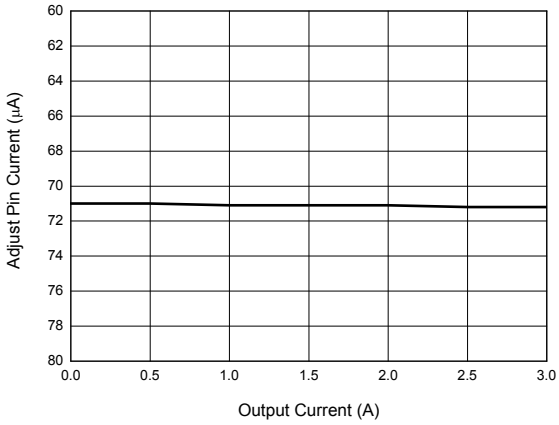


Figure13. Adjust Pin Current vs. Output Current

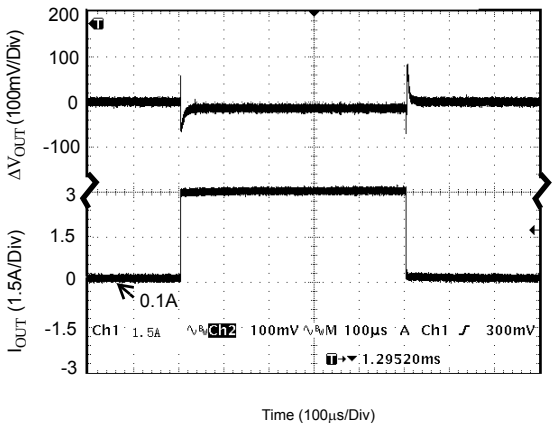


Figure 14. Load Transient Response
(Conditions: V_{IN}=5.5V, V_{OUT}=2.5V, I_{OUT}=100mA to 3A, C_{IN}=C_{OUT}=10μF)

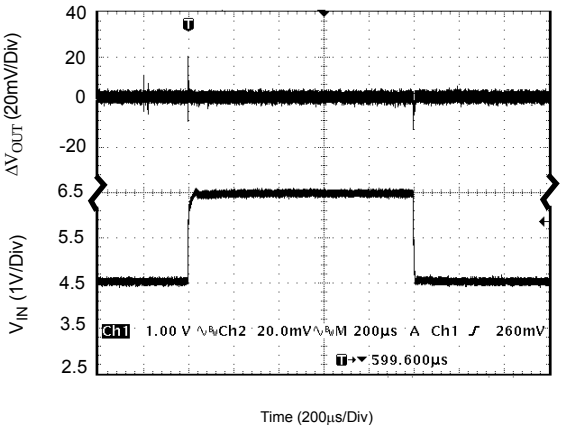


Figure 15. Line Transient Response
(Conditions: V_{IN}=4.5V to 6.5V, V_{OUT}=2.5V, I_{OUT}=200mA, C_{IN}=1μF, C_{OUT}=10μF)

Typical Performance Characteristics (Continued)

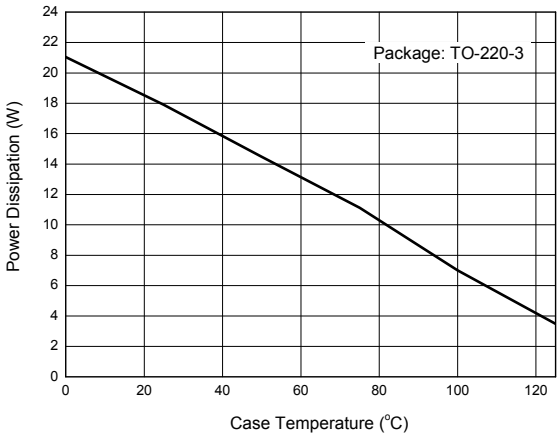


Figure16. Power Dissipation vs. Case Temperature

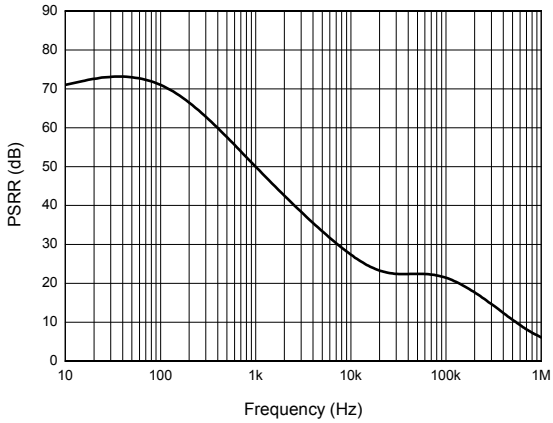


Figure17. PSRR vs. Frequency

Typical Application

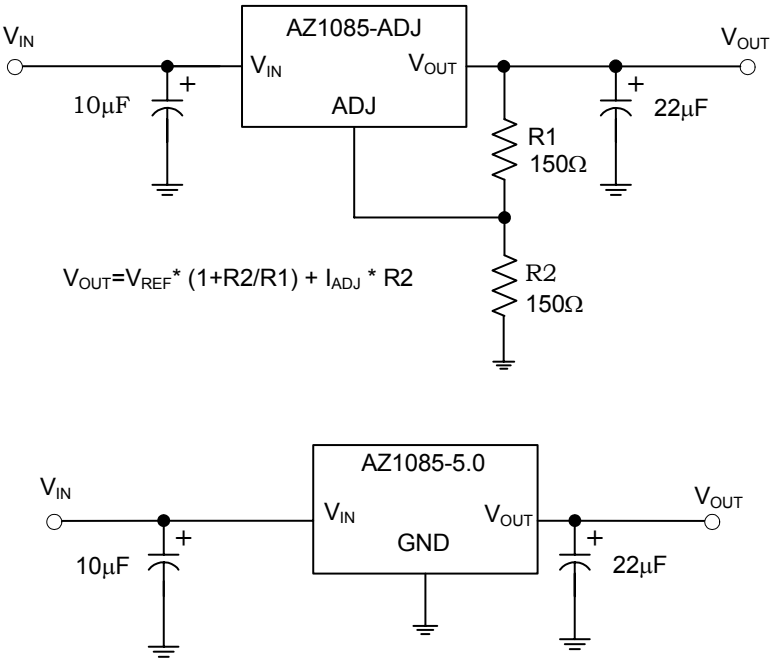
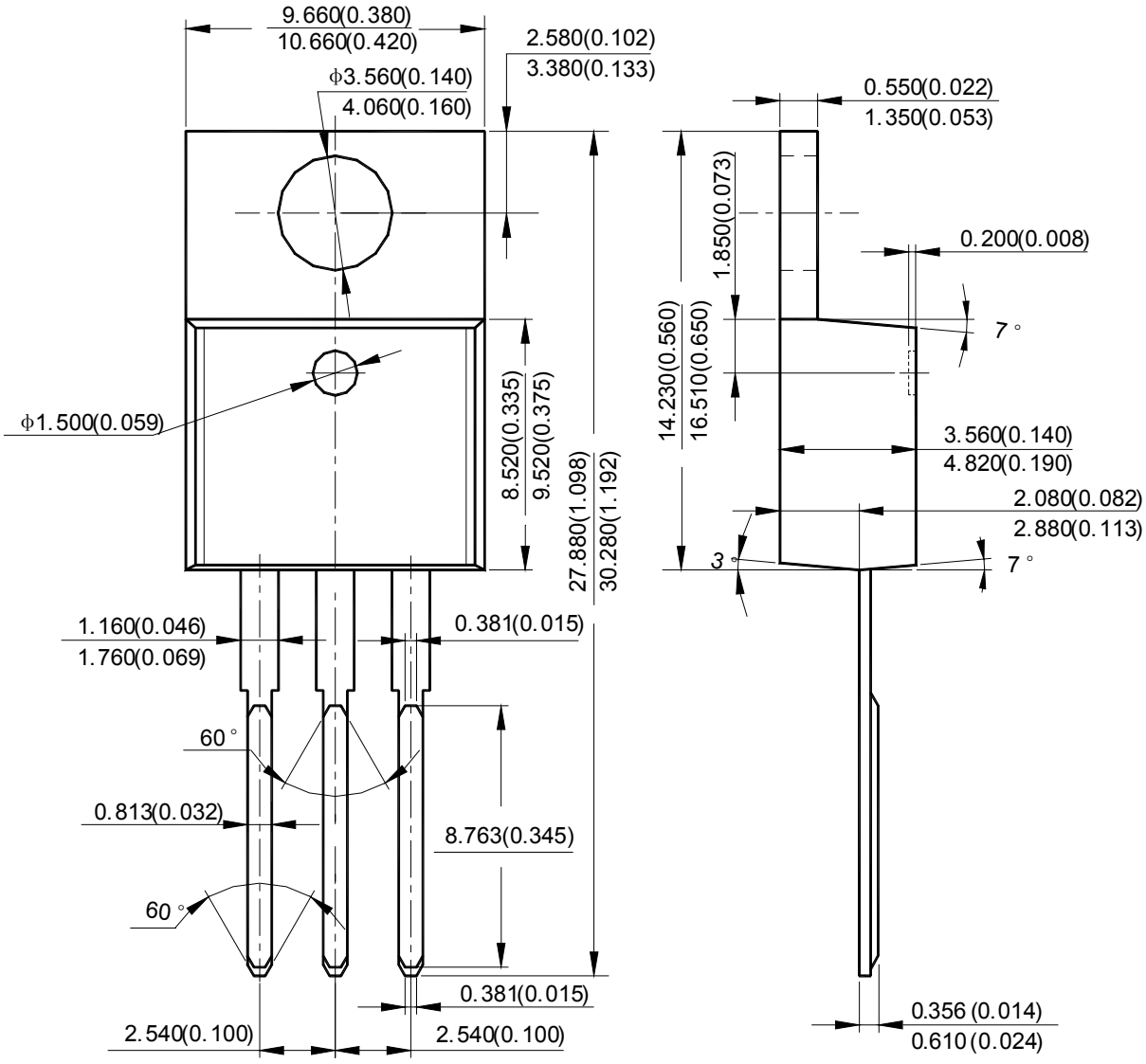


Figure 18. Typical Applications of AZ1085

Mechanical Dimensions

TO-220-3 **Unit: mm(inch)**