

## ATL43xx 2.5V Low Iq Adjustable Precision Shunt Regulator

### 1 Features

- Adjustable Regulated Output of 2.5 V to 36 V
- Internally Compensated for Stability
- Wide Input Supply Voltage (2.5 V to 36 V)
- Extended Cathode Current Range 40  $\mu$ A to 100 mA
- Typical Temperature Drift (ATL431A)
  - 6 mV
- Reference Voltage Tolerance at 25°C
  - 0.5% B Grade
  - 1% A Grade
- Low Output Impedance of 0.25  $\Omega$
- Q Grade Option:  $-40^{\circ}\text{C} \geq T_A \leq 125^{\circ}\text{C}$

### 2 Applications

- Industrial, Computing, Consumer & Portables
- Adjustable Voltage and Current Referencing
- Power Management
- Power Isolation
- Zener Replacement

### 3 Description

The ATL431 and ATL432 are three-terminal adjustable shunt regulators, with specified thermal stability over applicable automotive, commercial, and industrial temperature ranges. The output voltage can be set to any value between  $V_{\text{ref}}$  (approximately 2.5 V) and 36 V, with two external resistors. These devices have a typical output impedance of 0.2  $\Omega$ . Active output circuitry provides a very sharp turn-on characteristic, making these devices excellent replacements for Zener diodes in many applications, such as onboard regulation, adjustable power supplies, and switching power supplies.

The ATL43X has >10x improvement Cathode current range over its TL43X predecessor. It also is stable with a wide range of load capacitance types and values.

ATL431 and ATL432 are the exact same parts but with different pinouts and order numbers. The ATL43X is offered in two grades, with initial tolerances (at 25°C) of 0.5%, 1%, for the B and A grade, respectively. In addition, low output drift vs temperature ensures good stability over the entire temperature range.

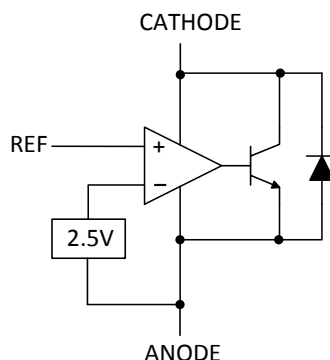
The ATL43xxC devices are characterized for operation from  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ , and the ATL43xxQ devices are characterized for operation from  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$ .

Device Information<sup>(1)</sup>

PART NUMBER	PACKAGE	BODY SIZE (NOM)
ATL43xx	SOT (3)	2.90 mm x 1.60 mm
	SOT (5)	2.90 mm x 1.60 mm
	SOT (3)	2.92 mm x 1.30 mm
	TO-92 (3)	4.30 mm x 4.30 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

### 4 Simplified Schematic



## 5 Device and Documentation Support

### 5.1 Related Links

The table below lists quick access links. Categories include technical documents, support and community resources, tools and software, and quick access to sample or buy.

**Table 1. Related Links**

PARTS	PRODUCT FOLDER	SAMPLE & BUY	TECHNICAL DOCUMENTS	TOOLS & SOFTWARE	SUPPORT & COMMUNITY
ATL431A	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>
ATL431B	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>
ATL432A	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>
ATL432B	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>	<a href="#">Click here</a>

### 5.2 Trademarks

All trademarks are the property of their respective owners.

### 5.3 Electrostatic Discharge Caution



These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

### 5.4 Glossary

[SLYZ022](#) — *TI Glossary*.

This glossary lists and explains terms, acronyms, and definitions.

## 6 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

**PRODUCT PREVIEW**

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
ATL431AQDBZR	PREVIEW	SOT-23	DBZ	3	3000	TBD	Call TI	Call TI	-40 to 125		
ATL431BQDBZR	PREVIEW	SOT-23	DBZ	3	3000	TBD	Call TI	Call TI	-40 to 125		
ATL432AQDBZR	PREVIEW	SOT-23	DBZ	3	3000	TBD	Call TI	Call TI	-40 to 125		
ATL432BQDBZR	PREVIEW	SOT-23	DBZ	3	3000	TBD	Call TI	Call TI	-40 to 125		

(1) The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "-" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

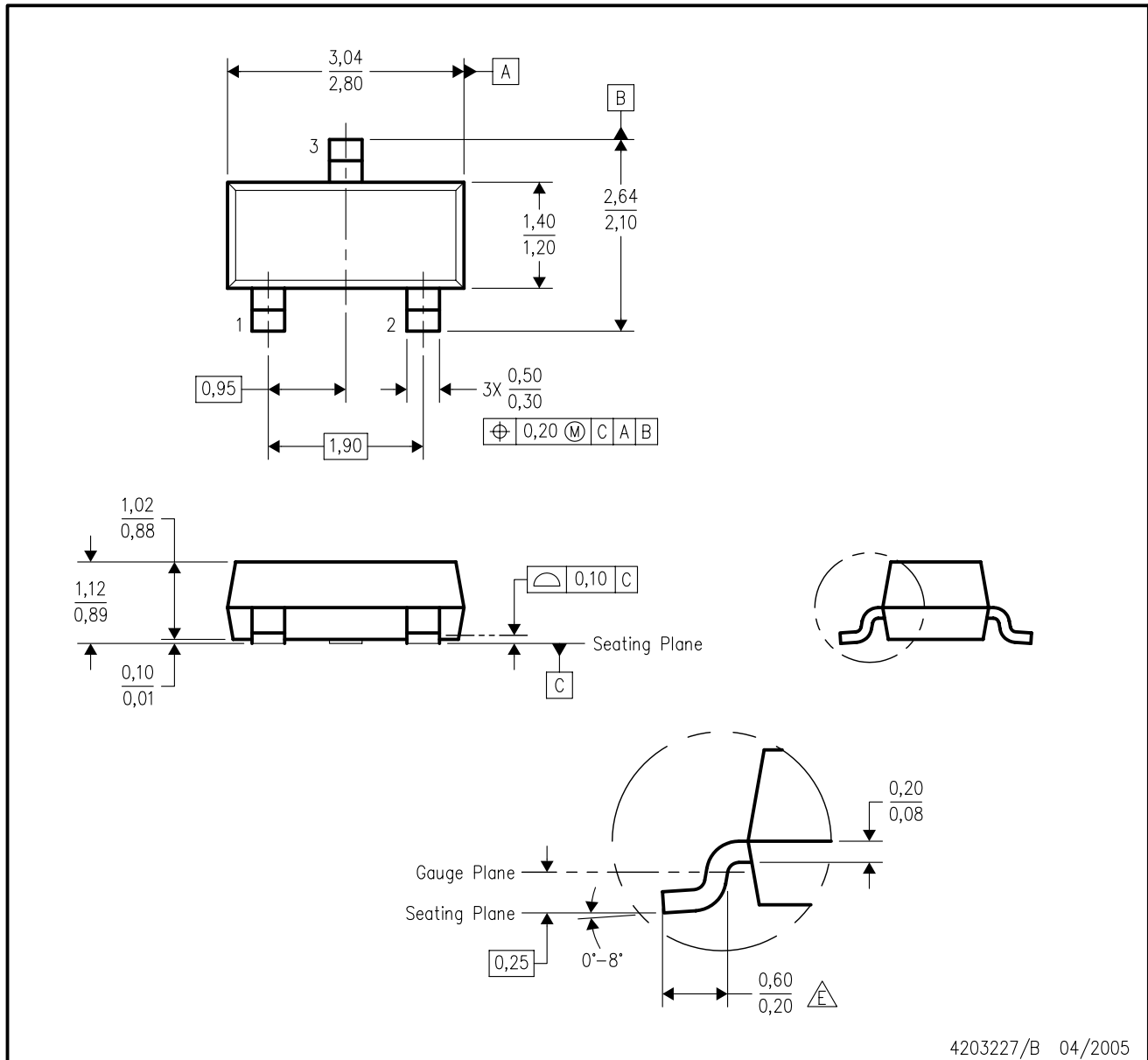
(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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DBZ (R-PDSO-G3)

PLASTIC SMALL-OUTLINE



- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
  - B. This drawing is subject to change without notice.
  - C. Lead dimensions are inclusive of plating.
  - D. Body dimensions are exclusive of mold flash and protrusion. Mold flash and protrusion not to exceed 0.25 per side.
- Falls within JEDEC TO-236 variation AB, except minimum foot length.

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Data Converters	<a href="http://dataconverter.ti.com">dataconverter.ti.com</a>
DLP® Products	<a href="http://www.dlp.com">www.dlp.com</a>
DSP	<a href="http://dsp.ti.com">dsp.ti.com</a>
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Wireless Connectivity	<a href="http://www.ti.com/wirelessconnectivity">www.ti.com/wirelessconnectivity</a>

### Applications

Automotive and Transportation	<a href="http://www.ti.com/automotive">www.ti.com/automotive</a>
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Computers and Peripherals	<a href="http://www.ti.com/computers">www.ti.com/computers</a>
Consumer Electronics	<a href="http://www.ti.com/consumer-apps">www.ti.com/consumer-apps</a>
Energy and Lighting	<a href="http://www.ti.com/energy">www.ti.com/energy</a>
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Medical	<a href="http://www.ti.com/medical">www.ti.com/medical</a>
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