

■ General Description

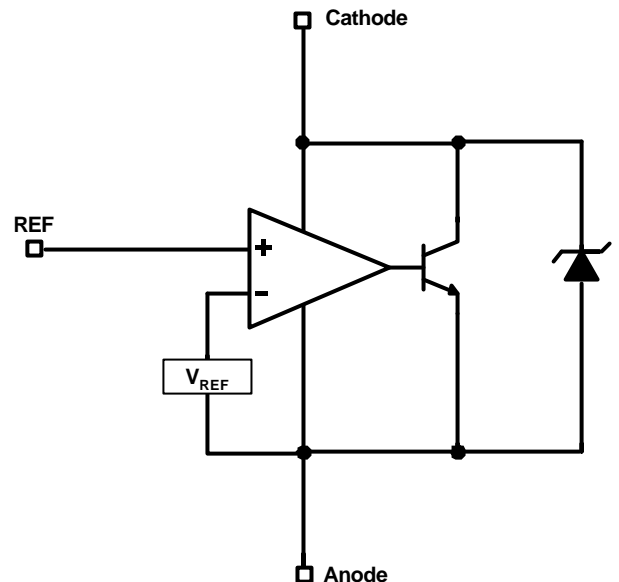
The AME431B series ICs are 3-terminal adjustable shunt regulator with guaranteed temperature stability over a full operation range. These ICs feature sharp turn-on characteristics, low temperature coefficient and low output impedance, which make them ideal substitutes for Zener diodes in applications such as switching power supply, charger and other adjustable regulators.

The reference is set to 1.24V for AME431Bxxxxx12. The output voltage can be set to 1.24V to 16V for $V_{REF}=1.24V$ part type with two external resistors.

The AME431B precision reference is offered in two reference tolerance: 0.5% and 1.0%

The 5 main packages have low thermal impedance which allows operation over a wide range of $-40^{\circ}C$ to $+125^{\circ}C$.

■ Functional Block Diagram



■ Features

- Very Accurate Reference Voltage : 0.15% Typical
- High Stability under Capacitive Load
- Low Temperature Deviation: 4.5mV Typical
- Low Equivalent Full-range Temperature Coefficient with 20PPM/ $^{\circ}C$ Typical
- Low Dynamic Output Resistance: 0.2Ω Typical
- Sink Current Capacity from 1mA to 100mA
- Low Output Noise
- Available in 7 Packages: TO-92, SOT-23, TSOT-23, SOT-89, SOP-8 and SOT-25, TSOT-25
- All AME' s Lead Free Products Meet RoHS Standards

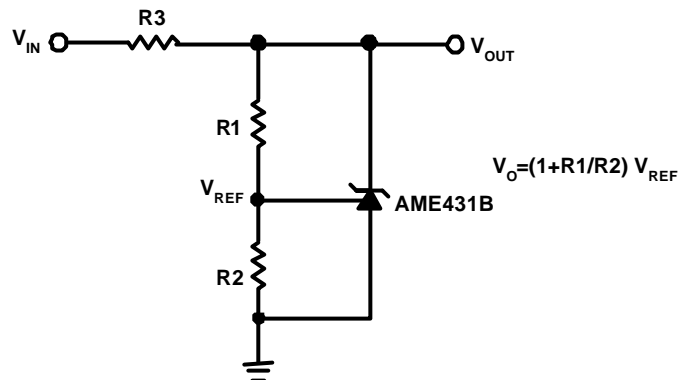
■ Applications

- Adjustable Power Supplies
- Linear Regulators
- Battery Operated Computer
- Portable Electronics
- Instrumentation
- Switching Power Supply
- Mother Board
- LCD Monitor
- Note Book Computer

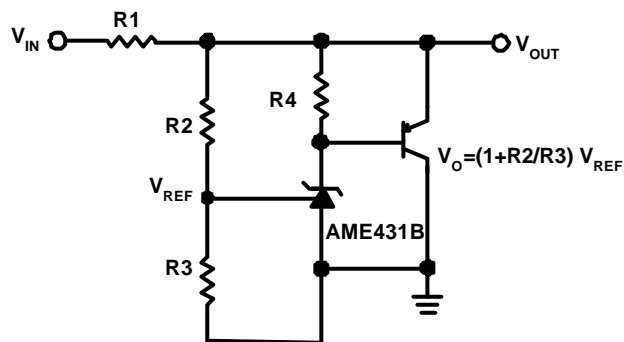
AME431B-1.24V

■ Typical Applications

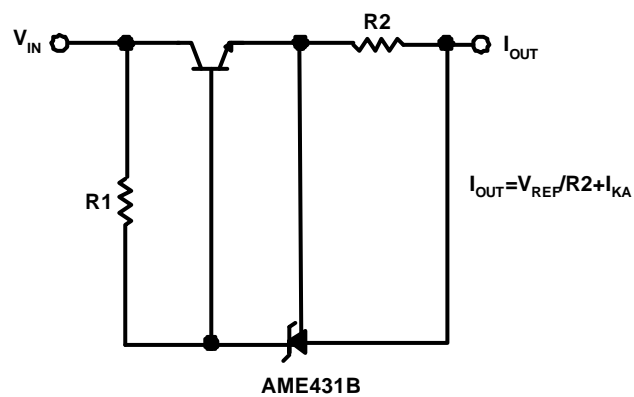
Shunt Regulator

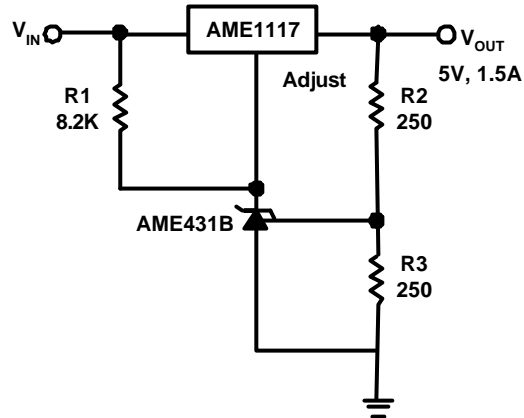
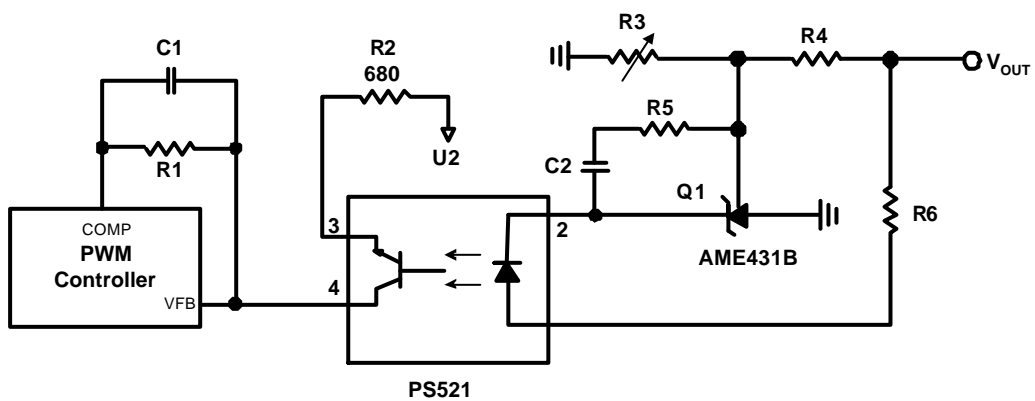


High Current Shunt Regulator



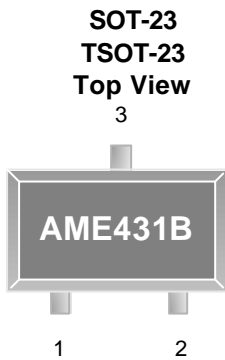
Current Source or Current Limit



■ Typical Applications (contd.)
Precision 5V 1.5A Regulator

Precision 5V 1.5A Regulator


AME431B-1.24V

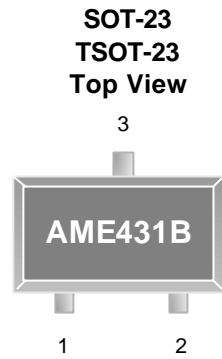
■ Pin Configuration



AME431BAJETXXXX

1. Cathode
2. REF
3. Anode

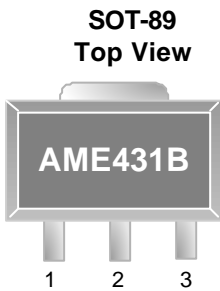
* Die Attach:
Conductive Epoxy



AME431BBJETXXXX

1. REF
2. Cathode
3. Anode

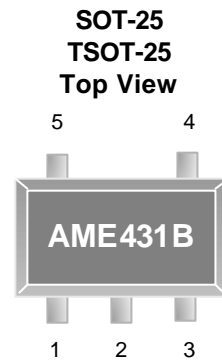
* Die Attach:
Conductive Epoxy



AME431BAJFTXXXX

1. REF
2. Anode
3. Cathode

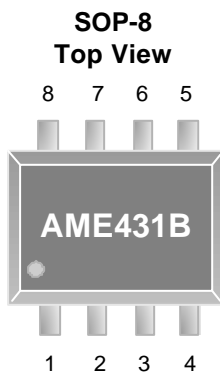
* Die Attach:
Conductive Epoxy



AME431BAJEVXXXX

1. NC
2. NC
3. Cathode
4. REF
5. Anode

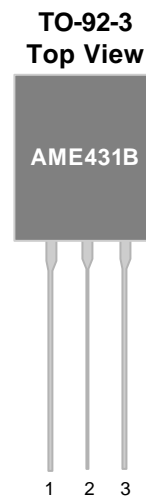
* Die Attach:
Non-Conductive Epoxy



AME431BAJHAXXXX

1. Cathode
2. Anode
3. Anode
4. NC
5. NC
6. Anode
7. Anode
8. REF

* Die Attach:
Conductive Epoxy



AME431BAJATXXXX

1. REF
2. Anode
3. Cathode

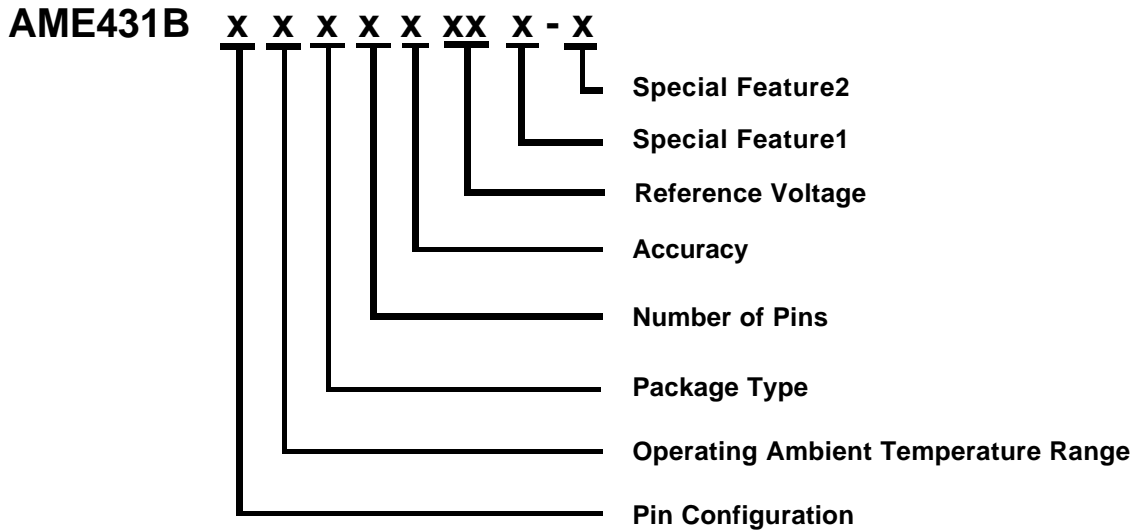
* Die Attach:
Conductive Epoxy



Adjustable Precision Shunt Regulator

AME431B-1.24V

Ordering Information



| Pin Configuration | Operating Ambient Temperature Range | Package Type | Number of Pins | Accuracy | Reference Voltage | Special Feature1 | Special Feature2 (For TO-92 Package Only) |
|---|-------------------------------------|--|----------------------|--------------------|-------------------|--|---|
| A 1. Cathode <small>(SOT-23)</small> 2. REF <small>(TSOT-23)</small> 3. Anode B 1. REF <small>(SOT-23)</small> 2. Cathode <small>(TSOT-23)</small> 3. Anode A 1. REF <small>(SOT-89)</small> 2. Anode 3. Cathode A 1. REF <small>(TO-92-3)</small> 2. Anode 3. Cathode A 1. Cathode <small>(SOP-8)</small> 2. Anode 3. Anode 4. NC 5. NC 6. Anode 7. Anode 8. REF A 1. NC <small>(SOT-25)</small> 2. NC <small>(TSOT-25)</small> 3. Cathode 4. REF 5. Anode | J: -40°C to +125°C | A: TO-92 E: SOT-2X F: SOT-89 H: SOP | A: 8 T: 3 V: 5 | A: 0.5% B: 1.0% | 12: 1.24V | L: Low profile Y: Lead free & Low profile Z: Lead free | Package Lead Pitch N/A: Taping 5.08mm 1: Bulk 2.54mm |



AME431B-1.24V

Adjustable Precision Shunt Regulator

■ Ordering Information (contd.)

| Part Number | Marking* | Reference Voltage | Accuracy | Package | Operating Ambient Temperature Range |
|-----------------|----------|-------------------|----------|---------|-------------------------------------|
| AME431BAJETA12 | AZNww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BAJETA12L | AZNww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BAJETA12Y | AZNww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BAJETA12Z | AZNww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BAJETB12 | AZOww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BAJETB12L | AZOww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BAJETB12Y | AZOww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BAJETB12Z | AZOww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BBJETA12 | AZPww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BBJETA12L | AZPww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BBJETA12Y | AZPww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BBJETA12Z | AZPww | 1.24V | 0.5% | SOT-23 | - 40°C to +125°C |
| AME431BBJETB12 | AZQww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BBJETB12L | AZQww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BBJETB12Y | AZQww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BBJETB12Z | AZQww | 1.24V | 1.0% | SOT-23 | - 40°C to +125°C |
| AME431BAJEVA12 | BAWww | 1.24V | 0.5% | SOT-25 | - 40°C to +125°C |
| AME431BAJEVA12L | BAWww | 1.24V | 0.5% | TSOT-25 | - 40°C to +125°C |
| AME431BAJEVA12Z | BAWww | 1.24V | 0.5% | SOT-25 | - 40°C to +125°C |
| AME431BAJEVA12Y | BAWww | 1.24V | 0.5% | TSOT-25 | - 40°C to +125°C |

Note: yyww & ww represents the date code and pls refer to Date Code Rule before Package Dimension.

* A line on top of the first letter represents lead free plating such as \bar{A} ZN

Please consult AME sales office or authorized Rep./Distributor for output voltage and package type availability.

AME431B-1.24V
■ Ordering Information

| Part Number | Marking* | Reference Voltage | Accuracy | Package | Operating Ambient Temperature Range |
|-------------------|--------------------------------|-------------------|----------|---------|-------------------------------------|
| AME431BAJEVB12 | BAVww | 1.24V | 1.0% | SOT-25 | - 40°C to +125°C |
| AME431BAJEVB12L | BAVww | 1.24V | 1.0% | TSOT-25 | - 40°C to +125°C |
| AME431BAJEVB12Z | BAVww | 1.24V | 1.0% | SOT-25 | - 40°C to +125°C |
| AME431BAJEVB12Y | BAVww | 1.24V | 1.0% | TSOT-25 | - 40°C to +125°C |
| AME431BAJFTA12Z | A431B BKYww | 1.24V | 0.5% | SOT-89 | - 40°C to +125°C |
| AME431BAJATA12Z | AME12 431B AJATA yyww | 1.24V | 0.5% | TO92-3 | - 40°C to +125°C |
| AME431BAJATA12Z-1 | AME12 431B AJATA yyww | 1.24V | 0.5% | TO92-3 | - 40°C to +125°C |
| AME431BAJATB12Z | AME12 431B AJATB yyww | 1.24V | 1.0% | TO92-3 | - 40°C to +125°C |
| AME431BAJATB12Z-1 | AME12 431B AJATB yyww | 1.24V | 1.0% | TO92-3 | - 40°C to +125°C |

AME431B-1.24V

■ Absolute Maximum Ratings

| Parameter | Maximum | Unit |
|-----------------|---------|------|
| Cathode Current | 100 | mA |
| Cathode Voltage | 18 | V |

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Recommended Operating Conditions

| Parameter | Rating | | Unit |
|----------------------------|------------|-------------|------|
| Supply Current | 1 to 100 | | mA |
| Operation Voltage Range | 1.24 to 16 | | V |
| Ambient Temperature Range | T_A | -40 to +125 | °C |
| Junction Temperature Range | T_J | -40 to +125 | °C |
| Storage Temperature Range | T_{STG} | -65 to +150 | °C |

AME431B-1.24V
■ Thermal Information

| Parameter | Package | Die Attach | Symbol | Maximum | Unit |
|---|---------------------|-------------------------|---------------|---------|-------------------------------|
| Thermal Resistance (Junction to Case) | SOT-23** TSOT-23 | Conductive Epoxy | θ_{JC} | 81 | $^{\circ}\text{C} / \text{W}$ |
| | SOT-89* | | | 40 | |
| | TO-92-3** | | | 80 | |
| | SOP-8** | | | 60 | |
| | SOT-25** TSOT-25 | Non-Conductive Epoxy | | 140 | |
| Thermal Resistance (Junction to Ambient) | SOT-23 TSOT-23 | Conductive Epoxy | θ_{JA} | 260 | $^{\circ}\text{C} / \text{W}$ |
| | SOT-89 | | | 180 | |
| | TO-92-3 | | | 150 | |
| | SOP-8 | | | 150 | |
| | SOT-25 TSOT-25 | Non-Conductive Epoxy | | 280 | |
| Internal Power Dissipation | SOT-23 TSOT-23 | Conductive Epoxy | P_D | 400 | mW |
| | SOT-89 | | | 550 | |
| | TO-92-3 | | | 625 | |
| | SOP-8 | | | 810 | |
| | SOT-25 TSOT-25 | Non-Conductive Epoxy | | 400 | |
| Maximum Junction Temperature | | | | 150 | $^{\circ}\text{C}$ |
| Solder Iron (10 Sec)*** | | | | 350 | $^{\circ}\text{C}$ |

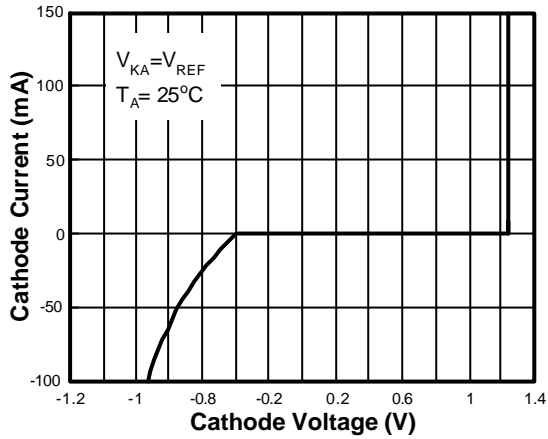
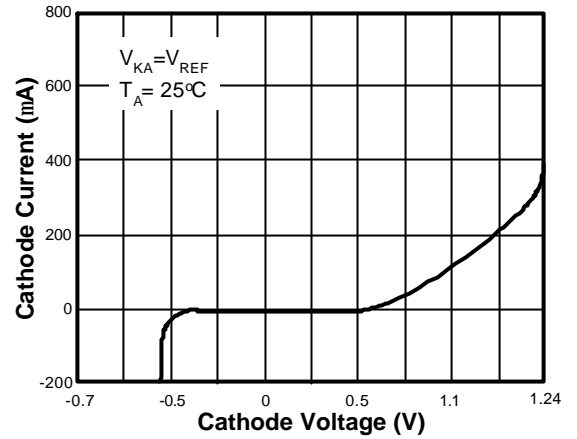
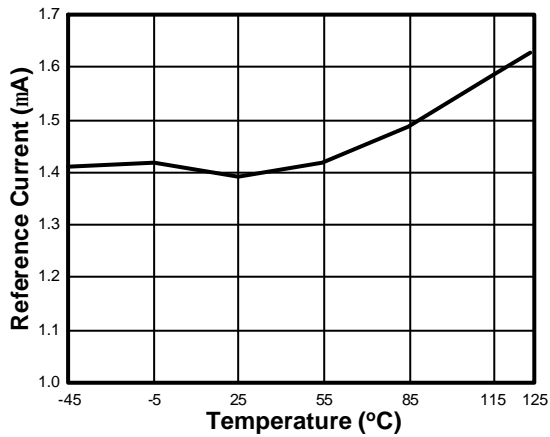
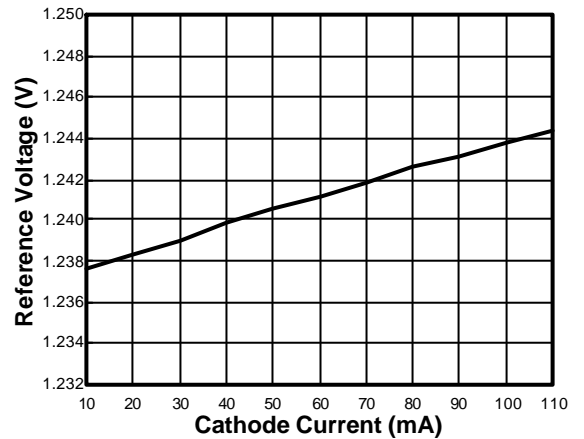
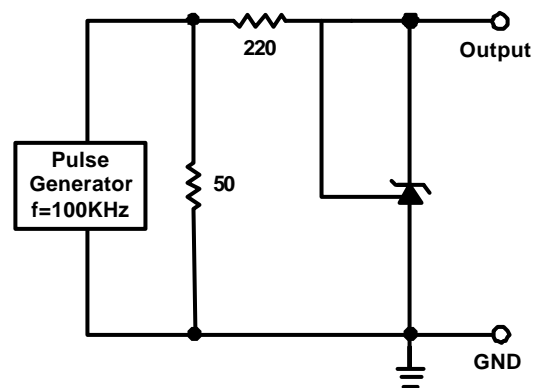
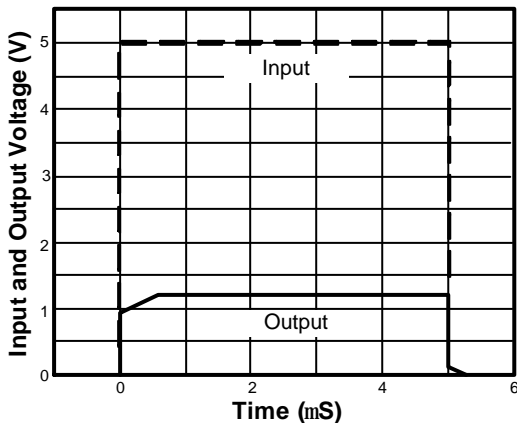
* Measure θ_{JC} on backside center of tab.

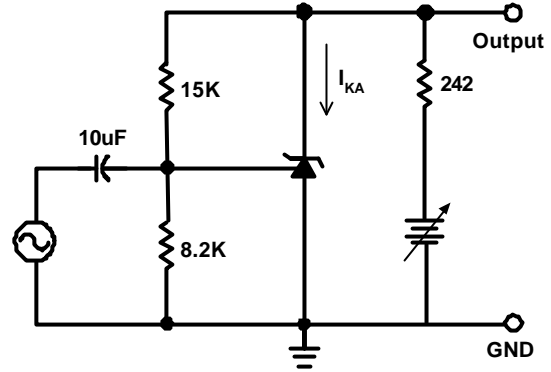
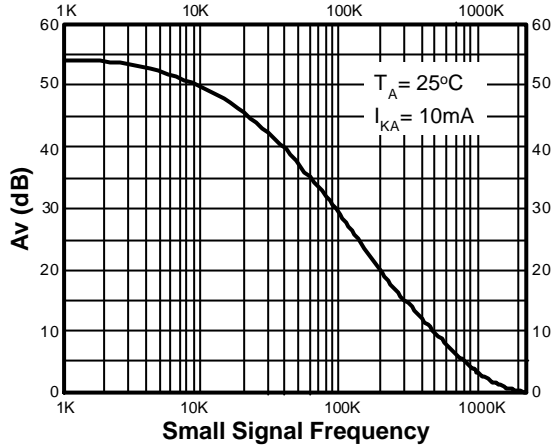
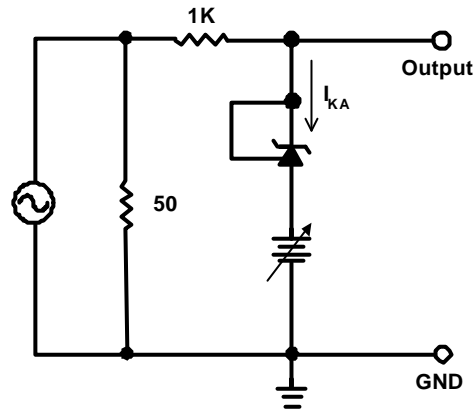
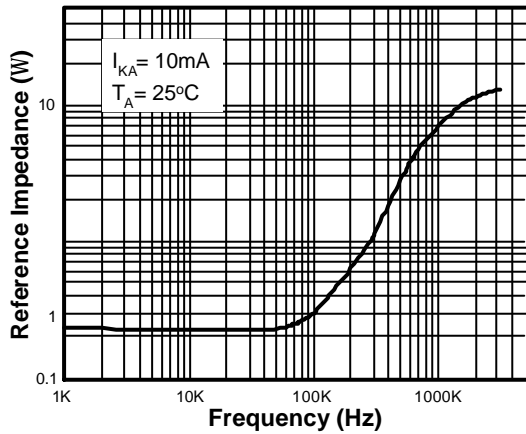
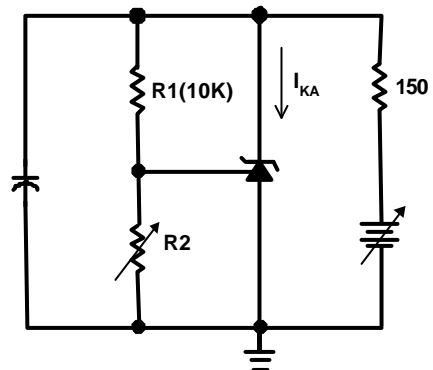
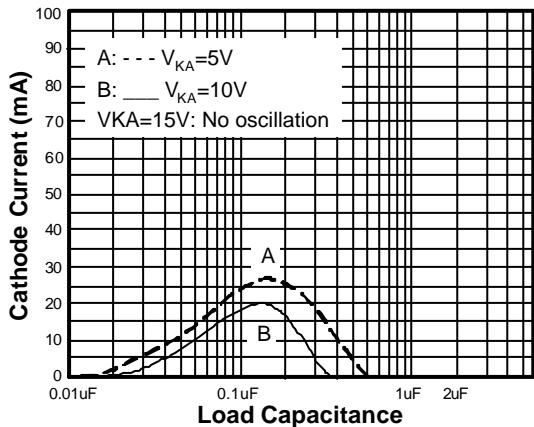
** Measure θ_{JC} on center of molding compound if IC has no tab.

*** MIL-STD-202G210F

AME431B-1.24V
■ Electrical Specifications
 $T_A = 25^\circ\text{C}$, $I_{REF} = 10\text{mA}$ unless otherwise specified

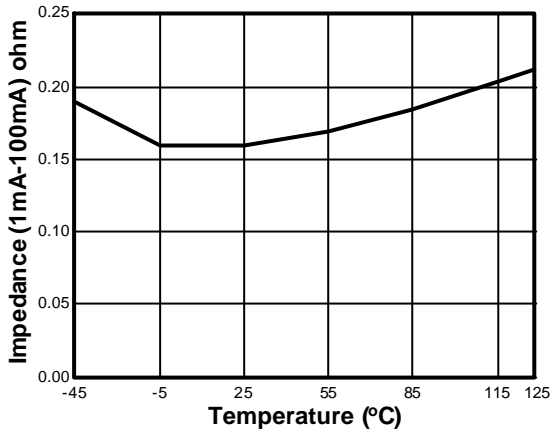
| Parameter | Test Circuit | Symbol | Test Condition | Min | Typ | Max | Units | |
|---|--------------|--|---|--|-------|-------|---------------|------|
| Reference Voltage | 0.5% | 1 | $V_{KA} - V_{REF}$, $I_{KA} = 10\text{mA}$ | 1.234 | 1.240 | 1.246 | V | |
| | 1.0% | | | 1.228 | 1.240 | 1.252 | | |
| Deviation of Reference Voltage Over Temperature | 1 | ΔV_{REF} | $V_{KA} = V_{REF}$ $I_{KA} = 10\text{mA}$ | $0^\circ\text{C} \sim +70^\circ\text{C}$ | - | 2 | 10 | mV |
| | | | | $-40^\circ\text{C} \sim +85^\circ\text{C}$ | - | 3 | 10 | |
| Ratio of Change in Reference Voltage to the Change in Cathode Voltage | 2 | $\frac{\Delta V_{REF}}{\Delta V_{KA}}$ | $I_{KA} = 10\text{mA}$ | $\Delta V_{KA} =$ 5V to V_{REF} | - | -0.5 | -1.5 | mV/V |
| | | | | $\Delta V_{KA} =$ 16V to 5V | - | -0.5 | -1.5 | |
| Reference Input Current | 2 | I_{REF} | $I_{KA} = 10\text{mA}$ $R1 = 10\text{K}\Omega$, $R2 = \infty$ | - | 0.15 | 0.4 | μA | |
| Deviation of Reference Current Over Full Temperature Range | 2 | ΔI_{REF} | $R1 = 10\text{K}\Omega$, $R2 = \infty$ $I_{KA} = 10\text{mA}$ $T_A = -40^\circ\text{C} \sim +85^\circ\text{C}$ | - | 0.1 | 0.4 | μA | |
| Minimum Cathode Current for Regulation | 1 | I_{KA} (MIN) | $V_{KA} = V_{REF}$ | - | 55 | 80 | μA | |
| Off-State Cathode Current | 3 | I_{KA} (OFF) | $V_{KA} = 18\text{V}$, $V_{REF} = 0\text{V}$ | - | 0.04 | 0.1 | μA | |
| Dynamic Impedance | 1 | Z_{KA} | $V_{KA} = V_{REF}$, $I_{KA} = 1$ to 100mA $F \leq 1\text{KHz}$ | - | 0.05 | 0.15 | Ω | |

Cathode Current vs. Cathode Voltage

Current vs. Cathode Voltage

Reference Current vs. Temperature

Reference Voltage vs. Cathode Current

Small Signal Voltage Gain vs. Frequency


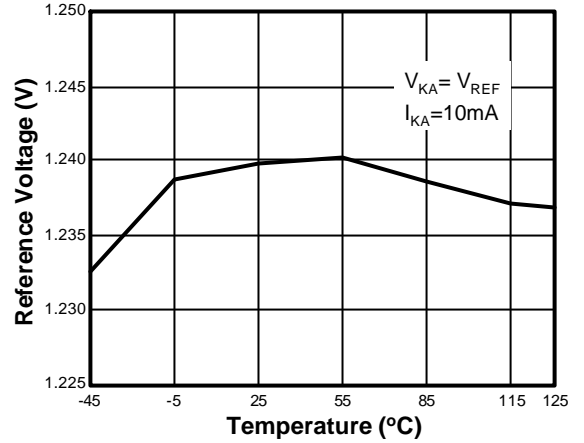
Small Signal Voltage Gain vs. Frequency

Reference Impedance vs. Frequency

Stability Boundary Conditions vs. Load Capacitance




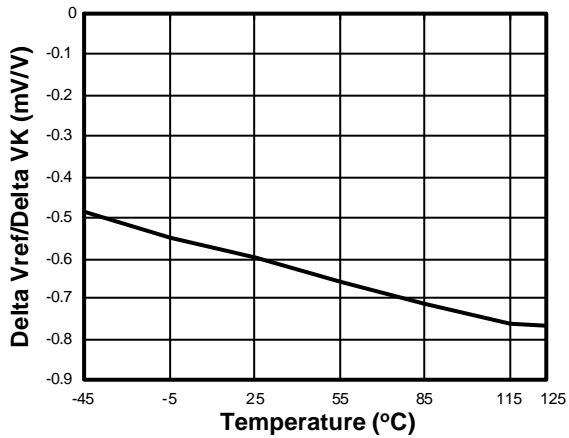
Impedance vs. Temperature



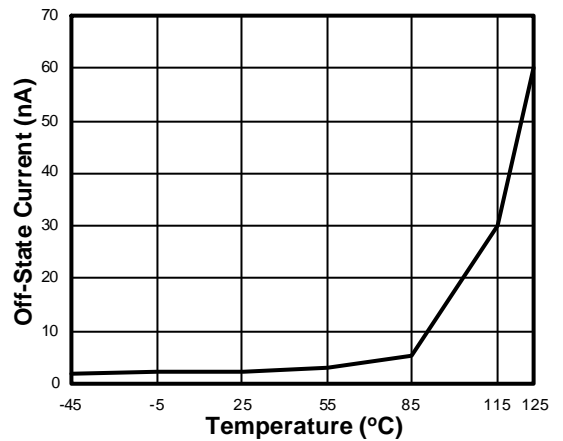
Reference Voltage vs. Temperature



Delta Reference Voltage vs. Temperature

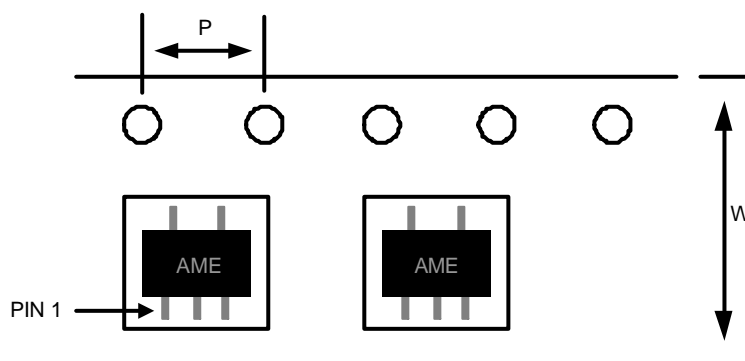


Off-State Current vs. Temperature

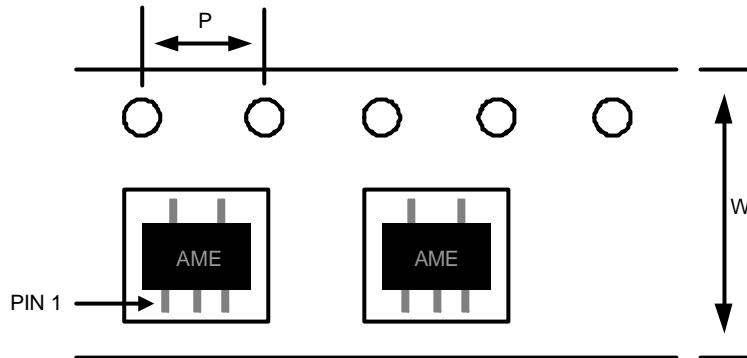


AME431B-1.24V
■ Date Code Rule

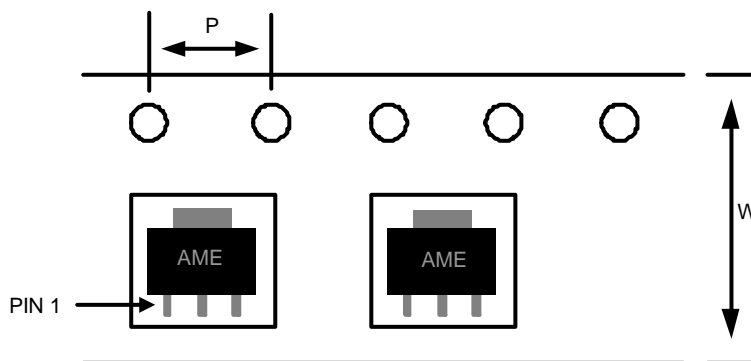
| Marking | | | Date Code | | Year |
|---------|----------|----------|-----------|----------|------|
| A | A | A | W | W | xxx0 |
| A | A | A | W | <u>W</u> | xxx1 |
| A | A | A | <u>W</u> | W | xxx2 |
| A | A | A | <u>W</u> | <u>W</u> | xxx3 |
| A | A | <u>A</u> | W | W | xxx4 |
| A | A | <u>A</u> | W | <u>W</u> | xxx5 |
| A | A | <u>A</u> | <u>W</u> | W | xxx6 |
| A | A | <u>A</u> | <u>W</u> | <u>W</u> | xxx7 |
| A | <u>A</u> | A | W | W | xxx8 |
| A | <u>A</u> | A | W | <u>W</u> | xxx9 |

■ Tape and Reel Dimension
SOT-25

Carrier Tape, Number of Components Per Reel and Reel Size

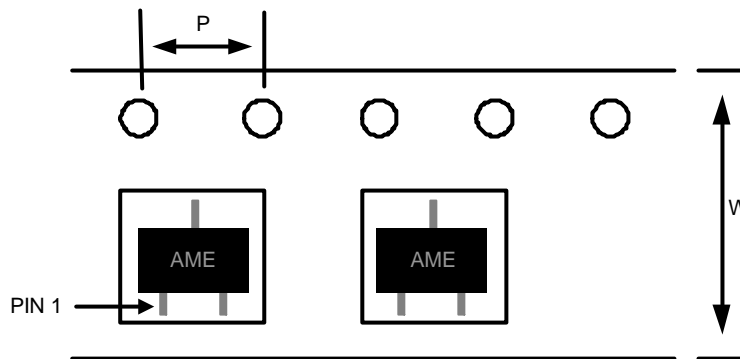
| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| SOT-25 | 8.0±0.1 mm | 4.0±0.1 mm | 3000pcs | 180±1 mm |

AME431B-1.24V
■ Tape and Reel Dimension
TSOT-25

Carrier Tape, Number of Components Per Reel and Reel Size

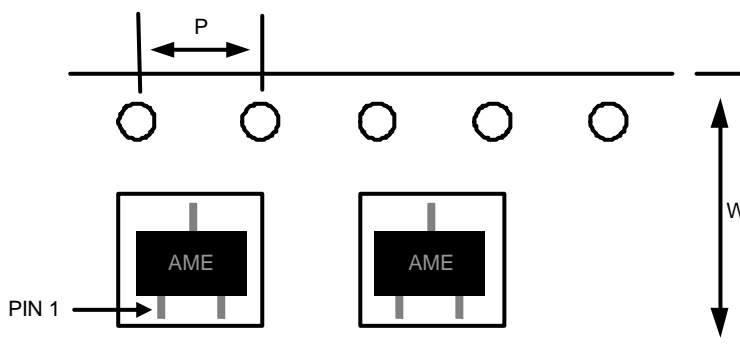
| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| TSOT-25 | 8.0±0.1 mm | 4.0±0.1 mm | 3000pcs | 180±1 mm |

SOT-89

Carrier Tape, Number of Components Per Reel and Reel Size

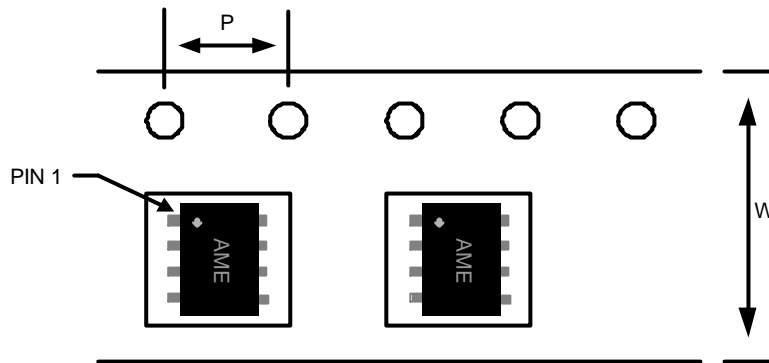
| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| SOT-89 | 12.0±0.1 mm | 4.0±0.1 mm | 1000pcs | 180±1 mm |

AME431B-1.24V
■ Tape and Reel Dimension
SOT-23

Carrier Tape, Number of Components Per Reel and Reel Size

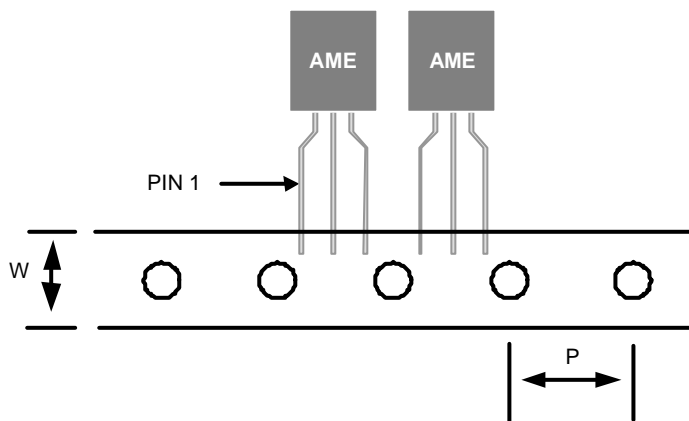
| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| SOT-23 | 8.0±0.1 mm | 4.0±0.1 mm | 3000pcs | 180±1 mm |

TSOT-23

Carrier Tape, Number of Components Per Reel and Reel Size

| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| TSOT-23 | 8.0±0.1 mm | 4.0±0.1 mm | 3000pcs | 180±1 mm |

AME431B-1.24V
■ Tape and Reel Dimension
SOP-8

Carrier Tape, Number of Components Per Reel and Reel Size

| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|-------------------|------------|--------------------|-----------|
| SOP-8 | 12.0±0.1 mm | 4.0±0.1 mm | 2500pcs | 330±1 mm |

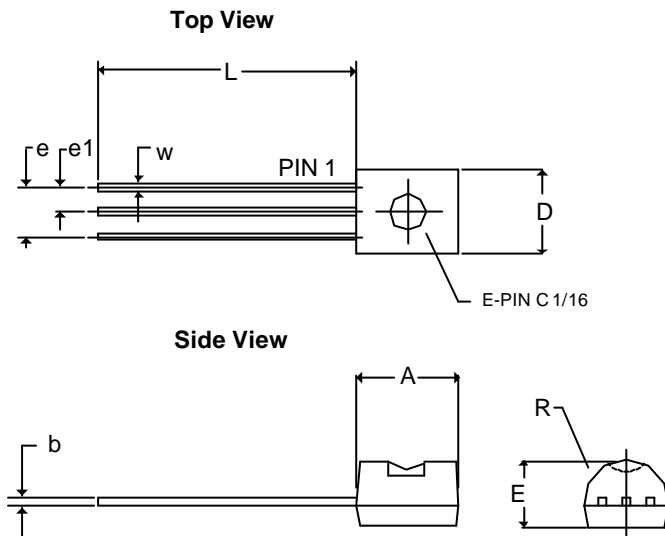
TO-92-3

Carrier Tape, Number of Components Per Reel and Reel Size

| Package | Carrier Width (W) | Pitch (P) | Part Per Full Reel | Reel Size |
|---------|---|-------------|--------------------|-----------|
| TO-92-3 | 18.0 ^{+1.0} _{-0.5} mm | 12.7±0.2 mm | 2000pcs | N/A |

AME431B-1.24V

■ Package Dimension

TO-92-3 (bulk pack)

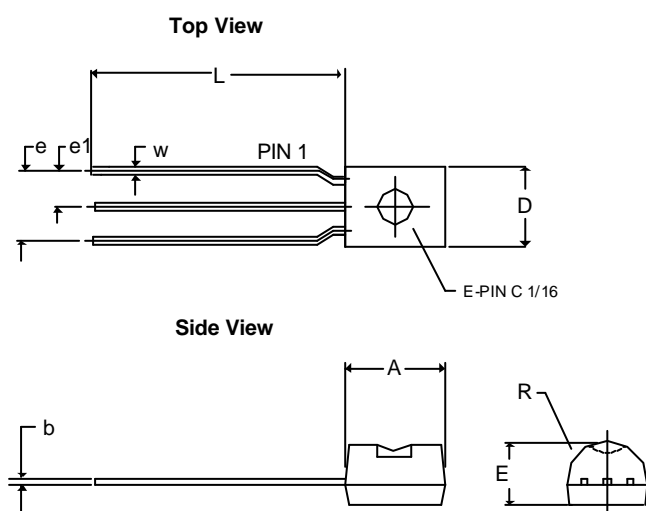


| SYMBOLS | MILLIMETERS | | INCHES | |
|-----------|-------------|-------|-----------|--------|
| | MIN | MAX | MIN | MAX |
| A | 2.80 | 4.95 | 0.1102 | 0.1949 |
| b | 0.40REF | | 0.0157REF | |
| E | 3.94REF | | 0.1551REF | |
| e | 2.54REF | | 0.1000REF | |
| e1 | 1.27REF | | 0.0500REF | |
| L | 12.70 | 15.49 | 0.5000 | 0.6098 |
| R | 2.29 | | 0.0902 | |
| W | 0.35 | 0.76 | 0.0138 | 0.0299 |
| D | 3.80 | 4.95 | 0.1496 | 0.1949 |

Notes:

1. Package outline exclusive of any mold flashes dimension.
2. Package outline exclusive of burr dimension.
3. Lead pitch=2.54mm is bulk pack.
4. Lead pitch=5.08mm is tape pack.

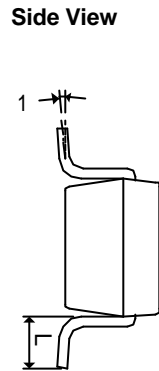
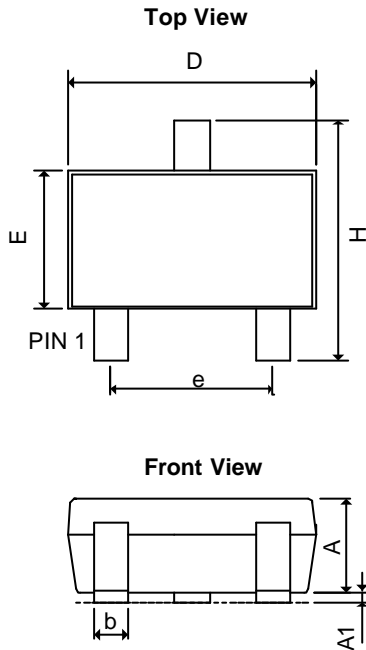
TO-92-3 (tape pack)



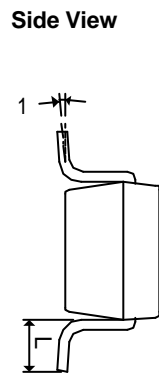
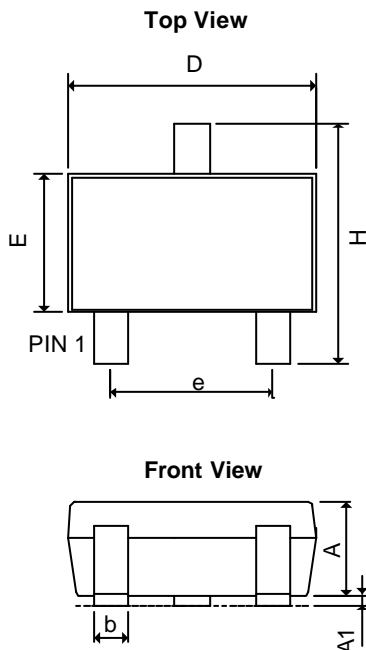
| SYMBOLS | MILLIMETERS | | INCHES | |
|-----------|-------------|-------|-----------|--------|
| | MIN | MAX | MIN | MAX |
| A | 2.80 | 4.95 | 0.1102 | 0.1949 |
| b | 0.40REF | | 0.0157REF | |
| E | 2.40 | 3.94 | 0.0945 | 0.1551 |
| e | 5.08REF | | 0.2REF | |
| e1 | 2.54REF | | 0.1REF | |
| L | 12.70 | 15.49 | 0.5000 | 0.6098 |
| R | 2.00 | | 0.0787 | |
| W | 0.35 | 0.76 | 0.0138 | 0.0299 |
| D | 3.80 | 4.95 | 0.1496 | 0.1949 |

Notes:

1. Package outline exclusive of any mold flashes.
2. Package outline exclusive of burr dimension.
3. Lead pitch=2.54mm is bulk pack.
4. Lead pitch=5.08mm is tape pack.

■ Package Dimension
SOT-23


| SYMBOLS | MILLIMETERS | | INCHES | |
|----------------|-------------|------|------------|---------|
| | MIN | MAX | MIN | MAX |
| A | 1.00 | 1.40 | 0.0394 | 0.0551 |
| A ₁ | 0.00 | 0.15 | 0.0000 | 0.0059 |
| b | 0.35 | 0.50 | 0.0138 | 0.0197 |
| D | 2.70 | 3.10 | 0.1063 | 0.1220 |
| E | 1.40 | 1.80 | 0.0551 | 0.0709 |
| e | 1.90 BSC | | 0.0748 BSC | |
| H | 2.40 | 3.00 | 0.09449 | 0.11811 |
| L | 0.35BSC | | 0.0138BSC | |
| q1 | 0° | 10° | 0° | 10° |

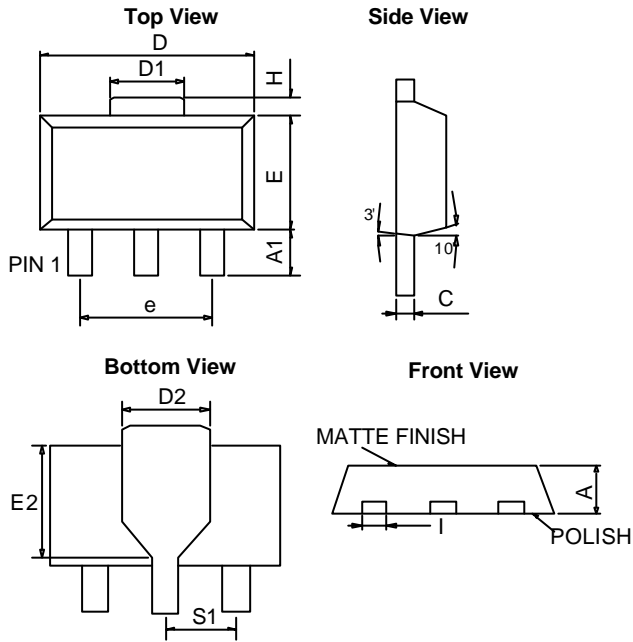
TSOT-23


| SYMBOLS | MILLIMETERS | | INCHES | |
|------------------|-------------|------|------------|---------|
| | MIN | MAX | MIN | MAX |
| A+A ₁ | 0.80 | 1.30 | 0.0315 | 0.0512 |
| b | 0.35 | 0.50 | 0.0138 | 0.0197 |
| D | 2.70 | 3.10 | 0.1063 | 0.1220 |
| E | 1.20 | 1.80 | 0.0472 | 0.0709 |
| e | 1.90 BSC | | 0.0748 BSC | |
| H | 2.40 | 3.00 | 0.09449 | 0.11811 |
| L | 0.35BSC | | 0.0138BSC | |
| 81 | 0° | 10° | 0° | 10° |

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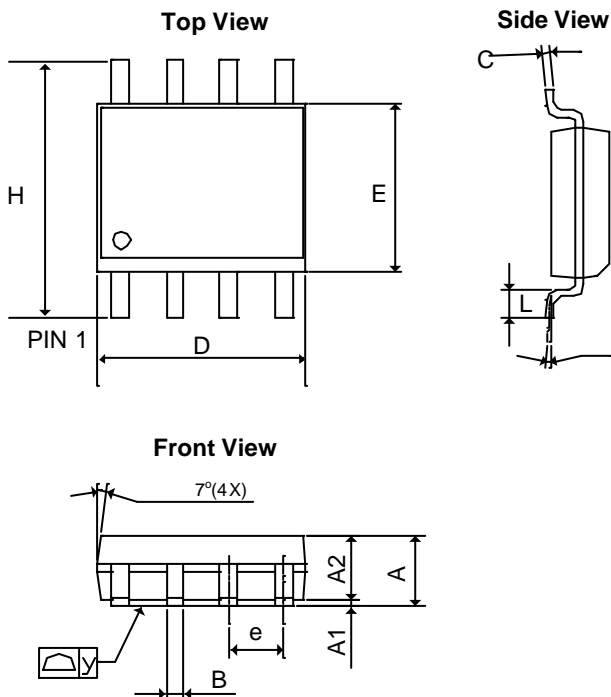
■ Package Dimension

SOT-89



| SYMBOLS | MILLIMETERS | | INCHES | |
|----------------|-------------|------|-------------|---------|
| | MIN | MAX | MIN | MAX |
| A | 1.39 | 1.60 | 0.05472 | 0.06299 |
| A ₁ | 0.8 REF | | 0.03150 REF | |
| C | 0.35 | 0.44 | 0.01378 | 0.01732 |
| D | 4.39 | 4.60 | 0.17283 | 0.18110 |
| D ₁ | 1.35 | 1.83 | 0.05315 | 0.07205 |
| E | 2.28 | 2.60 | 0.08976 | 0.10236 |
| I | 0.36 | 0.56 | 0.01417 | 0.02204 |
| e | 3.00 REF | | 0.11811 REF | |
| H | 0.70 REF | | 0.02756 REF | |
| S ₁ | 1.50 REF | | 0.05906 REF | |
| E ₂ | 2.05 | 2.60 | 0.08071 | 0.10236 |
| D ₂ | 1.50 | 1.85 | 0.05905 | 0.07283 |

SOP-8

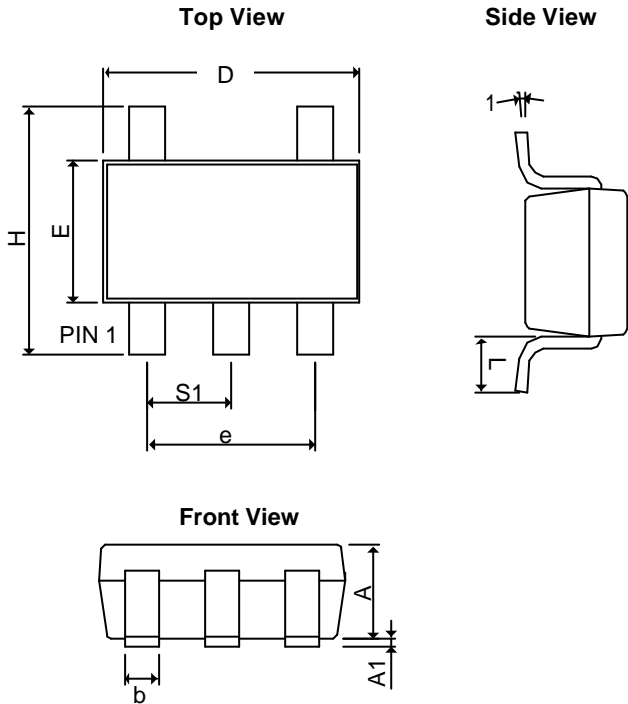


| SYMBOLS | MILLIMETERS | | INCHES | |
|----------------|-------------|------|-------------|---------|
| | MIN | MAX | MIN | MAX |
| A | 1.35 | 1.75 | 0.05315 | 0.0689 |
| A ₁ | 0.10 | 0.30 | 0.00394 | 0.01181 |
| A ₂ | 1.473 REF | | 0.05799 REF | |
| B | 0.33 | 0.51 | 0.01299 | 0.02008 |
| C | 0.19 | 0.25 | 0.00748 | 0.00984 |
| D | 4.80 | 5.33 | 0.18898 | 0.20984 |
| E | 3.80 | 4.00 | 0.14961 | 0.15748 |
| e | 1.27 BSC | | 0.05000 BSC | |
| L | 0.40 | 1.27 | 0.01575 | 0.05000 |
| H | 5.80 | 6.30 | 0.22835 | 0.24803 |
| y | - | 0.10 | - | 0.00394 |
| q | 0° | 8° | 0° | 8° |

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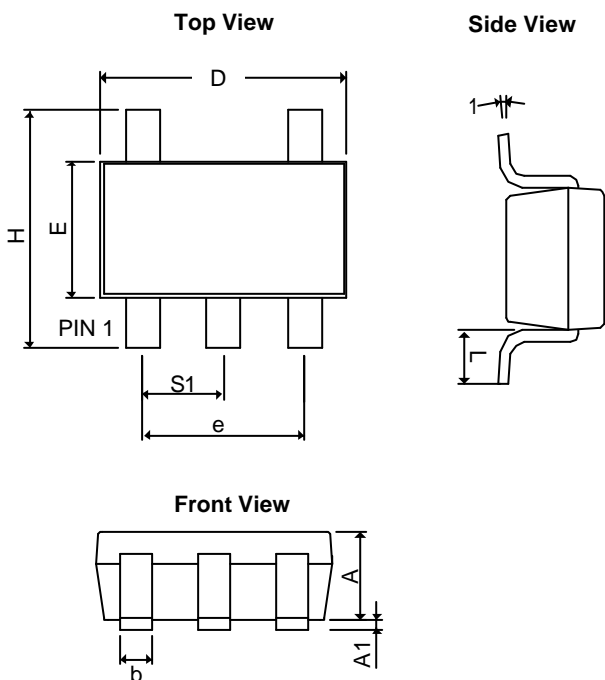
■ Package Dimension

SOT-25



| SYMBOLS | MILLIMETERS | | INCHES | |
|----------------|-------------|------|-------------|---------|
| | MIN | MAX | MIN | MAX |
| A | 1.20REF | | 0.0472REF | |
| A ₁ | 0.00 | 0.15 | 0.0000 | 0.0059 |
| b | 0.30 | 0.55 | 0.0118 | 0.0217 |
| D | 2.70 | 3.10 | 0.1063 | 0.1220 |
| E | 1.40 | 1.80 | 0.0551 | 0.0709 |
| e | 1.90 BSC | | 0.07480 BSC | |
| H | 2.60 | 3.00 | 0.10236 | 0.11811 |
| L | 0.37BSC | | 0.0146BSC | |
| q1 | 0° | 10° | 0° | 10° |
| S ₁ | 0.95BSC | | 0.0374BSC | |

TSOT-25



| SYMBOLS | MILLIMETERS | | INCHES | |
|------------------|-------------|------|-------------|---------|
| | MIN | MAX | MIN | MAX |
| A+A ₁ | 0.90 | 1.25 | 0.0354 | 0.0492 |
| b | 0.30 | 0.50 | 0.0118 | 0.0197 |
| D | 2.70 | 3.10 | 0.1063 | 0.1220 |
| E | 1.40 | 1.80 | 0.0551 | 0.0709 |
| e | 1.90 BSC | | 0.07480 BSC | |
| H | 2.40 | 3.00 | 0.09449 | 0.11811 |
| L | 0.35BSC | | 0.0138BSC | |
| q1 | 0° | 10° | 0° | 10° |
| S ₁ | 0.95BSC | | 0.0374BSC | |



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Document: BCD-DS431B-E.04

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