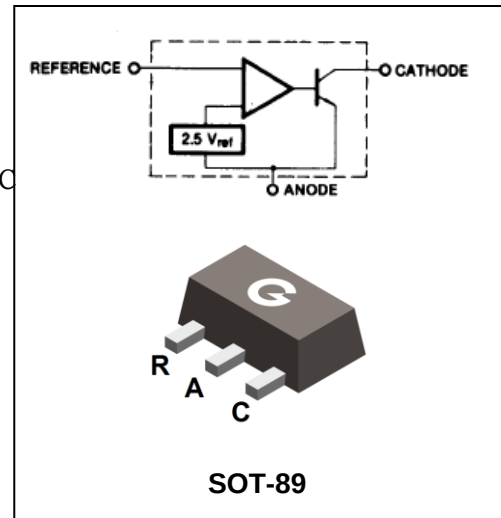


Adjustable Reference Source

BL431E

FEATURES

- Programmable output voltage to 36 volts
- Low dynamic output impedance 0.20 typical
- Sink current capability of 1.0 to 100mA
- Equivalent full-range temperature coefficient of 50ppm/°C typical
- Temperature compensated for operation over full rated Operating temperature range
- Low output noise voltage
- Fast turn-on response
- RoHS compliant with Halogen-free



APPLICATIONS

- Adjustable accurate reference source

ORDERING INFORMATION

Type No.	Marking	Package Code
BL431E	431	SOT-89
BL431E-A	431	SOT-89
BL431E-B	431	SOT-89

MAXIMUM RATING operating temperature range applies unless otherwise specified

Symbol	Parameter	Value	Units
$V_{(ESD)}$	Electrostatic discharge Human-body model(HBM),per ANSI/ESDA/JEDEC JS-001 ^(Note1)	± 2000	V
	Electrostatic discharge Charged-device model(CDM), per JEDEC specification JESD22C101 ^(Note2)	± 1000	
V_{KA}	Cathode voltage	37	V
I_{KA}	Cathode current range(Continuous)	-100 to +150	mA
I_{ref}	Reference input current range	0.05 to 10	mA
P_D	Power dissipation	770	mW
T_{OPR}	Operating temperature range	-40 to +105	°C
T_j, T_{stg}	Storage temperature range	-65 to +150	°C

Adjustable Reference Source

BL431E

Notes:

1. JEDEC document JEP155 states that 500-v HBM allows safe manufacturing with a standard ESD control process. Manufacturing with less than 500-v HBM is possible with the necessary precautions.
2. JEDEC document JEP157 states that 250-v CDM allows safe manufacturing with a standard ESD control process. Manufacturing with less than 250-v CDM is possible with the necessary precautions.

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test conditions		MIN	TYP	MAX	UNIT
Reference input voltage	V_{ref}	$V_{KA}=V_{REF}, I_{KA}=10mA$ BL431E-A (0.5%) BL431E (1%) BL431E-B (2%)		2.488 2.475 2.450	2.5 2.5 2.5	2.512 2.525 2.550	V
Load regulation	$\Delta V_{ref}/\Delta T$	$V_{KA}=V_{REF}, I_{KA}=10mA$ $T_{min} \leq T_A \leq T_{max}$			4.5	17	mV
Ratio Of Change in Reference Input Voltage to the change in Cathode Voltage	$\Delta V_{ref}/\Delta V_{KA}$	$I_{KA}=10mA$	$\Delta V_{KA}=10V - V_{ref}$	-2.7	-1.0		mV/V
			$\Delta V_{KA}=36V - 10V$	-2.0	-0.5		mV/V
Reference input current	I_{ref}	$I_{KA}=10mA, R_1=10K\Omega, R_2=\infty$			1.5	4	μA
Deviation Of Reference Input Current Over Full Temperature Range	$\Delta I_{ref}/\Delta T$	$I_{KA}=10mA, R_1=10K\Omega, R_2=\infty$ $T_A = \text{Full Range}$			0.4	1.2	μA
Minimum cathode current for regulation	$I_{KA(min)}$	$V_{KA}=V_{REF}$			0.45	1.0	mA
Off-state cathode Current	$I_{KA(OFF)}$	$V_{KA}=36V, V_{REF}=0$			0.05	1.0	μA
Dynamic impedance	Z_{KA}	$V_{KA}=V_{REF}, I_{KA}=1 \text{ to } 100mA$ $f \geq 1.0KHz$			0.15	0.5	Ω

• $T_{MIN}=-40^{\circ}C, T_{MAX}=+125^{\circ}C$

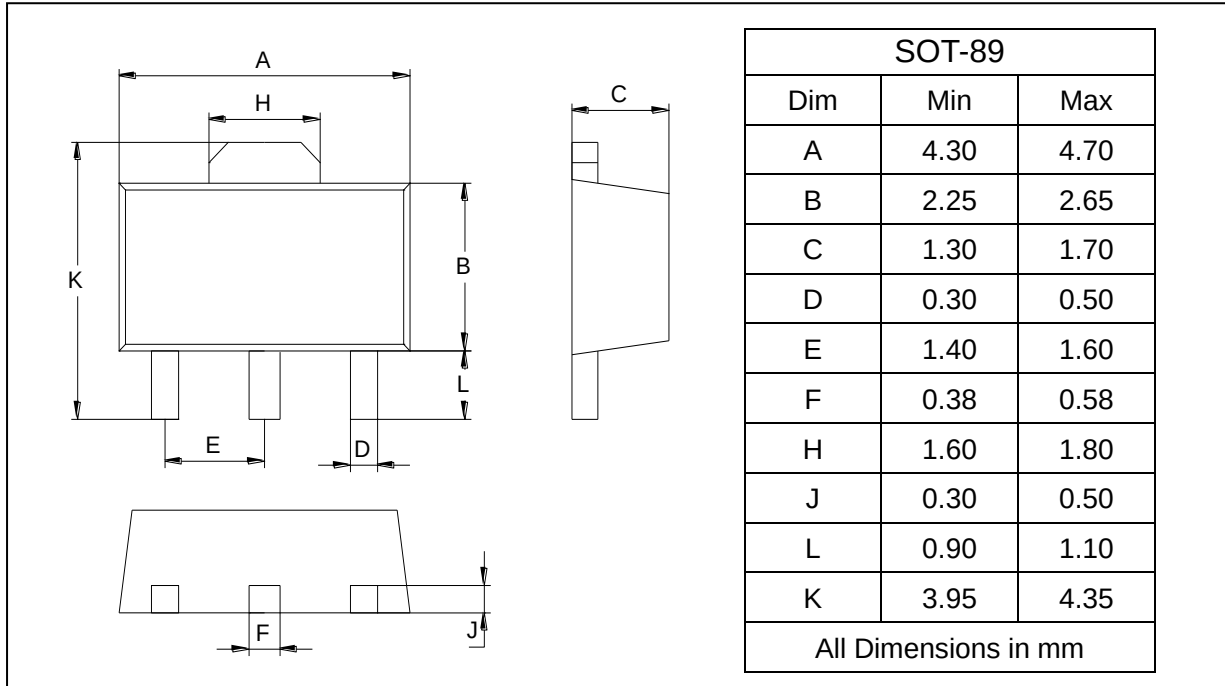
Adjustable Reference Source

BL431E

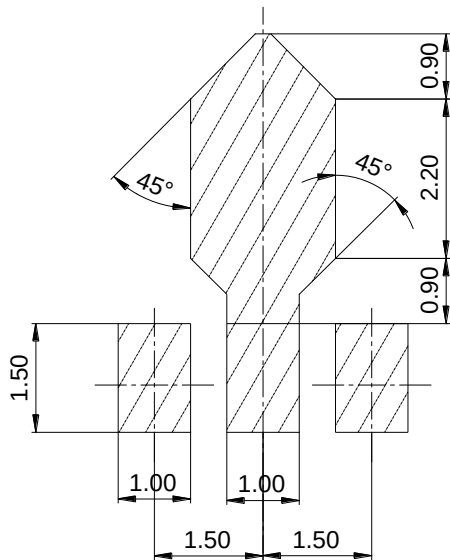
PACKAGE OUTLINE

Plastic surface mounted package

SOT-89



SOLDERING FOOTPRINT



Unit: mm

PACKAGE INFORMATION

Device	Package	Shipping
BL431E/BL431E-A/ BL431E-B	SOT-89	1000 pcs / Tape & Reel