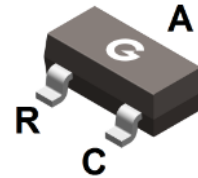
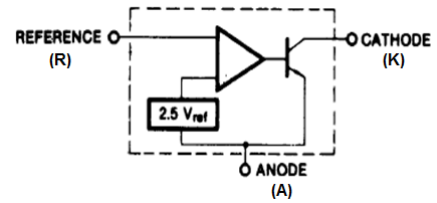


### Features

- 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

HF



SOT-23

### Mechanical Data

- Case: SOT-23
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL431H	SOT-23	1000 pcs / Tape & Reel	431H

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Electrostatic discharge Human-body model(HBM),per ANSI/ESDA/JEDEC JS-001 *1	V <sub>(ESD)</sub>	±2000	V
Electrostatic discharge Charged-device model(CDM), per JEDEC specification JESD22C101 *2		±1000	V
Cathode Voltage	V <sub>KA</sub>	36	V
Cathode Current Range(Continuous)	I <sub>KA</sub>	-100 ~ +150	mA
Reference Input Current Range	I <sub>REF</sub>	-0.05 ~ +10	mA

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.

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	350	mW
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	350	$^{\circ}C/W$
Operating Temperature Range	$T_{OPR}$	-40 ~ +125	$^{\circ}C$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature Range	$T_{STG}$	-65 ~ +150	$^{\circ}C$

### Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Cathode Voltage	$V_{KA}$	$V_{REF}$	-	36	V
Cathode Current	$I_{KA}$	1.0	-	100	mA

### Electrical Characteristics (@ $T_A = 25^{\circ}C$ unless otherwise specified)

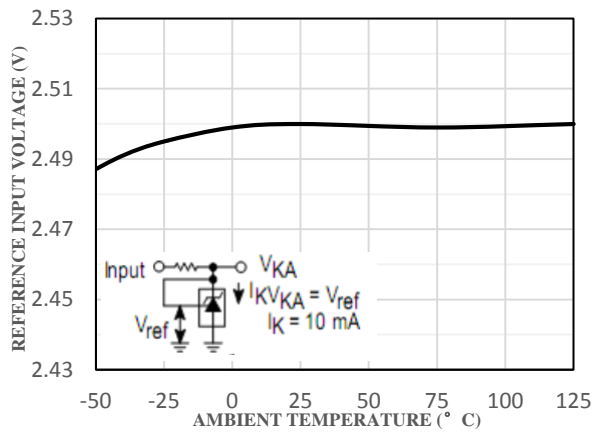
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Reference voltage	$V_{REF}$	$V_{KA} = V_{REF}, I_{KA} = 10mA$	2.45	2.5	2.55	V	
Deviation of Reference Voltage Over Full Temperature Range	$\Delta V_{REF}/\Delta V_T$	$V_{KA} = V_{REF}, I_{KA} = 10mA,$ $T_{MIN} \leq T_A \leq T_{MAX}$	-	8	17	mV	
Ratio of Change in Reference Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	$I_{KA} = 10mA$	$\Delta V_{KA} = 10V - V_{REF}$	-	-1.0	-2.7	mV/V
			$\Delta V_{KA} = 36V - 10V$	-	-0.5	-2.0	mV/V
Reference Current	$I_{REF}$	$I_{KA} = 10mA,$ $R_1 = 10K\Omega, R_2 = \infty$	-	1	4	$\mu A$	
Deviation of Reference Current Over Full Temperature Range	$\Delta I_{REF}$	$I_{KA} = 10mA,$ $R_1 = 10K\Omega, R_2 = \infty$ $T_{MIN} \leq T_A \leq T_{MAX}$	-	0.5	1.2	$\mu A$	
Minimum Cathode Current for Regulation	$I_{KA(MIN)}$	$V_{KA} = V_{REF}$	-	0.4	1.0	mA	
Off-state Cathode Current	$I_{KA(OFF)}$	$V_{KA} = 36V, V_{REF} = 0$	-	0.05	1.0	$\mu A$	
Dynamic Impedance	$Z_{KA}$	$V_{KA} = V_{REF}, f \leq 1KHz$ $I_{KA} = 1$ to 100mA	-	0.2	0.5	$\Omega$	

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

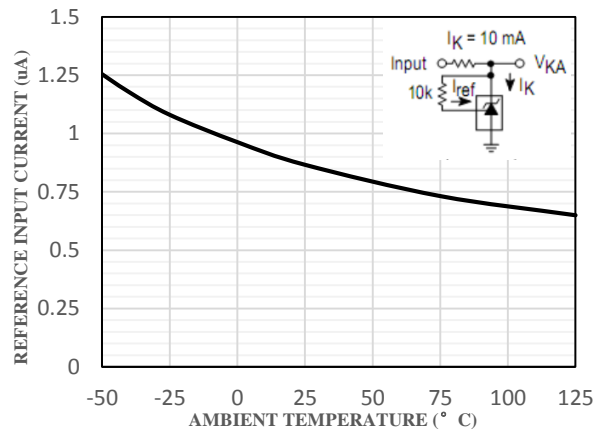
### Classification of $V_{REF}$

Rank	0.5%	1%	2%
Range	2.488-2.512	2.475-2.525	2.450-2.550

**TYPICAL CHARACTERISTICS** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

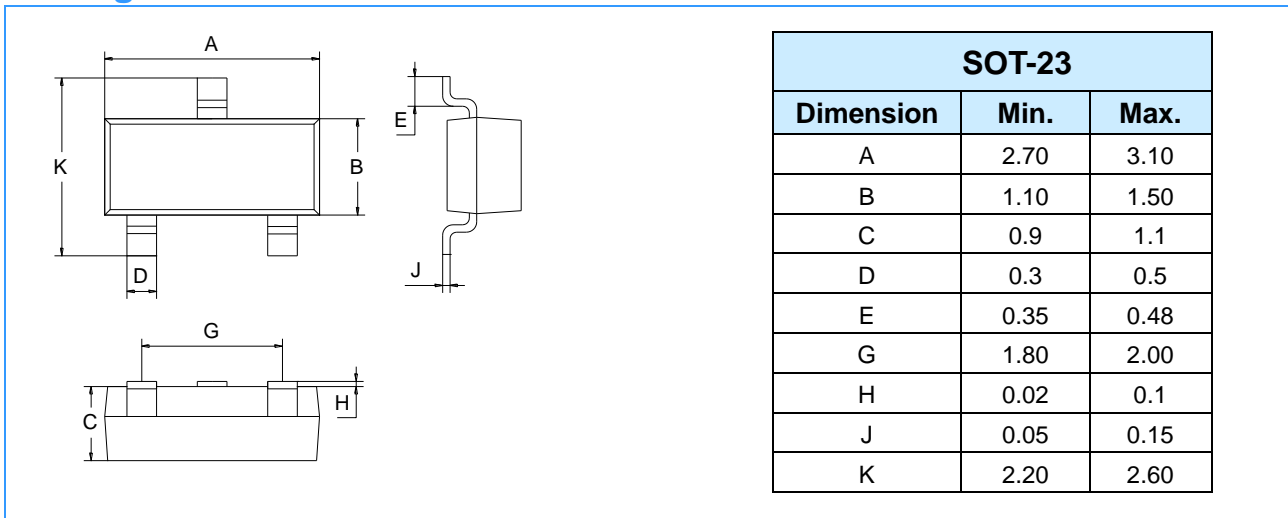


**Fig 1 Reference Input Voltage vs. Temperature**

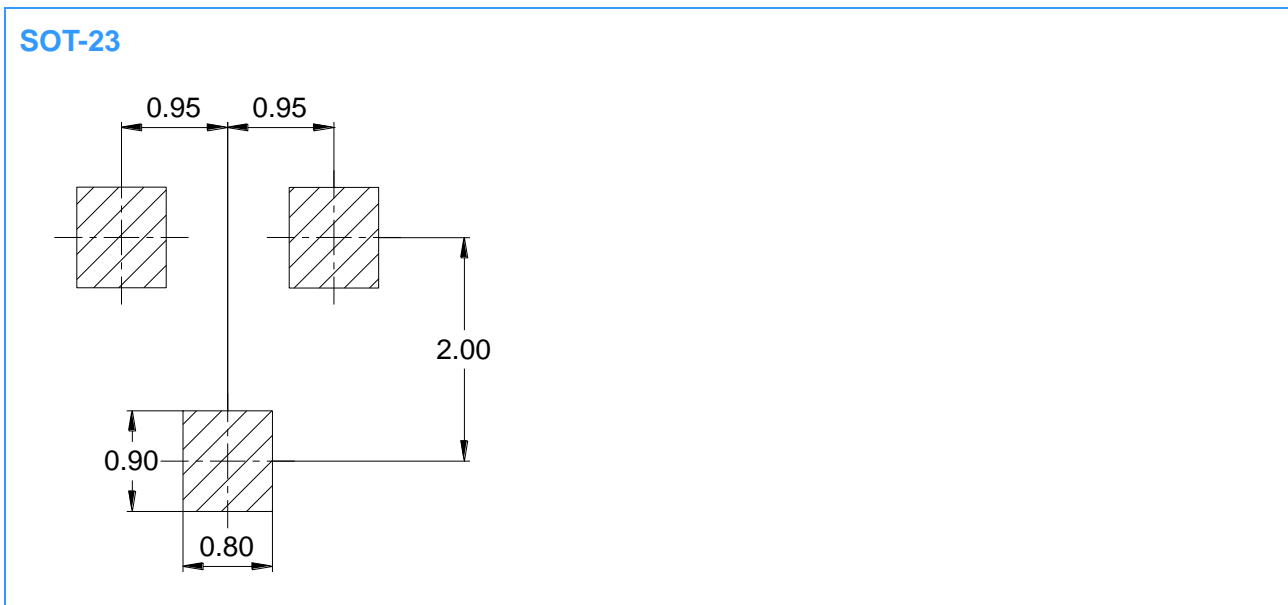


**Fig 2 Reference Input Current vs. Temperature**

Package Outline Dimensions (Unit: mm)



Package Outline Dimensions (Unit: mm)



IMPORTANT NOTICE

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.