

**/ Descriptions**

SOT-89

Precision adjustable shunt regulator in a SOT-89 Plastic Package.

**/ Features**

2.500V; 0.4%,0.8%; 1.0mA 100mA; ;  
 $V_O = V_{ref} \sim 37V$ ; ( :400 $\mu$ A); ( :0.15 )

Precise reference voltage to 2.500V;guaranteed 0.4%,0.8% reference voltage Tolerance; sink current capability,1.0mA~100mA;quick turn-on; adjustable Output voltage,  $V_O = V_{ref} \sim 37V$ ;low operational cathode current,400 A typical; 0.15 typical output impedance, HF product.

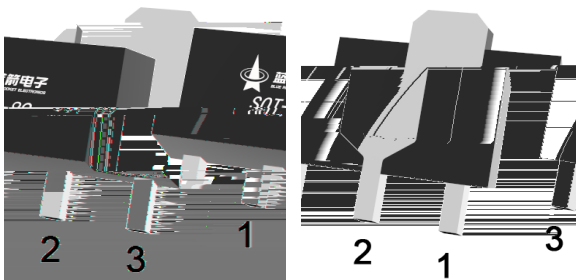
**/ Applications**

Linear regulators, adjustable power supply, switching power supply.

**/ Equivalent Circuit**

-----

**/ Pinning**



PIN1 R      PIN 2 A      PIN 3 K

**/ Marking**

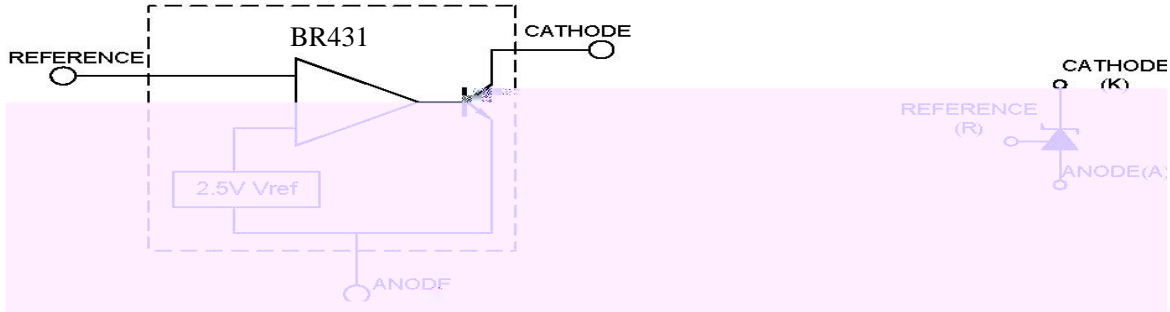
See Marking Instructions

Parameter	Symbol	Rating	Unit
Cathode to Anode Voltage	$V_{KA}$	37	V
Cathode Current Range, Continuous	$I_K$	-100~+100	mA
Reference Input Current Range, Continuous	$I_{REF}$	0.05~+10	mA
Power Dissipation	$P_D$	770	mW
Operating Ambient Temperature	$T_{amb}$	-40~125	°C
Junction Temperature	$T_j$	160	°C
Storage Temperature Range	$T_{stg}$	-65~150	°C

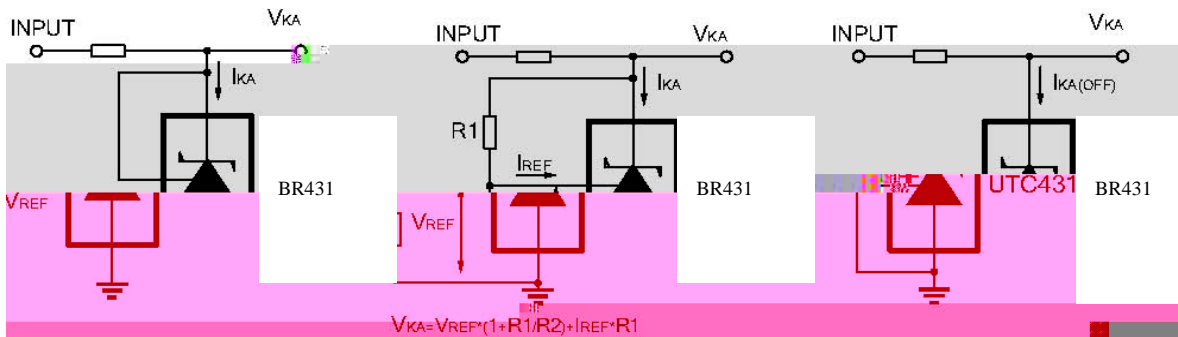
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input voltage	$V_{REF}$	$V_{KA}=V_{REF}$ $I_K=10mA(A=0.4\%)$	2.490	2.500	2.510	V
		$V_{KA}=V_{REF}$ $I_K=10mA(B=0.8\%)$	2.480	2.500	2.520	V
Deviation of Reference Input Voltage Over-Temperature	$\Delta V_{REF}/T$	$V_{KA}=V_{REF}$ $I_K=10mA$ $T_A=-25\sim 85^\circ C$		4.5	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{REF}/\Delta V_{KA}$	$I_K=10mA$ $\Delta V_{KA}=10V$ to $V_{REF}$		-1	-2.7	mV/V
		$I_K=10mA$ $\Delta V_{KA}=36V$ to $10V$		-0.45	-2.0	mV/V
Reference Input current	$I_{REF}$	$I_K=10mA$ $R_1=10K$ $R_2=open$		1.0	4.0	A
Deviation of Reference Input Current Over Full Temperature Range	$\Delta I_{REF}/T$	$I_K=10mA$ $R_1=10K$ , $R_2=open$ $T_A=-40\sim 125^\circ C$	-1.14	0.16	1.48	mA/°C
Minimum Cathode Current for Regulation	$I_{K(min)}$	$V_{KA}=V_{REF}$		0.4	1.0	mA
Off-state cathode current	$I_{K(off)}$	$V_{KA}$				

**& Test circuits&Typical Application**

BLOCK DIAGRAM:



TEST CIRCUITS:

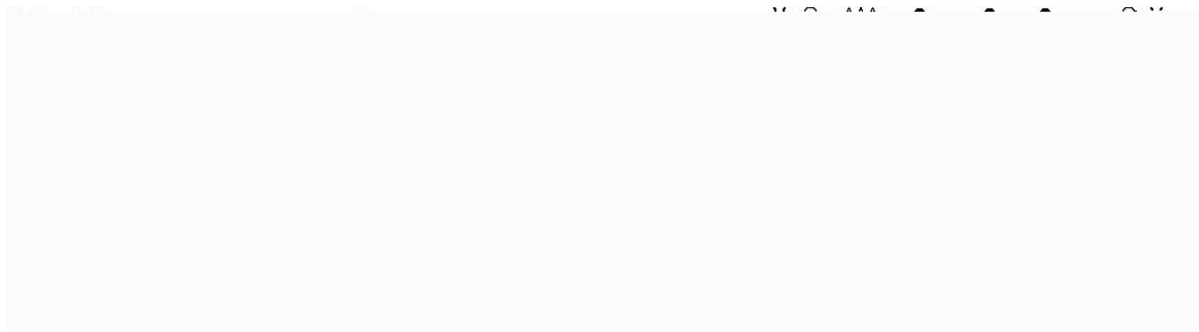


Test Circuit For VKA=VREF

Test Circuit for VKA VREF

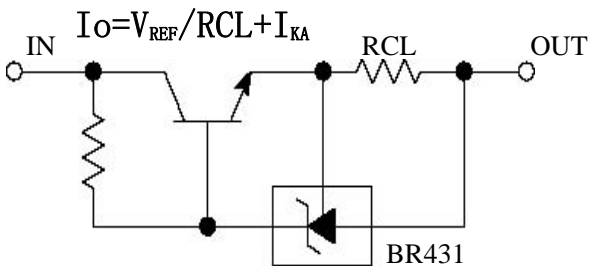
Test Circuit For IKA(OFF)

TYPICAL APPLICATION:

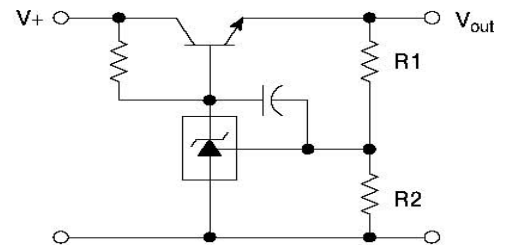


Shutdown Regulator

Higher-current Shunt



Constant Current Source

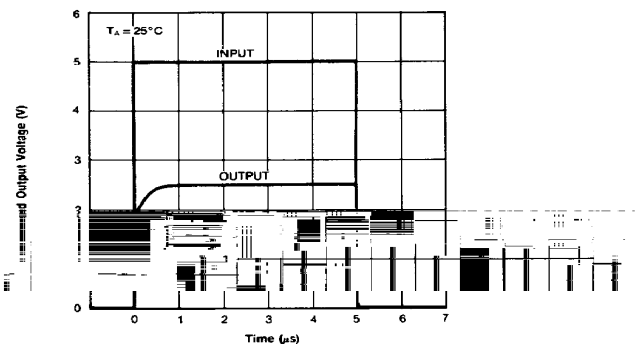
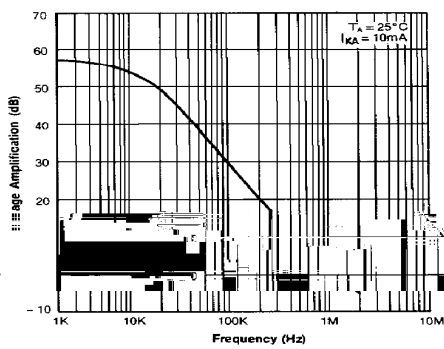
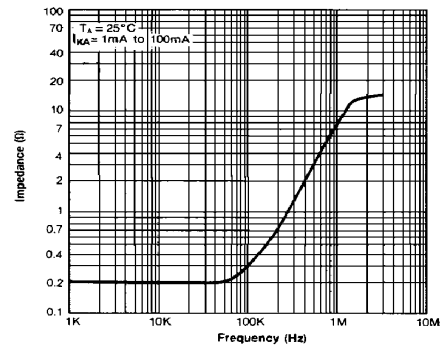
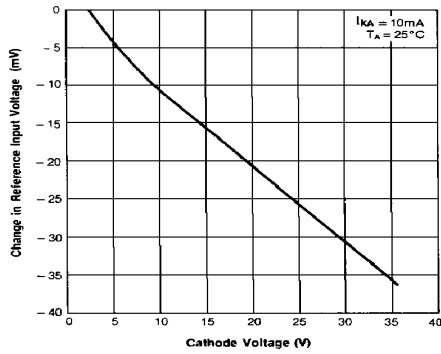
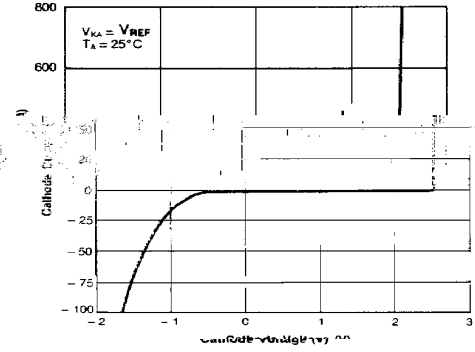
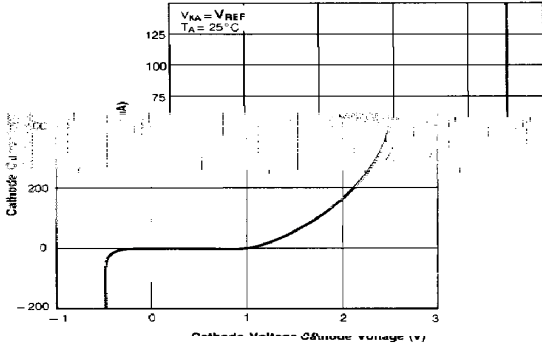


$$V_{out} = \left(1 + \frac{R1}{R2}\right) V_{ref}$$

$$V_{out\ min} = V_{ref} + V_{hD}$$

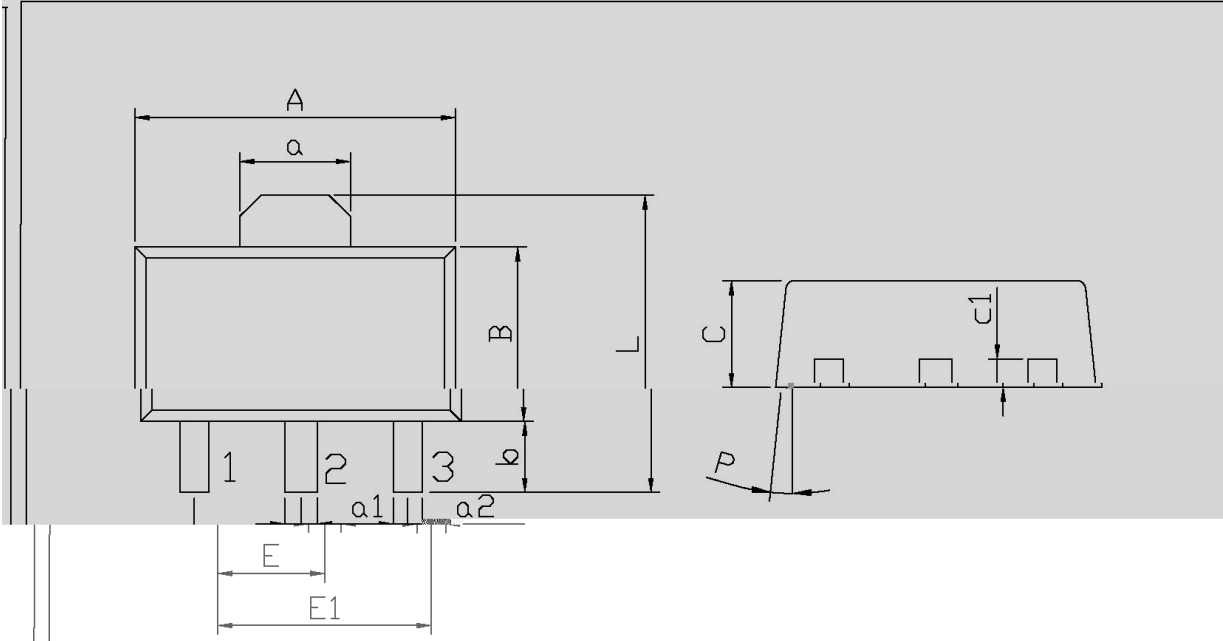
Series Pass Regulator

/ Electrical Characteristic Curve

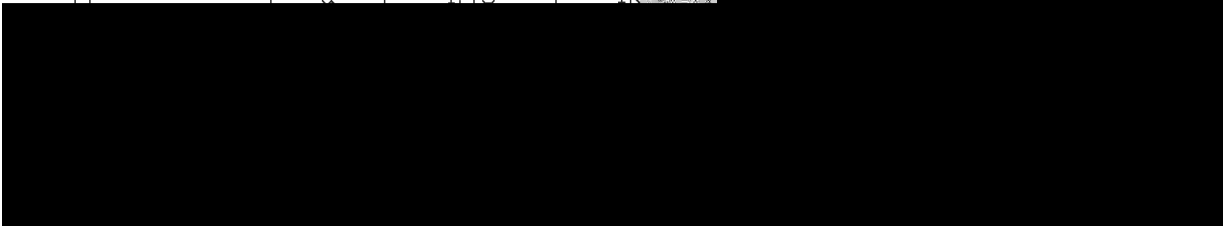


/ Package Dimensions

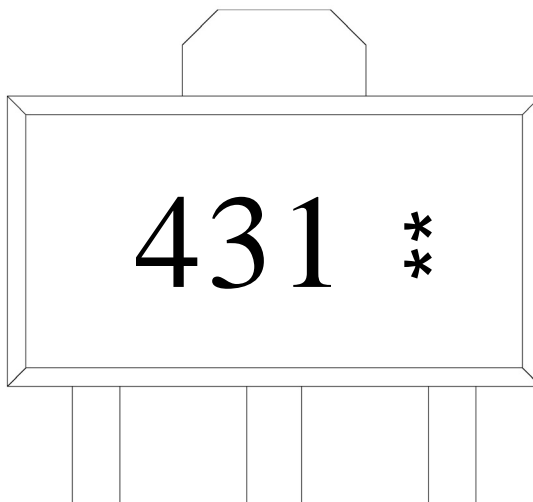
SOT-89 单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a <sub>1</sub>	0.36	0.56
B	2.35	2.65	a <sub>2</sub>	0.38	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	a <sub>1</sub>	0.25	0.50



/ Marking Instructions



431

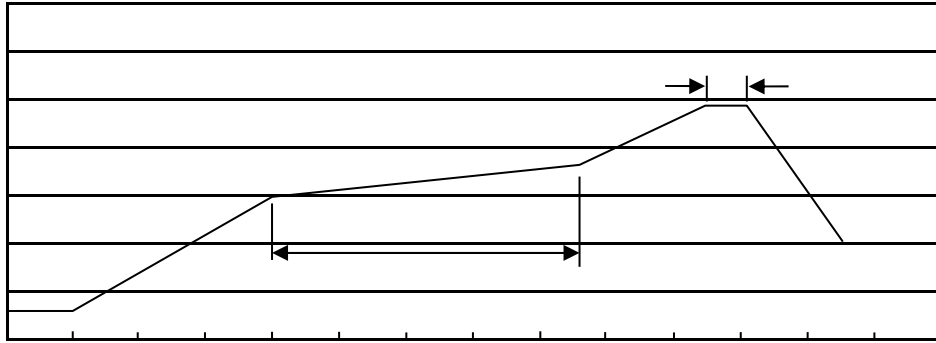
\*\*

Note:

431: Product Type Code

\*\* : Lot No. Code, code change with Lot No

( ) /



Note:

- |   |         |           |   |
|---|---------|-----------|---|
| 1 | 150 180 | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec.   |
| 2 | 245±5   | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | 2 10    | /sec.     | 3. Cooling Speed: 2~10 /sec.            |

**/ Resistance to Soldering Heat Test Conditions**

260±5                      10±1 sec.                      Temp.:260±5℃                      Time:10±1 sec

**/ Packaging SPEC.**

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	只卷盘	卷盘盒	只盒	盒箱	只箱		盒	箱
						"		

**/ Notices**