

描述 / Descriptions

SOT-89 塑封封装精密可调基准电源。

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

特征 / Features

精确参照电压 2.500V;允许电压误差为 0.4%,0.8%;阴极电流能力为 1.0mA ~ 100mA;快速导通;可调节输出电压为 $V_O=V_{ref} \sim 37V$;阴极工作电流低(典型值:400 μ A);动态输出阻抗低(典型值:0.15 Ω) , 无卤产品。

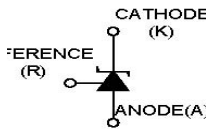
Precise reference voltage to 2.500V;guaranteed 0.4%,0.8% reference voltage Tolerance; sink current capability,1.0mA~100mA;quick turn-on; adjustable Output voltage, $V_O=V_{ref} \sim 37V$;low operational cathode current,400 μ A typical; 0.15 Ω typical output impedance, HF product.

用途 / Applications

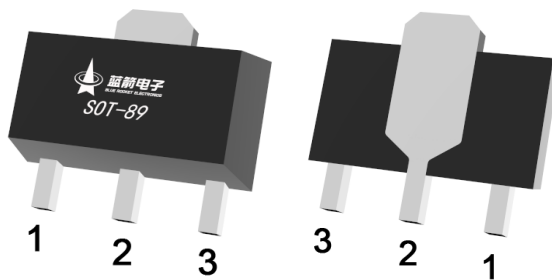
用于线性调整器, 可调节电源和开关电源。

Linear regulators, adjustable power supply, switching power supply.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : R

PIN 2 : A

PIN 3 : K

印章代码 / Marking

见印章说明。 See Marking Instructions

极限参数 / Absolute Maximum Ratings(Ta=25°C)

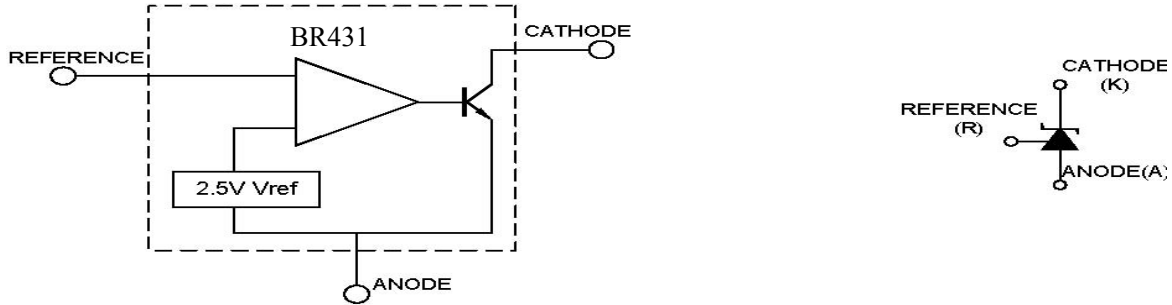
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Cathode to Anode Voltage	V _{KA}	37	V
Cathode Current Range, Continuous	I _K	-100~+100	mA
Reference Input Current Range, Continuous	I _{REF}	0.05~+10	mA
Power Dissipation	P _D	770	mW
Operating Ambient Temperature	T _{amb}	-40~125	°C
Junction Temperature	T _j	160	°C
Storage Temperature Range	T _{stg}	-65~150	°C

电性能参数 / Electrical Characteristics(Ta=25°C)

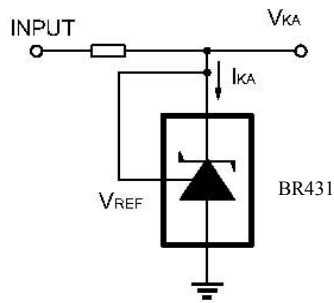
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Reference Input voltage	V _{REF}	V _{KA} =V _{REF} I _K =10mA(A=0.4%)	2.490	2.500	2.510	V
		V _{KA} =V _{REF} I _K =10mA(B=0.8%)	2.480	2.500	2.520	V
Deviation of Reference Input Voltage Over-Temperature	ΔV _{REF} /T	V _{KA} =V _{REF} I _K =10mA T _A =-25~85°C		4.5	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	ΔV _{REF} /ΔV _{KA}	I _K =10mA ΔV _{KA} =10V to V _{REF}		-1	-2.7	mV/V
		I _K =10mA ΔV _{KA} =36V to 10V		-0.45	-2.0	mV/V
Reference Input current	I _{REF}	I _K =10mA R ₁ =10KΩ R ₂ =open		1.0	4.0	μA
Deviation of Reference Input Current Over Full Temperature Range	ΔI _{REF} /T	I _K =10mA R ₁ =10KΩ, R ₂ =open T _A =-40~125°C		0.4	1.2	μA
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} =36V V _{REF} =0V		0.05	1.0	μA
Dynamic impedance	Z _{KA}	V _{KA} =V _{REF} f≤1.0KHz I _K =1mA to 100mA		0.15	0.5	Ω

测试电路图&典型应用图 Test circuits&Typical Application

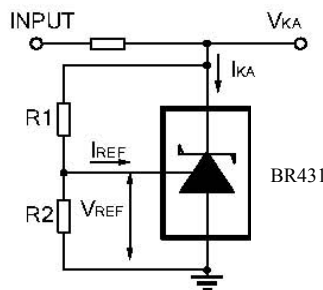
BLOCK DIAGRAM:



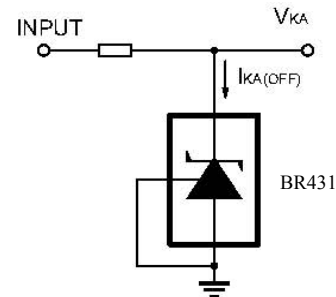
TEST CIRCUITS:



Test Circuit For $V_{KA} = V_{REF}$

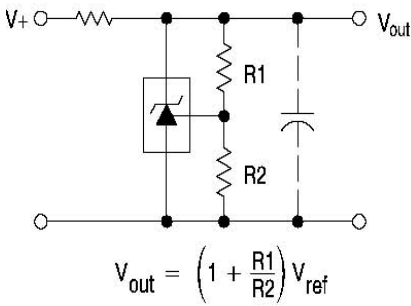


Test Circuit for $V_{KA} \geq V_{REF}$
 $V_{KA} = V_{REF} \cdot (1 + R1/R2) + I_{REF} \cdot R1$

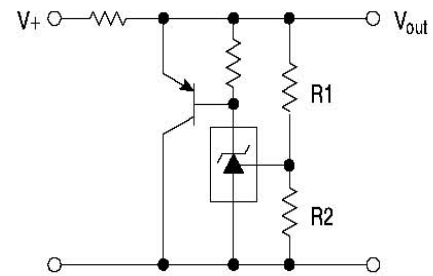


Test Circuit For $I_{KA(OFF)}$

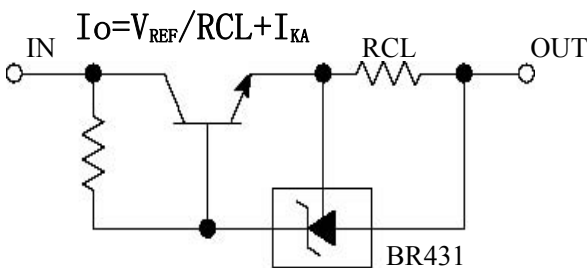
TYPICAL APPLICATION:



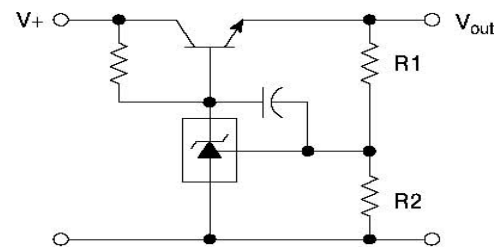
Shutdown Regulator
 $V_{out} = \left(1 + \frac{R1}{R2}\right) V_{ref}$



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

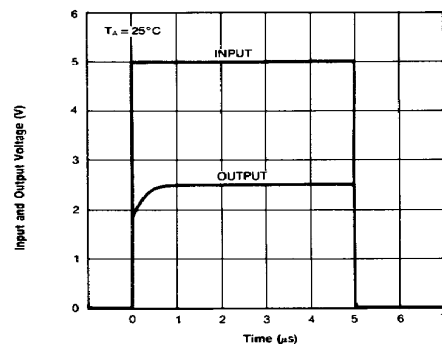
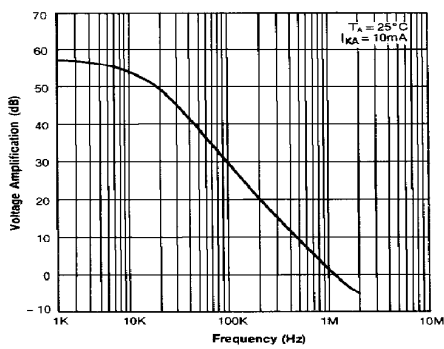
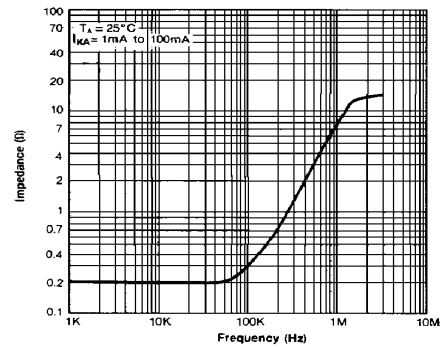
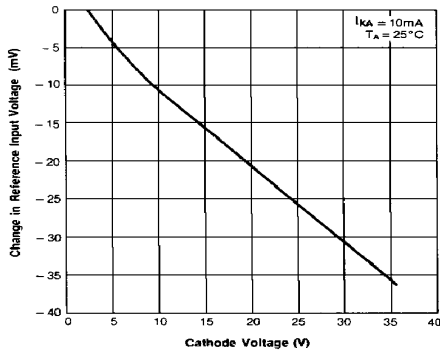
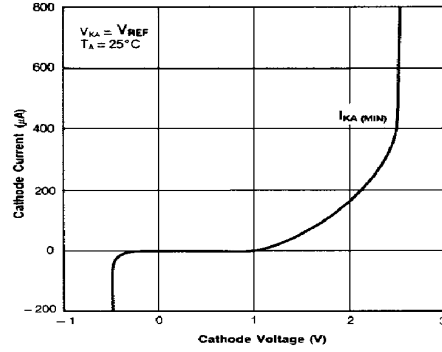
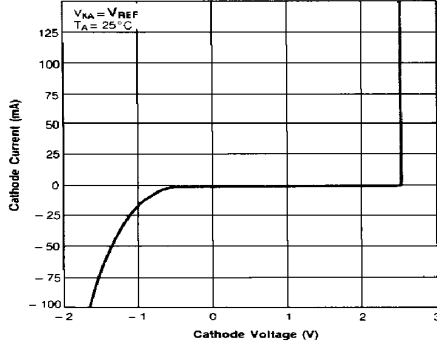


Constant Current Source
 $I_o = V_{REF}/R_{CL} + I_{KA}$



Series Pass Regulator
 $V_{out} = \left(1 + \frac{R1}{R2}\right) V_{ref}$
 $V_{out\ min} = V_{ref} + V_{be}$

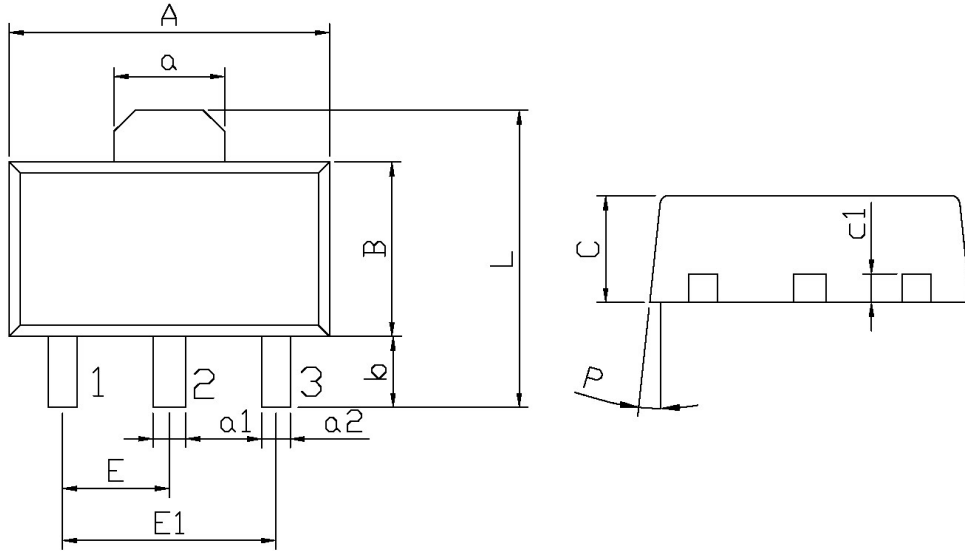
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

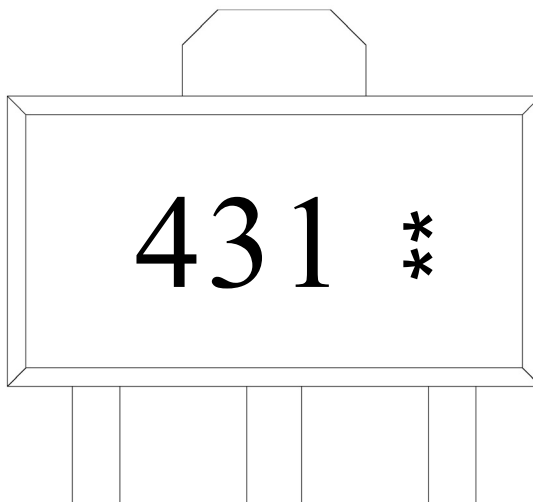
SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			

印章说明 / Marking Instructions



说明：

431：为型号代码

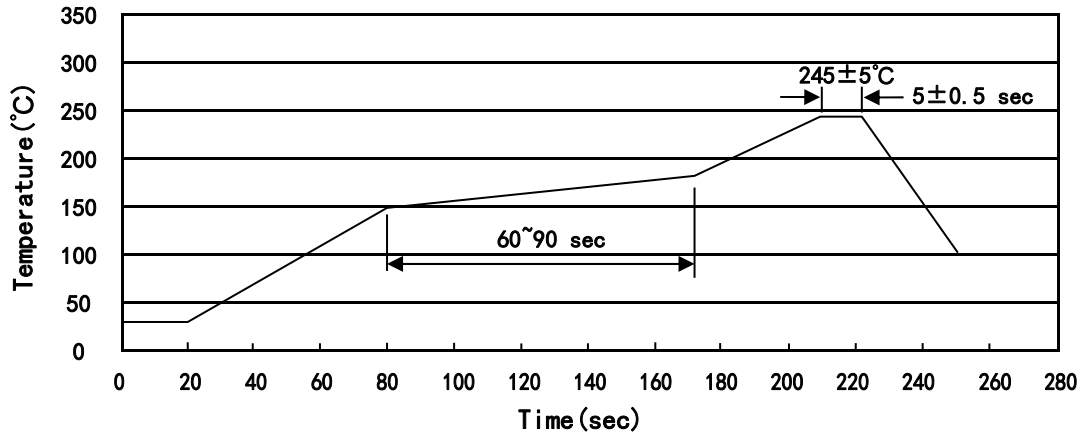
**：为生产批号代码，随生产批号变化

Note:

431: Product Type Code

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

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150 ~ 180°C，时间 60 ~ 90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

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

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C 时间：10±1 sec. Temp.:260±5°C Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-89	1,000	7	7,000	6	42,000	7" ×12	180×120×180	390×385×205

使用说明 / Notices