

SOT-89-3L Three Terminal Adjustable Regulator 三端可调稳压 IC

■ Features & Block Diagram

特点和框图

Programmable output Voltage to 36V

输出电压可调整到 36V

Low dynamic output impedance $0.27\ \Omega$

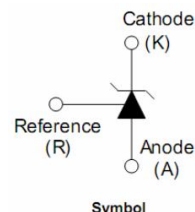
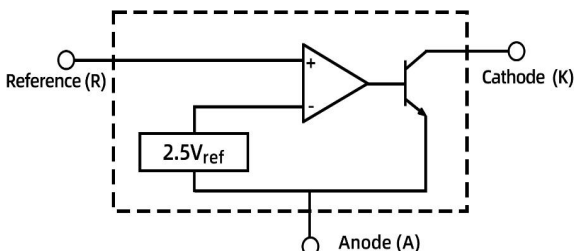
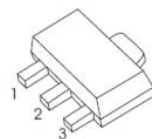
低动态输出阻抗 $0.27\ \Omega$

Sink current capability of 1 to 100mA

电流能力 1 到 100mA



1. Reference
2. Anode
3. Cathode

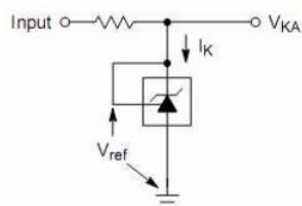


■ Absolute Maximum Ratings 最大额定值

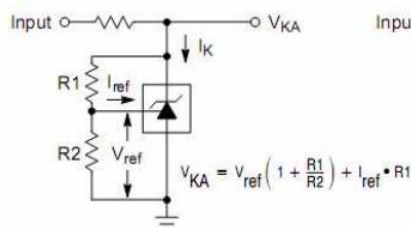
($T_A=25^\circ\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Cathode to Anode Voltage 阴极到阳极电压	V_{KA}	40	V
Cathode Current Range 工作电流	I_K	-100~+150	mA
Reference Input Current Range 输入电流	I_{REF}	-0.05~+10	mA
Power dissipation 耗散功率	P_D	300	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	418	$^\circ\text{C}/\text{W}$
Solder Temperature 焊接温度/时间	T_d	260/10	$^\circ\text{C}/\text{S}$
Operating Ambient Temperature 工作温度	T_{op}	-20~+105	$^\circ\text{C}$
Junction and Storage Temperature 结温和储藏温度	T_J, T_{stg}	-40to+125 $^\circ\text{C}$	

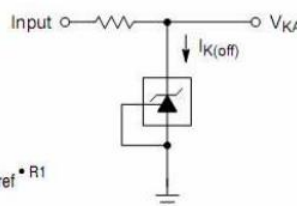
■ Device Marking & Test Circuit 产品打标和测试电路 TL431L-2AF=431L



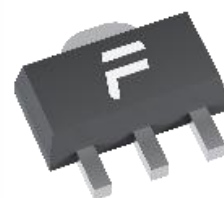
Test Circuit
for $V_{KA} = V_{ref}$



Test Circuit
for $V_{KA} > V_{ref}$



Test Circuit
for $I_{K(off)}$

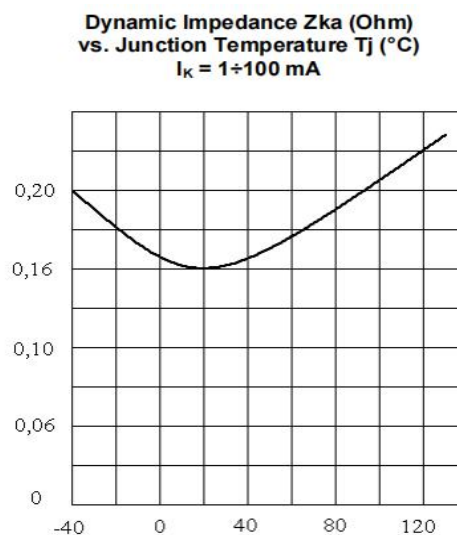
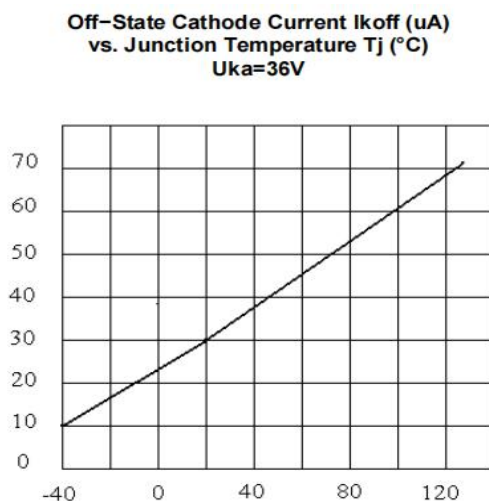
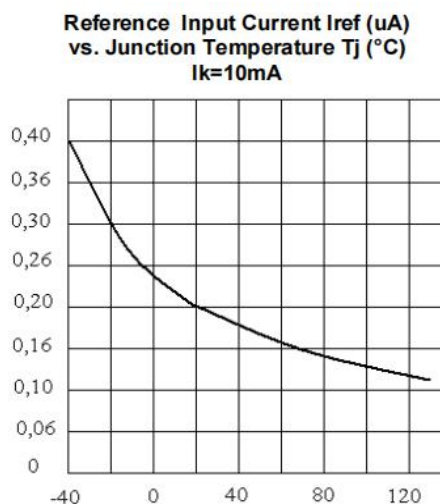
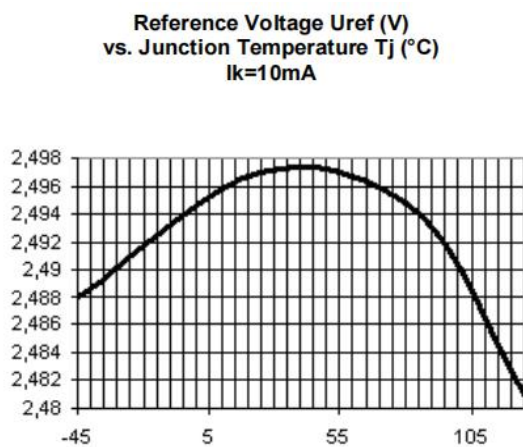
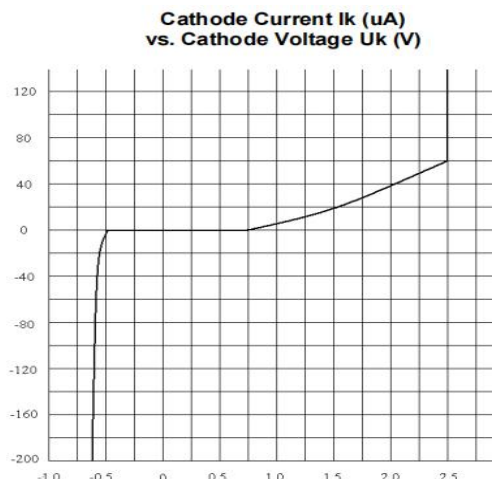
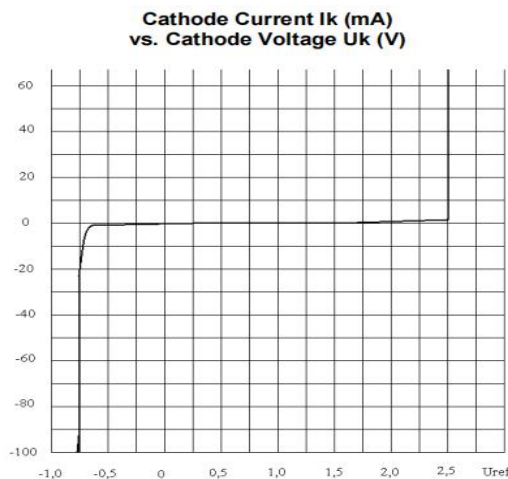


■Electrical Characteristics 电特性

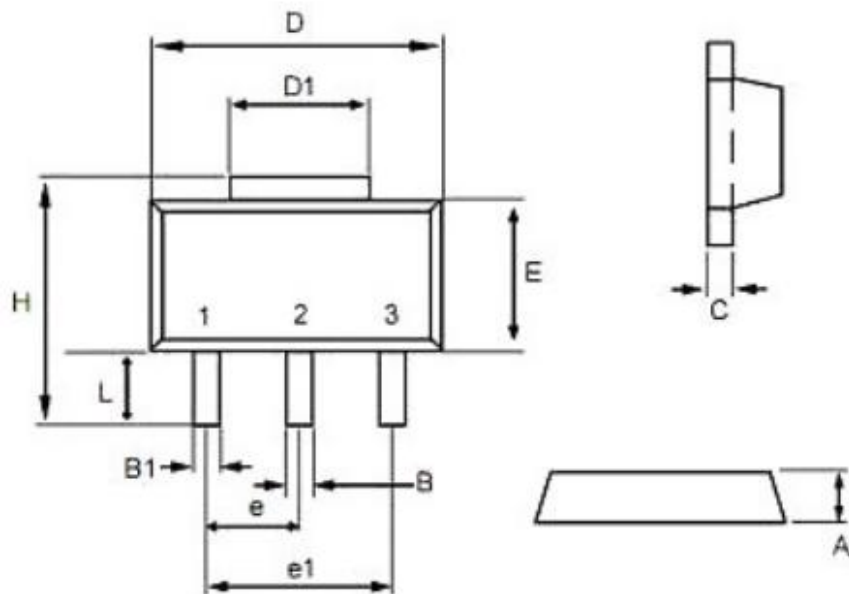
($V_{KA}=V_{REF}$ $I_{KA}=10mA$ $T_a=25^{\circ}C$ unless otherwise noted 如无特殊说明)

Characteristic 特性参数	Symbol 符号	Test Condition 测试条件	Min 最小值	Type 典型值	Max 最大值	Unit 单位
Reference Input Voltage 基准电压	0.3%	$V_{KA}=V_{REF}$ $I_{KA}=10mA$	2.488	2.495	2.502	V
	0.5%		2.483	2.495	2.507	
	1%		2.470	2.495	2.520	
Deviation of reference Input Voltage Over temperature 标准温度内基准电压偏差	$\Delta V_{REF}/\Delta T$	$V_{KA}=V_{REF}$ $I_{KA}=10mA$ $-20 \sim +105^{\circ}C$		3	17	mV
Ratio of Change in Reference Input Voltage Change in Cathode Voltage 阴极电压与基准电压变化比	$\Delta V_{REF}/\Delta V_{KA}$	$I_{KA}=10mA$ $\Delta V_{KA}=10V \sim V_{REF}$ $\Delta V_{KA}=36V \sim 10V$	-0.4 -0.4	0 0	2.7 2.0	mV/V
Reference Input Current 基准电流	I_{REF}	$I_{KA}=10mA$ $R1=10k\Omega, R2=\infty$		1.8	4	μA
Deviation of Reference Input Current Over Full Temperature Range 标准温度内基准电流偏差	$\Delta I_{REF}/\Delta T$	$I_{KA}=10mA$ $R1=10k\Omega, R2=\infty$ $T_a=-20 \sim +105^{\circ}C$		0.4	1.2	μA
Minimum Cathode Current for Regulation 最小阴极电流	$I_{KA(MIN)}$	$V_{KA}=V_{REF}$		0.25	0.5	mA
Off-state Cathode Current 关闭状态阴极电流	$I_{KA(OFF)}$	$V_{KA}=40V$ $V_{REF}=0V$		0.17	1.0	μA
Dynamic Impedance 输出阻抗	Z_{KA}	$V_{KA}=V_{REF}$ $I_{KA}=1 \sim 100mA$ $f \leq 1kHz$		0.27	0.5	Ω

■ Typical Characteristic Curve 典型特性曲线



■ SOT-89-3L Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.40	1.60	0.055	0.063
B	0.40	0.56	0.016	0.022
B1	0.35	0.48	0.014	0.019
C	0.35	0.44	0.014	0.017
D	4.40	4.60	0.173	0.181
D1	1.35	1.83	0.053	0.072
e	1.45	1.55	0.057	0.061
e1	2.95	3.05	0.116	0.120
E	2.29	2.60	0.090	0.102
H	3.75	4.25	0.148	0.167
L	0.80	1.20	0.031	0.047