

/ Descriptions

SOT-23

Precision adjustable shunt regulator in a SOT-23 Plastic Package.

/ Features

2.495V; 0.5%,1% 2%; 1.0mA 100mA; ;
 $V_O=V_{ref}$ 36V; (:50 μ A); (:0.15 Ω)

Precise reference voltage to 2.495V;guaranteed 0.5%,1% or 2% reference voltage Tolerance; sink current capability,1.0mA 100mA;quick turn-on; adjustable Output voltage, $V_O=V_{ref}$ 36V;low operational cathode current,50 A typical; 0.15 typical output impedance.

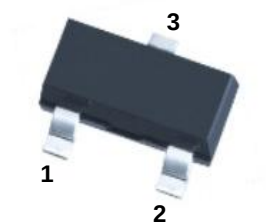
/ Applications

Linear regulators, adjustable power supply, switching power supply.

/ Equivalent Circuit



/ Pinning



PIN1 R PIN 2 K PIN 3 A

/ h_{FE} Classifications & Marking

Marking	H431
---------	------

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

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	370	mW
Operating Ambient Temperature	T_{amb}	-40 125	
Junction Temperature	T_J	150	
Storage Temperature Range	T_{stg}	-65 150	

/ Electrical Characteristics($T_a=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reference Input Voltage	V_{REF}	$V_{KA}=V_{REF}$ $I_K=10\text{mA}$ (A=0.5%)	2.483	2.495	2.507	V
		$V_{KA}=V_{REF}$ $I_K=10\text{mA}$ (B=1%)	2.470	2.495	2.520	V
		$V_{KA}=V_{REF}$ $I_K=10\text{mA}$ (2%)	2.445	2.495	2.545	V
Deviation of Reference Input Voltage Over-Temperature	V_{REF} / T	$V_{KA}=V_{REF}$ $I_K=10\text{mA}$ $T_A=-40 \sim 125$		4.5	25	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	V_{REF} / V_{KA}	$I_K=10\text{mA}$, $V_{KA}=10\text{V}$ to V_{REF}		-1	-2.7	mV/V
		$I_K=10\text{mA}$, $V_{KA}=36\text{V}$ to 10V		-0.5	-2.0	mV/V
Reference Input Current	I_{REF}	$I_K=10\text{mA}$ $R_1=10\text{K}$ $R_2=\text{open}$		0.8	1.0	A
Deviation of Reference Input Current Over Full Temperature Range	I_{REF} / T	$I_K=10\text{mA}$ $R_1=10\text{K}$ $R_2=\text{open}$ $T_A=-40 \sim 125$		0.4	1.2	A
Minimum Cathode Current for Regulation	$I_{K(\min)}$	$V_{KA}=V_{REF}$		0.05	0.08	mA
Off-state cathode current	$I_{K(\text{off})}$	$V_{KA}=36\text{V}$ $V_{REF}=0\text{V}$		0.05	1.0	A
Dynamic Impedance	$ Z_{KA} $	$V_{KA}=V_{REF}$ $f=1.0\text{KHz}$ $I_K=1\text{mA}$ to 100mA		0.15	0.5	

/ Electrical Characteristic Curve

Fig 1 Cathode Current
Vs Cathode Voltage

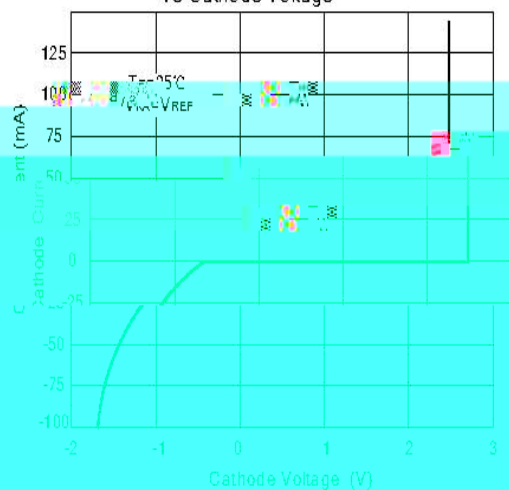


Fig 2 Cathode Current
Vs Cathode Voltage

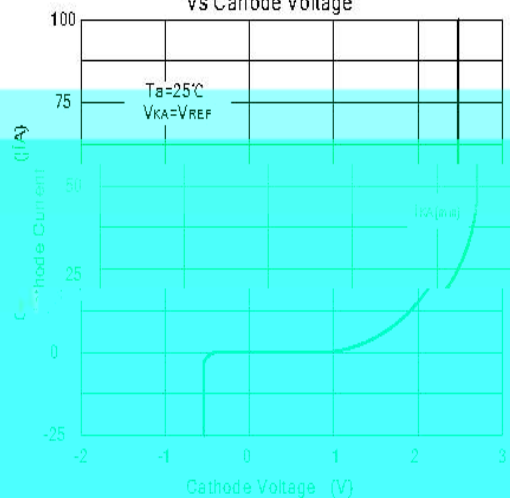


Fig 3 Change in Reference Input
Voltage Vs Cathode voltage

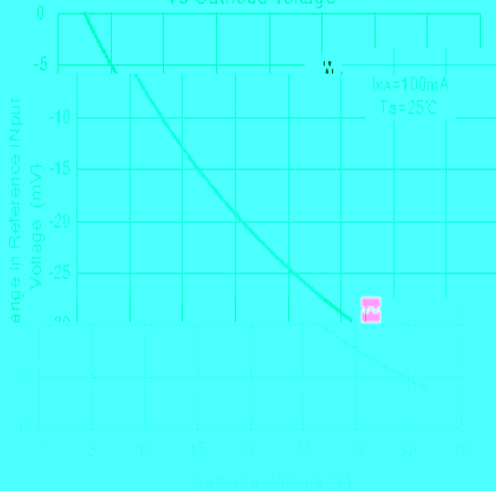


Fig 4 Pulse Response

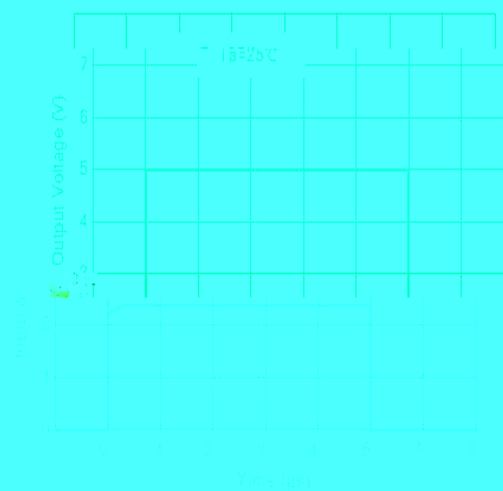


Fig 5 Dynamic Impedance
Vs Frequency

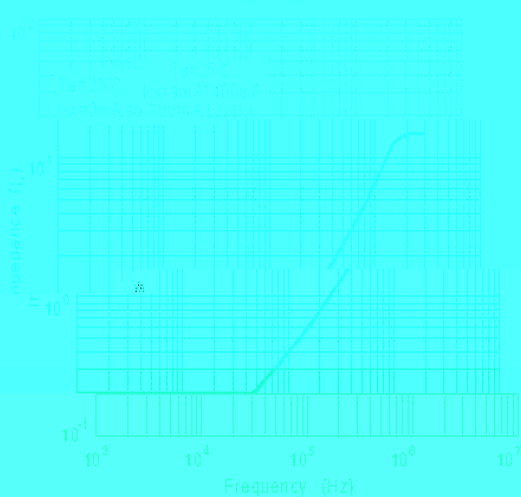
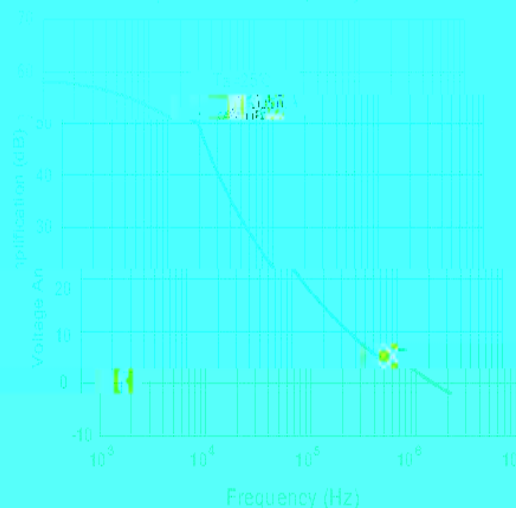
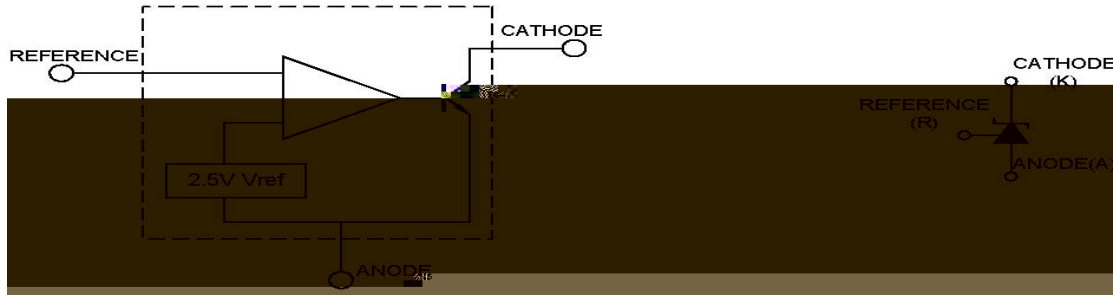


Fig 6 Small Signal Voltage
Amplification Vs Frequency

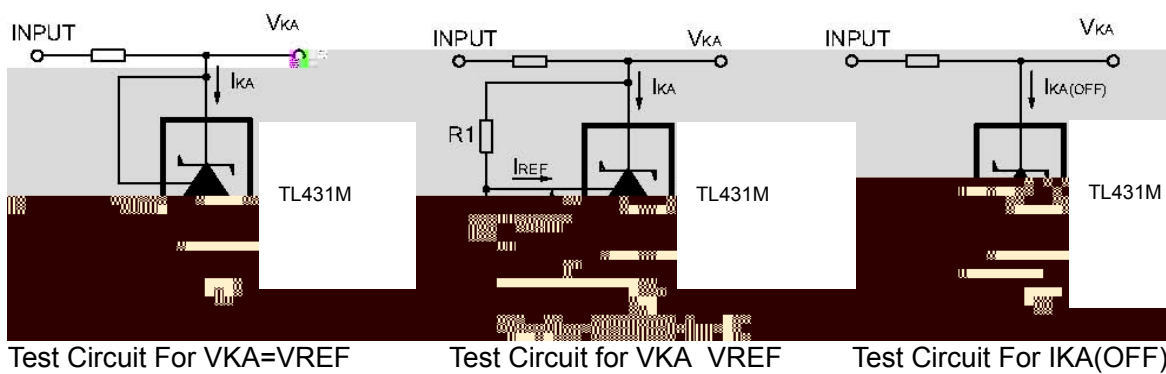


& Test circuits&Typical Application

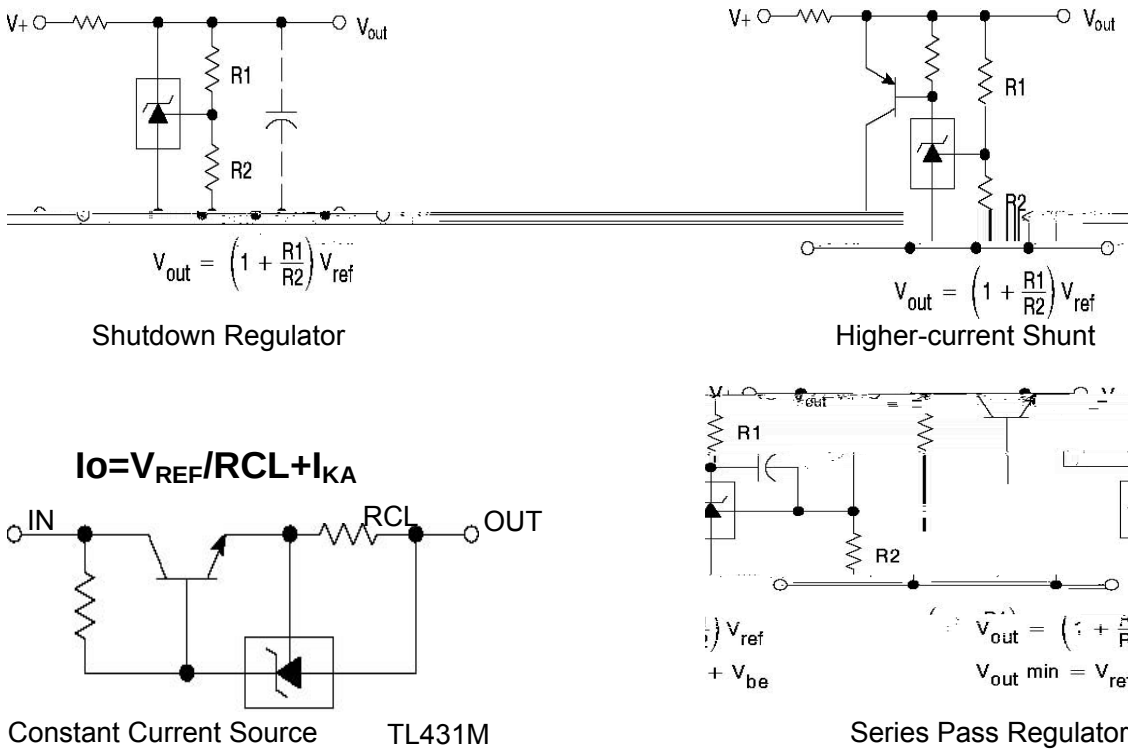
BLOCK DIAGRAM:



TEST CIRCUITS:



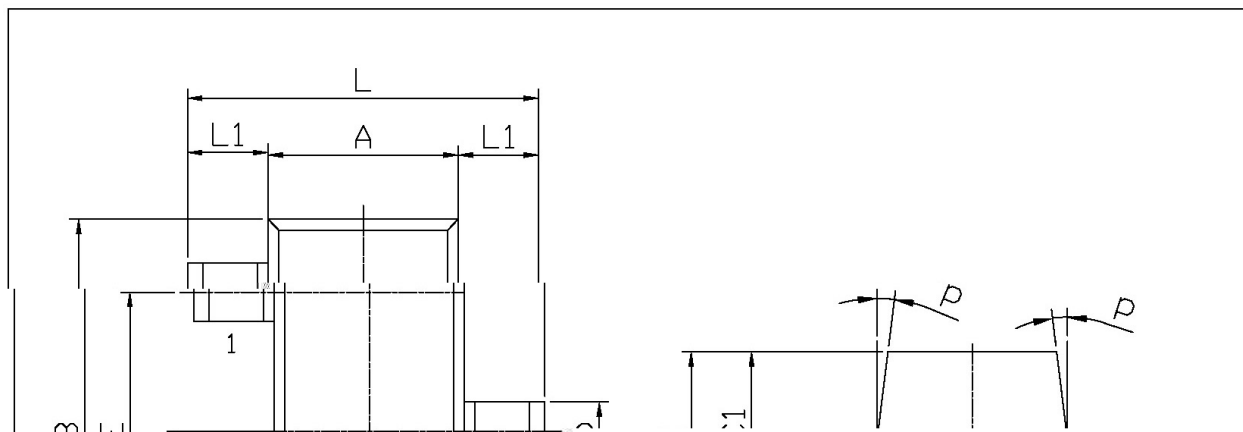
TYPICAL APPLICATION:



/ Package Dimensions

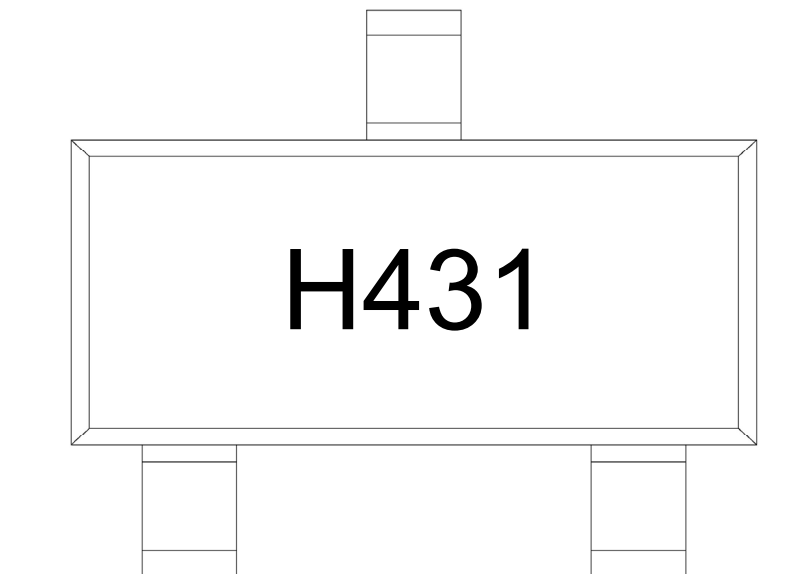
SOT-23

单位: mm



	MIN	MAX		MIN	MAX
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	C	0.95	1.20
P	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	Q	7°	
b	0.35	0.55			

/ Marking Instructions



H

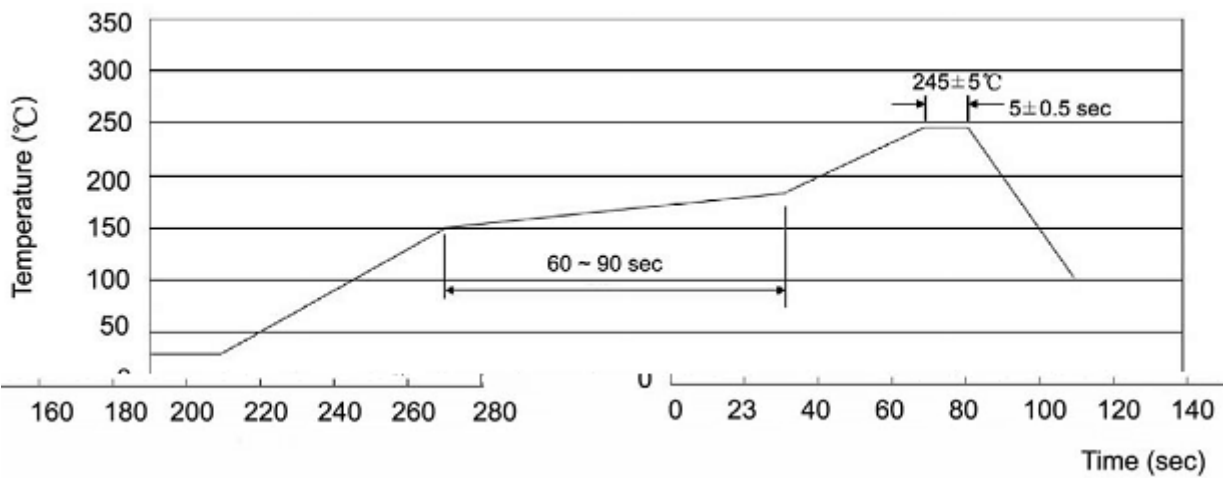
431

Note:

H: Company Code.

431: Product Type.

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

25 150

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- 1.Preheating:25~150 , Time:60~90sec.

2.Peak Temp.:245±5 , Duration:5±0.5sec.

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 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-23	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices