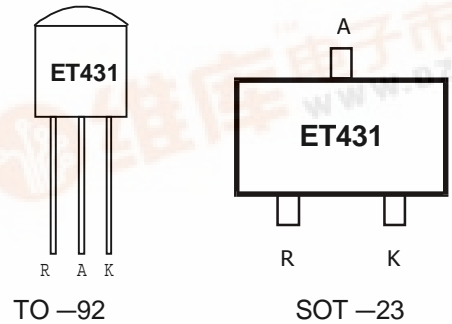


Description

The ET431 is a three-terminal adjustable regulator series with a guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between V_{ref} (approximately 2.5 volts) and 36 volts with two external resistors. The devices have a typical dynamic output impedance of $0.2\ \Omega$. Active output circuitry provides a very sharp turn-on characteristic, making these devices excellent replacement for zener diodes in many applications. The ET431 is characterized for operation from $-0\ ^\circ\text{C}$ to $+70\ ^\circ\text{C}$

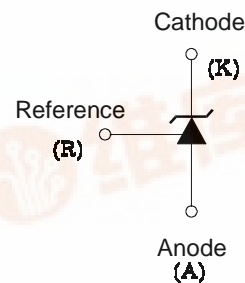
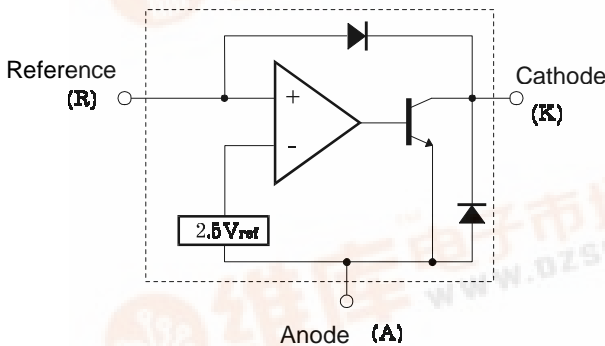
Features

- Programmable Output Voltage to 36V
- Low Dynamic Output Impedance $0.2\ \Omega$
- Sink Current Capability of 0.1 mA to 100 mA
- Equivalent Full-Range Temperature Coefficient of $50\ \text{ppm}/^\circ\text{C}$
- Temperature Compensated for Operation over Full Rated
- Operating Temperature Range
- Low Output Noise
- Fast Turn on



Package

FUNCTIONAL BLOCK DIAGRAM SYMBOL



Absolute Maximum Ratings

(Operating temperature range applies unless otherwise specified)

Characteristic	Symbol	Value	Unit
Cathode Voltage	V_{KA}	36	V
Cathode Current Range (Continuous)	I_K	-100 ~ 150	mA
Reference Input Current Range	I_{REF}	0.05 ~ 10	mA
Power Dissipation at 25°C: TO –92 Package	P_D	0.7	W
SOT –23 –3 Package		0.2	W
Junction Temperature Range	T_J	0 ~ 150	°C
Operating Temperature Range	T_g	0 ~ 70	°C
Storage Temperature Range	T_{stg}	-65 ~ +150	°C

Electrical Characteristics

($T_a = 25^\circ\text{C}$, $V_{KA} = V_{REF}$, $I_K = 10\text{mA}$)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Reference Input Voltage	V_{REF}	0.5% 1.0%	2.483 2.470	2.495	2.507 2.520	V
Deviation of Reference Input Voltage Over Full Temperature Range	$V_{REF(dev)}$	$T_{min} \leq T_a \leq T_{max}$		3	17	mV
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\frac{V_{REF}}{V_{KA}}$	$V_{KA} = 10V - V_{REF}$ $V_{KA} = 36V - 10V$		-1.4 -1.0	-2.7 -2.0	mV/V
Reference Input Current	I_{REF}	$R_1 = 10K, R_2 = \infty$		1.8	4	A
Deviation of Reference Input Current Over Full Temperature Range	$I_{REF(dev)}$	$R_1 = 10K, R_2 = \infty$		0.4	1.2	A
Minimum Cathode Current for Regulation	$I_{K(min)}$			0.25	0.5	mA
Off-State Cathode Current	$I_{K(off)}$	$V_{KA} = 36V, V_{REF} = 0$		0.26	1.0	A
Dynamic Impedance	Z_{KA}	$I_K = 1 \text{ mA to } 100 \text{ mA}, f = 1.0\text{KHz}$		0.22	0.5	ohm

TEST CIRCUITS

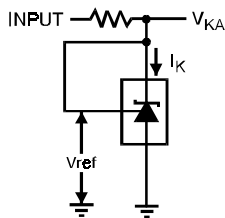


FIGURE 1. TEST CIRCUIT FOR $V_{KA} = V_{ref}$

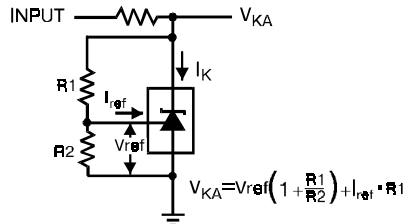


FIGURE 2. TEST CIRCUIT FOR $V_{KA} > V_{ref}$

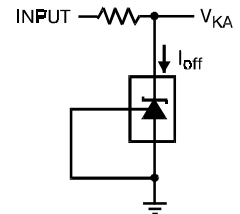


FIGURE 3. TEST CIRCUIT FOR I_{off}

Ordering Information

ORDERING NUMBER	PACKAGE	MARKING
431	TO-92 / SOT-23	ET431 / 431

Address : 北京市海淀区永定路 88 号长银大厦 6A06--6A07

Rm 6A07, Changyin Office Building, No.88, Yong Ding Road, Hai Dian District, Beijing

Postalcode: 100039

Tel: 86-010-58895780 / 81 / 82 / 83 / 84 Fax : 010-58895793

Http://www.estek.com.cn

Email: sales@estek.com.cn