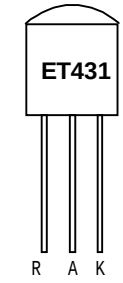
Description

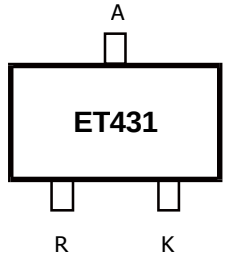
The ET431 is a three-terminal adjustable regulator series with a guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between Vref (approximately 2.5 volts) and 36 volts with two external resistors. The devices have a typical dynamic output impedance of 0.2Ω . 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 ℃to +70℃

Features

Programmable Output Voltage to 36V
Low Dynamic Output Impedance 0.2 .
Sink Current Capability of 0.1 mA to 100 mA
Equivalent Full-Range Temperature Coefficient of 50 ppm/ºC
Temperature Compensated for Operation over Full Rated
Operating Temperature Range
Low Output Noise
Fast Turn on



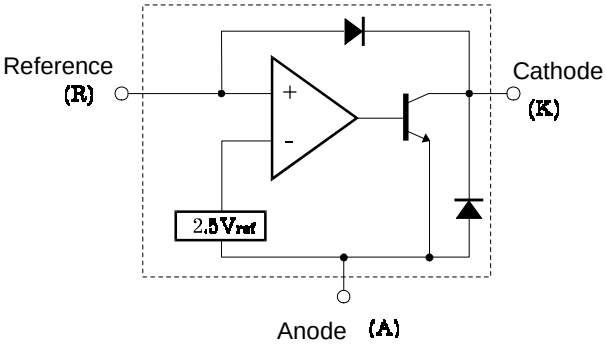
TO —92

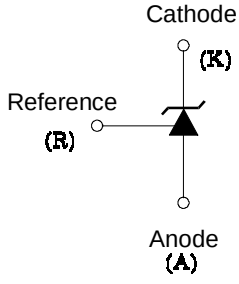


SOT —23

Package

FUNCTIONAL BLOCK DIAGRAM SYM BOL





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 SOT —23 —3 Package	P_D	 0.7 0.2	 W 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°C, V_{KA} = V_{REF}, I_K = 10mA)

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	$V_{REF(dev)}$	$T_{min} \leq Ta \leq Tmax$		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_{RFF} V_{KA} = 36V- 10V		-1.4 -1.0	-2.7 -2.0	mV/V
Reference Input Current	I_{REF}	R_1 = 10K , R_2 =∞		1.8	4	A
Deviation of Reference Input Current Over Full Temperature Range	$I_{REF(dev)}$	R_1 = 10K , R_2 = ∞		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 mA to 100 mA , f , 1.0KHz		0.22	0.5	ohm

TEST CIRCUITS

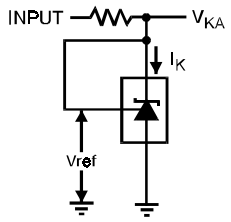


FIGURE 1. TEST CIRCUIT FOR V_{KA} = Vref

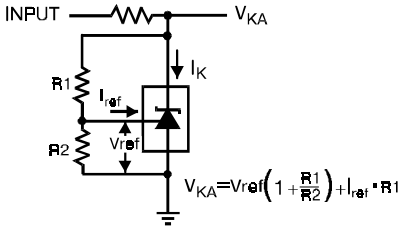


FIGURE 2. TEST CIRCUIT FOR V_{KA} > Vref

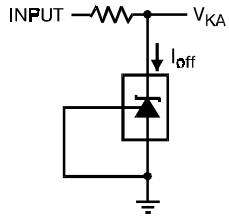


FIGURE 3. TEST CIRCUIT FOR I_{off}

Ordering Information

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

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