HFZT

TL431

Voltage Regulators

VOLTAGE : 37V
POWER DISSIPATION:500mW

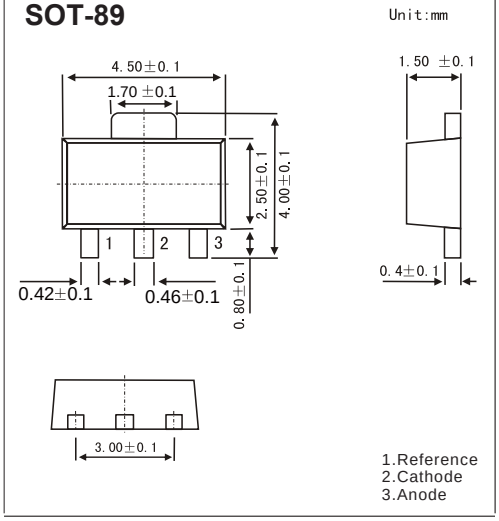
Features

- The output voltage can be adjusted to 36V
- Low dynamic output impedance, its typical value is 0.2 ΩTrapping current capability is 1 to 100mA
- The typical value of the equivalent temperature factor in the whole temperature scope is 50 ppm/
- The effective temperature compensation in the working range of full temperature
- Low output noise voltage
- Fast on-state response

MECHANICAL DATA

- Case: SOT-89 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any

SOT-89



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Unit
Cathode Voltage	V_{KA}	37	V
Cathode Current Range (Continuous)	I_{KA}	-100-+150	mA
Reference Input Current Range	Iref	0.05-+10	mA
Power Dissipation	P_D	500	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	℃/W
Operating Ambient Temperature Range	T_{opr}	0 ~ +70	℃
Storage temperature Range	Tstg	-65-+150	℃
Operating JunctionTemperature	T_j	150	℃

Electrical Specification (T_A=25°C unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Reference input voltage	V_{ref}	$V_{KA}=V_{REF}$, I_{KA}=10mA		2.450	2.5	2.550	V
Deviation of reference Input voltage over temperature (note)	$\triangle V_{ref}/\triangle T$	$V_{KA}=V_{REF}$, I_{KA}=10mA Tmin≤Ta≤Tmax			4.5	17	mV
Ratio of change in reference Input voltage to the change in cathode voltage	$\triangle V_{ref}/\triangle V_{KA}$	I_{KA}=10mA	$\triangle V_{KA}$ =10V~V_{REF}		-1.0	-2.7	mV/V
			$\triangle V_{KA}$ =36V~10V		-0.5	-2.0	mV/V
Reference input current	I_{ref}	I_{KA}= 10mA,R_1=10kΩ R_2=∞			1.5	4	μA
Deviation of reference input current over full temperature range	$\triangle I_{ref}/\triangle T$	I_{KA}=10mA, R_1=10kΩ R_2=∞ T_A=full Temperature			0.4	1.2	μA
Minimum cathode current for regulation	$I_{KA(min)}$	$V_{KA}=V_{REF}$			0.45	1.0	mA
Off-state cathode current	$I_{KA(OFF)}$	V_{KA}=36V ,V_{REF}=0			0.05	1.0	μA
Dynamic impedance	Z_{KA}	$V_{KA}=V_{REF}$, I_{KA}=1 to 100mA f≤1.0kHz			0.15	0.5	Ω

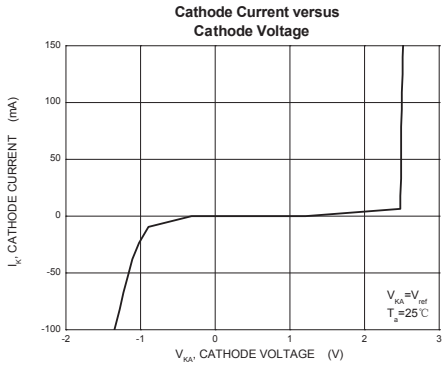
Note:T_{MIN}=0℃ ,T_{MAX}=+70℃

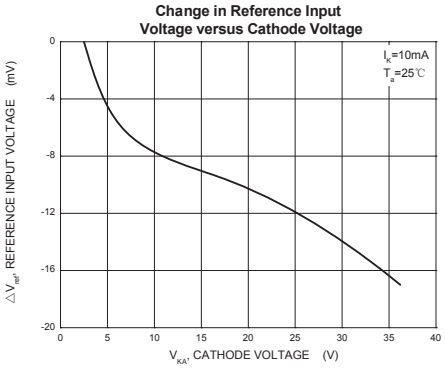
CLASSIFICATION of V_{ref}

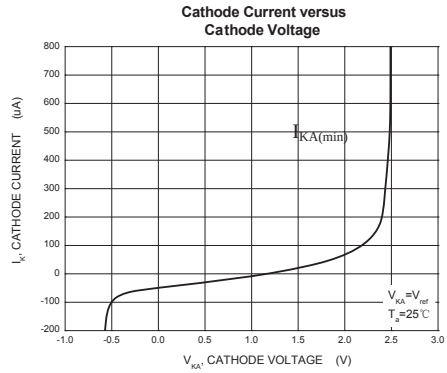
Rank	0.5%	1%
Range	2.487-2.513	2.475-2.525

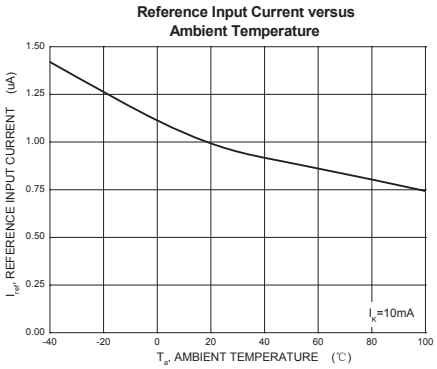
RATINGS AND CHARACTERISTIC CURVES

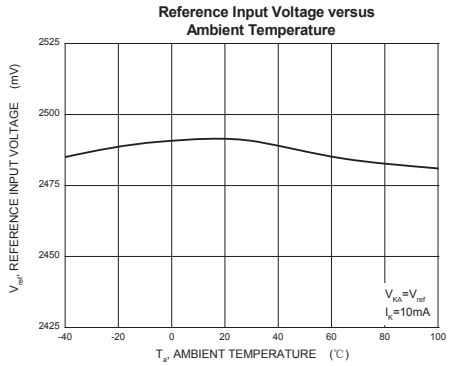
■ Typical Characteristics

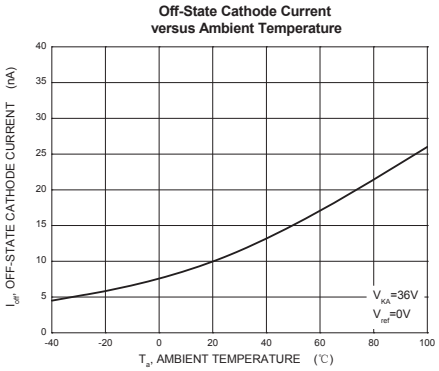


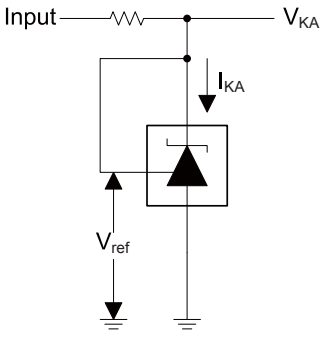




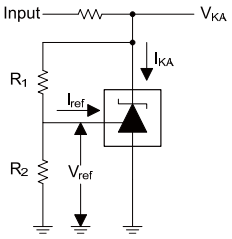




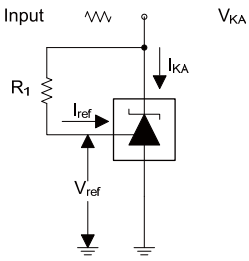




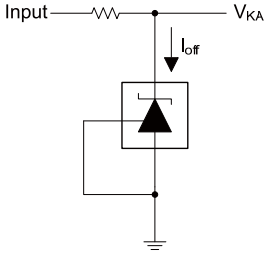
Test Circuit for $V_{KA}=V_{ref}$



Test Circuit for $V_{KA}=V_{ref}(1+R1/R2)+R1*I_{ref}$



Test Circuit for I_{ref}



Test Circuit for I_{off}