

TL431X

Features

- Output voltage can be adjusted to 36V
- Trapping current capability is 1 to 100 mA
- The effective temperature compensation in the working range of full temperature

Maximum Ratings @ T_{opr} Applies Unless Otherwise Noted

Parameter	Symbol	Value	Unit
Input Voltage (V _o =5.8V)	V ₁	37	V
Operating Junction Temperature	T _{opr}	0---70	°C
Storage Temperature Range	T _{stg}	-55---+150	°C

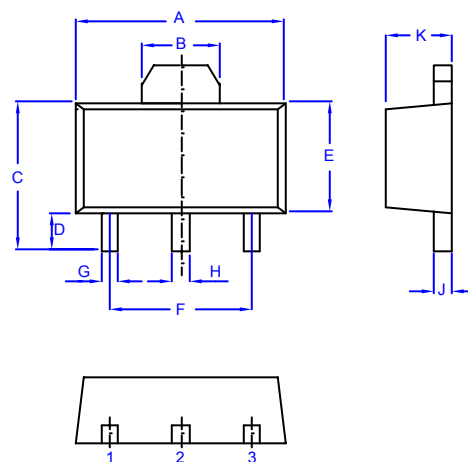
Electrical Characteristics @ 25 °C Unless Otherwise Specified

Parameter	Sym	Min	Typ	Max	Test conditions
Reference Input Voltage	V _{ref}	2.44V 0V	2.49V 5V	2.55V 0V	V _{KA} =V _{REF} , I _{KA} =10mA
Deviation of reference input voltage	$\Delta V_{ref}/\Delta T$		4.5mV	17mV	V _{KA} =V _{REF} , I _{KA} =10mA T _{min} ≤ T _a ≤ T _{max}
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\Delta V_{ref}/\Delta V_{KA}$		-1.0 -0.5	-2.7 -2.0	$\Delta V_{KA} = 10V \sim V_{ref}$ $\Delta V_{KA} = 36V \sim 10V$ I _{KA} =10mA
Reference Input Current	I _{ref}		1.5uA	4uA	I _{KA} =10mA, R1=10KΩ R2=∞
Deviation of Reference Input Current Over Full Temperature Range	$\Delta I_{ref}/\Delta T$		0.4uA	1.2uA	I _{KA} =10mA, R1=10KΩ R2=∞ T _A =full Temperature
Minimum Cathode Current for Regulation	I _{KA} (min)		0.45mA	1.0mA	V _{KA} =V _{REF}
Off-State Cathode Current	I _{KA} (OFF)		0.05uA	1.0uA	V _{KA} =36V, V _{REF} =0V
Dynamic Impedance	Z _{KA}		0.15Ω	0.5Ω	V _{KA} =V _{REF} , I _{KA} =1 to 100mA, f ≤ 1.0KHz

*Note: Bypass Capacitors are recommended for optimum stability and transient response and should be located as close as possible to the regulators

Programmable Precision Shunt Regulator

SOT-89



1. REFERENCE
2. ANODE
3. CATHODE

DIMENSINS					
DIM	INCHES		MM		NOTES
	MIN	MAX	MIN	MAX	
A	.173	.181	4.39	4.60	
B	.063	.071	1.60	1.80	
C	.154	.165	3.91	4.19	
D	.031	.039	0.80	1.00	
E	.092	.100	2.34	2.54	
F	.118	----	3.00	----	TYP
G	.013	.019	0.33	0.48	
H	.015	.021	0.38	0.53	
J	.015	.016	0.38	0.41	
K	.055	.063	1.40	1.60	

Fig. 1 – Cathode Current vs. Cathode Voltage

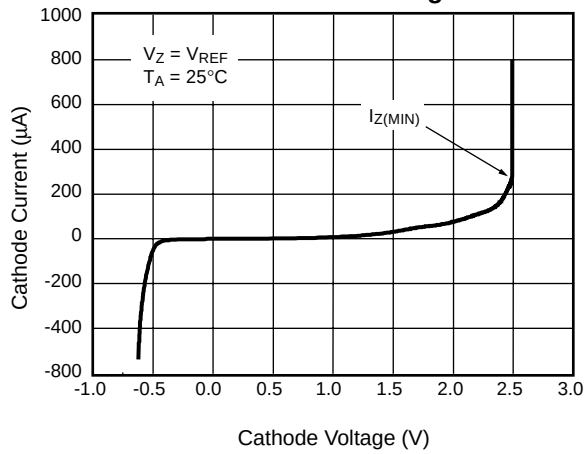


Fig. 2– Reference Voltage vs. Temperature

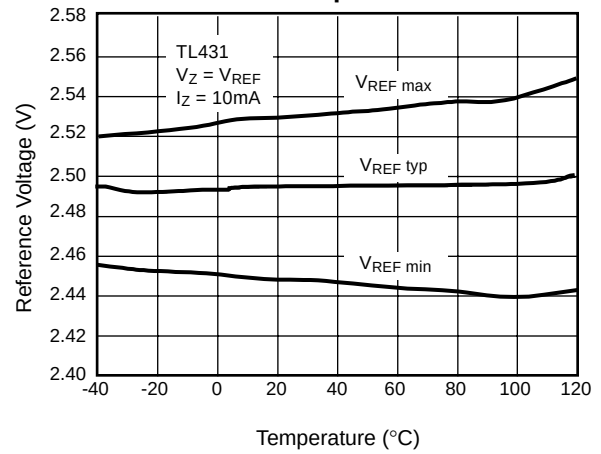


Fig. 3 – Reference Input Current vs. Temperature

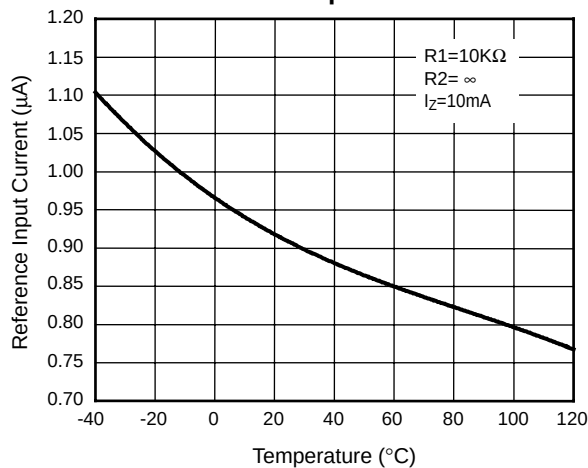


Fig. 4 – Dynamic Impedance vs. Temperature

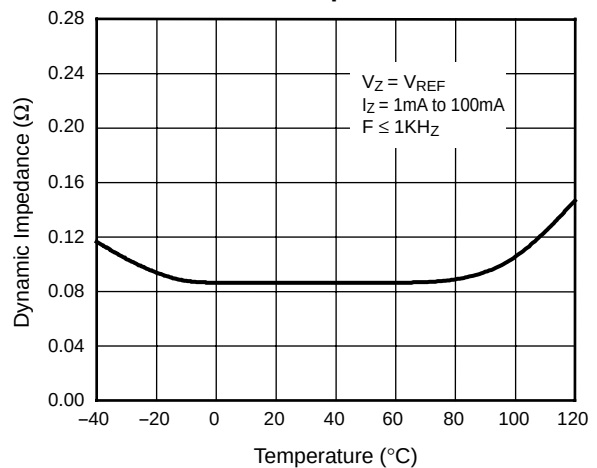


Fig. 5 – Change in Reference Voltage vs. Cathode Voltage

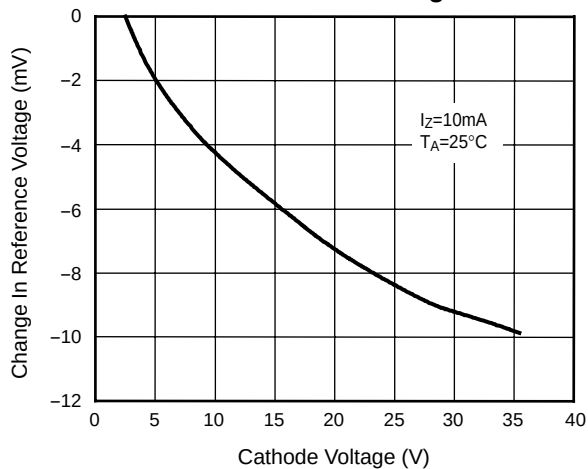


Fig. 6 – Off-State Cathode Current vs. Temperature

