Micro Commercial Components
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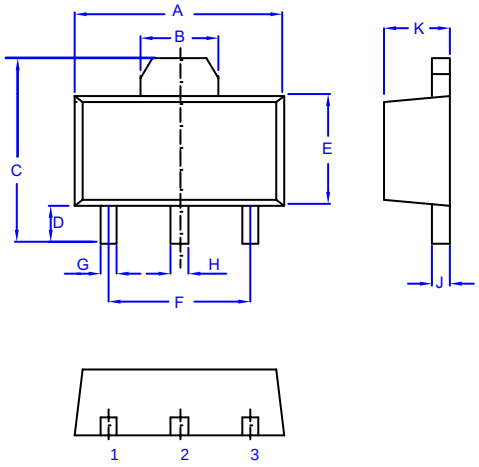
TL431X

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	.061	-----	1.55	-----	REF.
C	.154	.165	3.91	4.25	
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	

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1
- 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 (Vo=5.8V)	V_1	37	V
Operating Junction Temperature	T_{OPR}	0---70	℃
Storage Temperature Range	T_{STG}	-55---+150	℃

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	$\triangle V_{ref}/\triangle T$		4.5mV	17mV	$V_{KA}=V_{REF}$, I_{KA}=10mA $T_{min} \leqq Ta \leqq T_{max}$	
Ratio of Change in Reference Input Voltage to the Change in Cathode Voltage	$\triangle V_{ref}/\triangle V_{KA}$		-1.0	-2.7	$\triangle V_{KA}$= 10V～V_{ref}	I_{KA}=10mA
			-0.5	-2.0	$\triangle V_{KA}$= 36V～10V	
Reference Input Current	I_{ref}		1.5uA	4uA	I_{KA}=10mA, R1=10KΩ R2=∞	
Deviation of Reference Input Current Over Full Temperature Range	$\triangle I_{ref}/\triangle T$		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

Fig. 1 – Cathode Current vs. Cathode Voltage

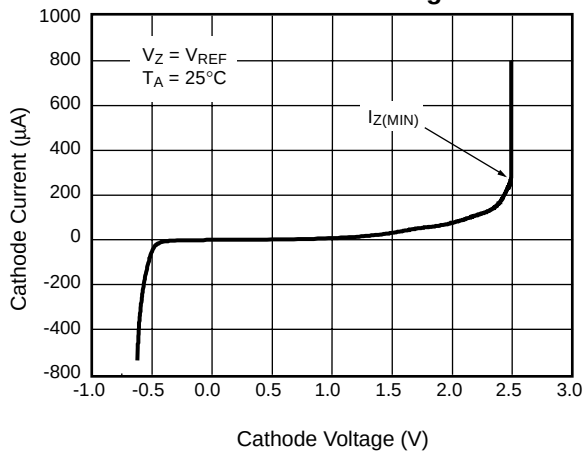


Fig. 2– Reference Voltage vs. Temperature

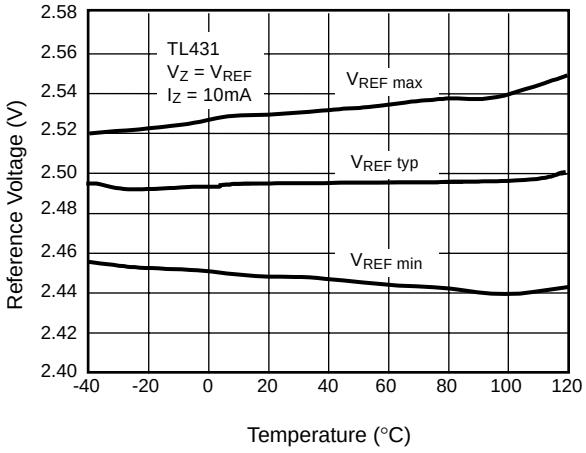


Fig. 3 – Reference Input Current vs. Temperature

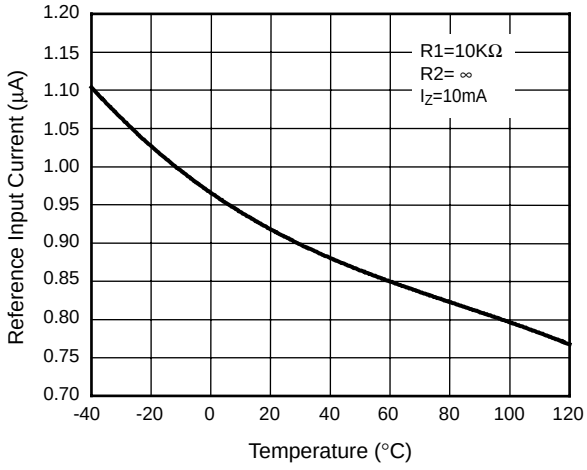


Fig. 4 – Dynamic Impedance vs. Temperature

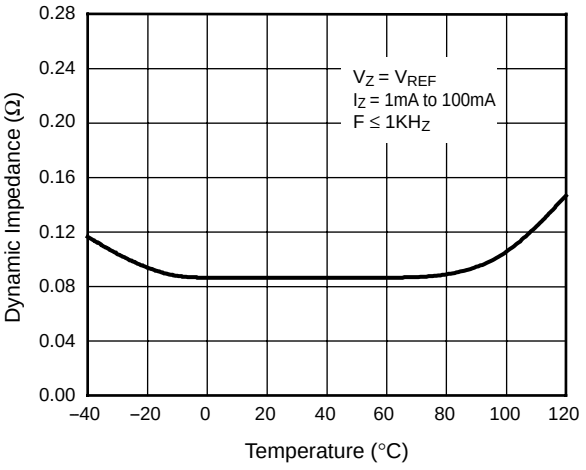


Fig. 5 – Change in Reference Voltage vs. Cathode Voltage

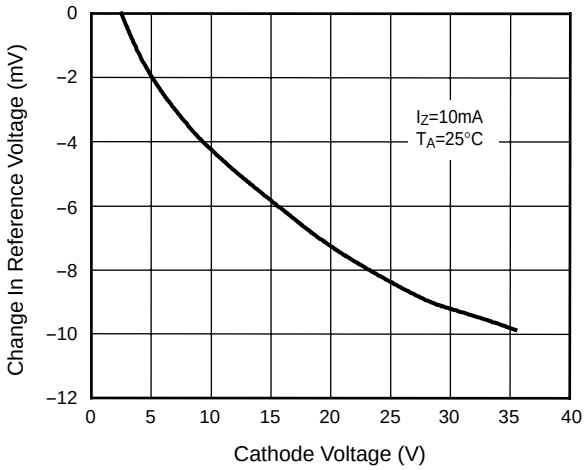
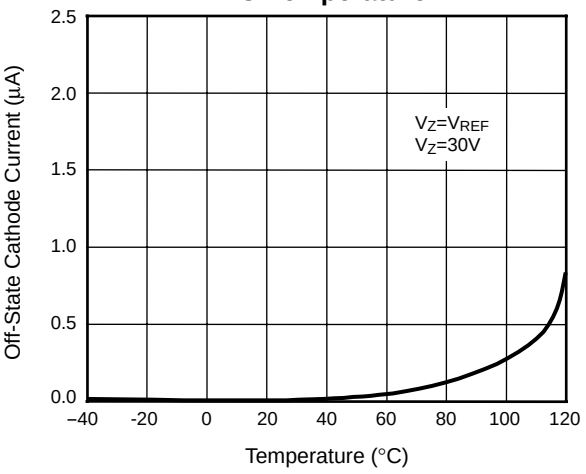


Fig. 6 – Off-State Cathode Current vs. Temperature



Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel;1Kpcs/Reel

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