



1. Features

- The output voltage can be adjusted to 36V
- Low dynamic output impedance, its typical value is 0.2Ω
- current capability is 1 to 100mA
- Low output noise voltage
- Fast on-state response
- The effective temperature compensation in the working range of full temperature
- The typical value of the equivalent temperature factor in the whole temperature scope is 50 ppm/°C
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. Mechanical Data

- Case: Molded Plastic, SOT-23
- Epoxy: UL 94V-0 rate flame retardant.
- Terminals: Plated Leads Solderable per MIL-STD-750, Method-2026.
- Marking: 431N
- Mounting Position : Any.

3. Maximum Ratings

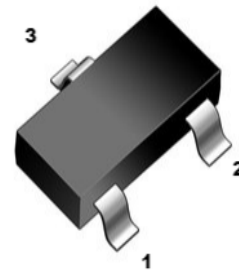
Electrical Characteristics Rating at 25°C ambient temperature unless otherwise specified.

Characteristic	Symbol	Value	Unit
Cathode Voltage	V_{KA}	37	V
Cathode Current Range (Continuous)	I_{KA}	- 100 to + 150	mA
Reference Input Current Range	I_{REF}	- 0.05 to + 10	mA
Power Dissipation	P_D	350	mW
Operating Temperature Range	T_{opr}	- 25 to + 85	°C
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 65 to + 150	°C

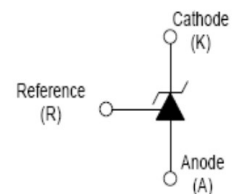
4. Electrical Characteristics (TA=25°C unless otherwise noted)

Characteristics	Symbol	Min	TYP	Max	Unit
Recommended Operating Conditions					
Cathode Voltage	V_{KA}	V_{REF}	-	36	V
Cathode Current	I_{KA}	1	-	100	mA
Reference Input Voltage at $V_{KA} = V_{REF}$, $I_{KA} = 10$ mA	V_{REF}	2.487	2.50	2.513	V
Reference Input Voltage at $V_{KA} = V_{REF}$, $I_{KA} = 10$ mA	V_{REF}	2.475	2.50	2.525	V
Reference Input Voltage at $V_{KA} = V_{REF}$, $I_{KA} = 10$ mA	V_{REF}	2.44	2.495	2.55	V
Deviation of Reference Input Voltage Over Temperature at $V_{KA} = V_{REF}$, $I_{KA} = 10$ mA, $-25^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$	$\Delta V_{REF} / \Delta T$	-	4.5	17	mV
Ratio of Change in Reference Input Voltage to V_{REF} $\Delta V_{KA} = 10$ V	$\Delta V_{REF} / \Delta V_{KA}$	-	-1.0 -0.5	-2.7 -2	mV/V
Reference Input Current at $I_{KA} = 10$ mA, $R1 = 10$ KΩ, $R2 = \infty$	I_{REF}	-	1.5	4	μA
Deviation of Reference Input Current Over Full Temperature at $I_{KA} = 10$ mA, $R1 = 10$ KΩ, $R2 = \infty$, $-25^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$	$\Delta I_{REF} / \Delta T$	-	0.4	1.2	μA
Minimum Cathode Current for Regulation at $V_{KA} = V_{REF}$	$I_{KA(min)}$	-	0.45	1	mA
Off-Stage Cathode Current at $V_{KA} = 36$ V, $V_{REF} = 0$	$I_{KA(OFF)}$	-	0.05	1	μA
Dynamic Impedance at $V_{KA} = V_{REF}$, $I_{KA} = 1$ to 100 mA, $f \leq 1$ KHz	Z_{KA}	-	0.15	0.5	Ω

SOT-23



1 CATHODE
2 REFERENCE
3 ANODE





5. Rating And Characteristic Curves

Fig.1 Cathode Voltage

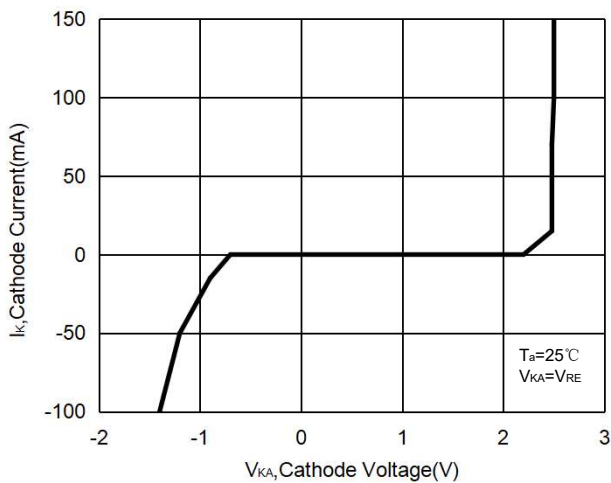


Fig.2 Cathode Current versus Cathode Voltage

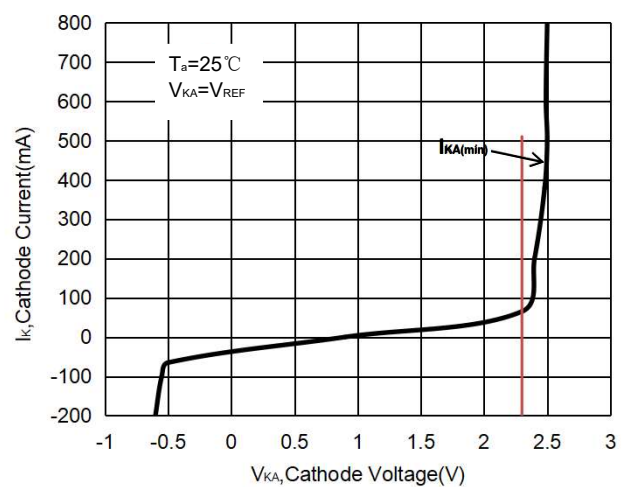
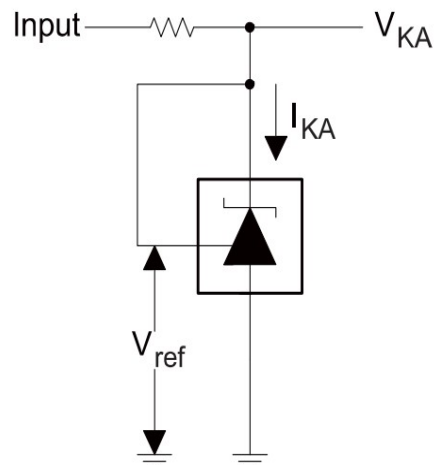
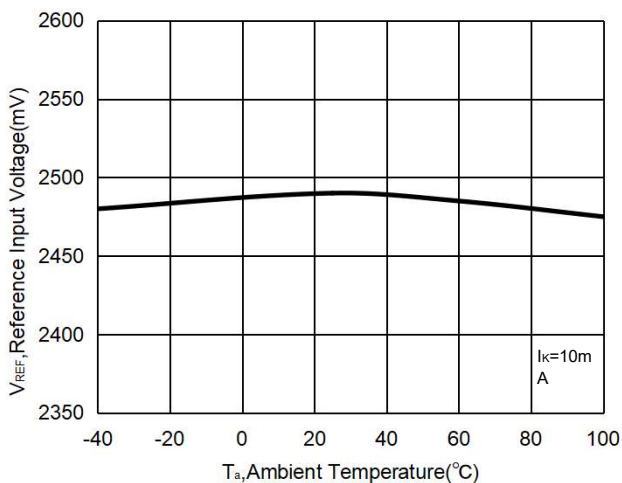
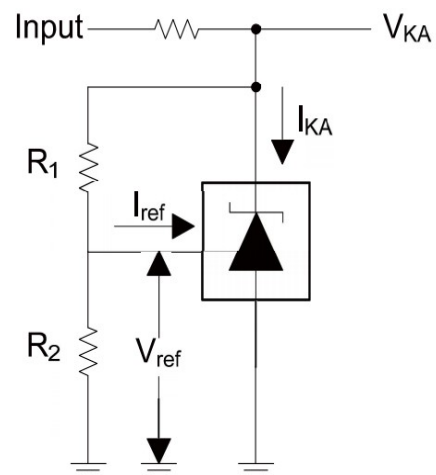
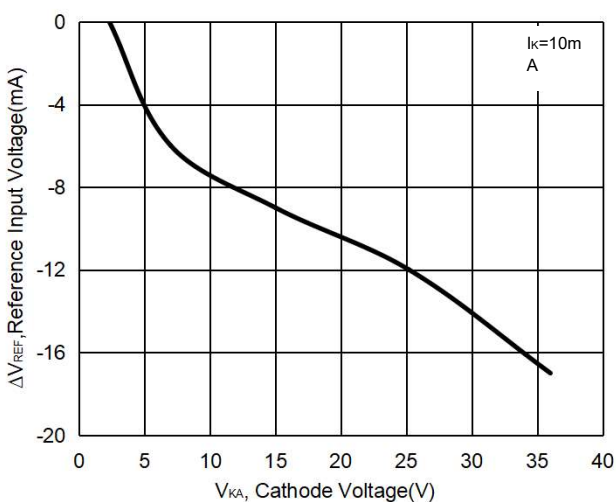


Fig.3 Reference Input Voltage versus Ambient Temperature



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

Fig.4 Change in Reference Input Voltage versus Cathode Voltage



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



Fig.5 Reference Input Current versus Ambient Temperature

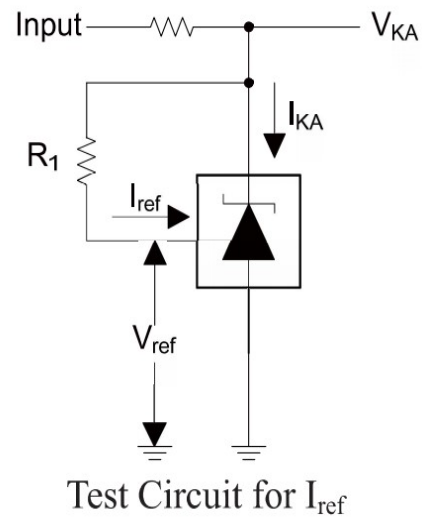
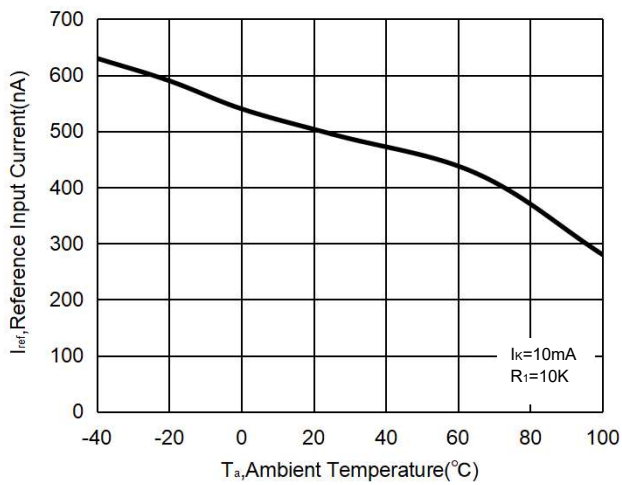
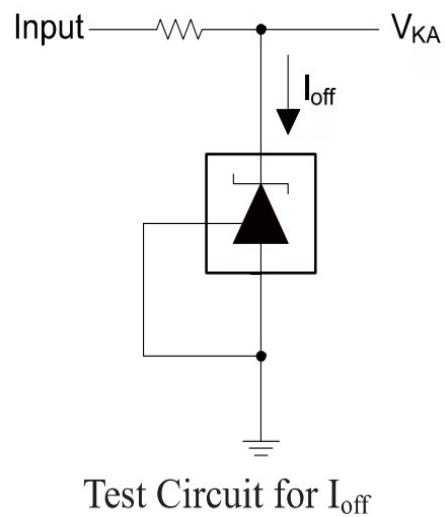
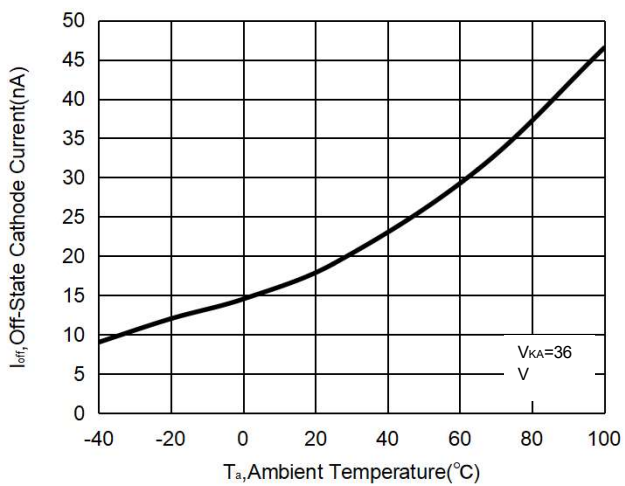
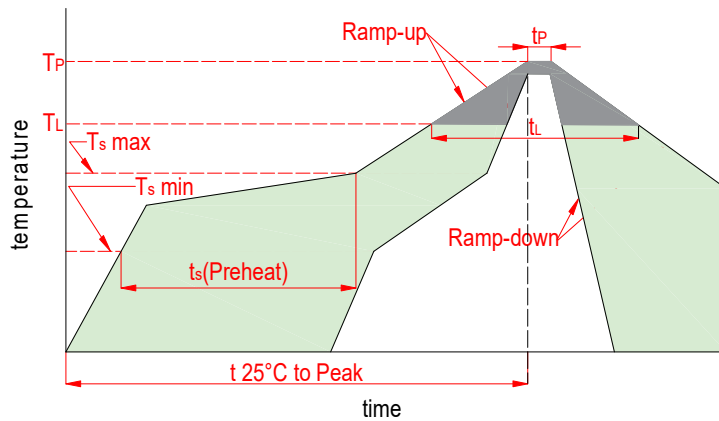


Fig.6 Off-State Cathode Current versus Ambient Temperature



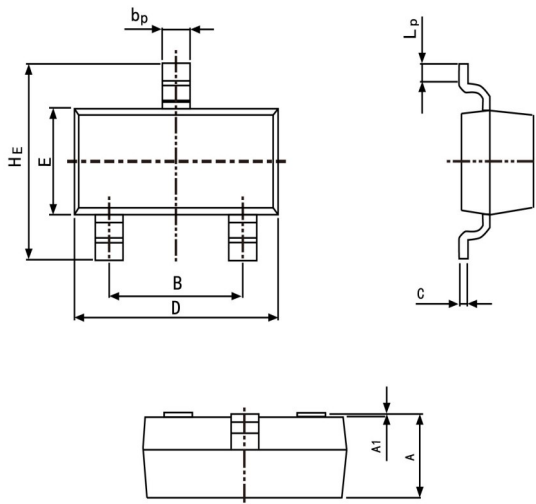


6. Soldering Parameters



Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150°C
	Temp. max(T_s (min))	200°C
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3°C/s max
T_s (max) to T_L -Ramp-up Rate		3°C/s max
Reflow	Temp.(T_L)(Liquidus)	217°C
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} °C
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6°C/s max
Time 25°C to peak Tempe.(T_P)		8 minutes max
Do not exceed		260°C

7. Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.037	0.055	0.95	1.40
B	0.070	0.080	1.78	2.04
bp	0.014	0.020	0.35	0.50
C	0.003	0.007	0.08	0.19
D	0.106	0.122	2.70	3.10
E	0.047	0.065	1.20	1.65
HE	0.087	0.118	2.20	3.00
A1	0.004	0.001	0.100	0.013
LP	0.008	0.020	0.20	0.50



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