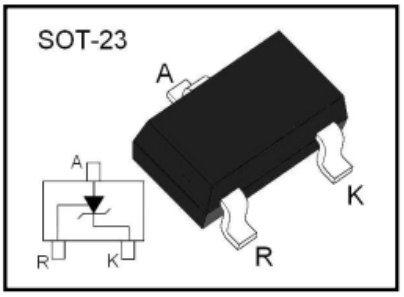
Low Voltage Adjustable Precision Shunt Regulator

FEATURES

- Precise Reference Voltage to 1.24V
- Guaranteed 1% Reference Voltage Tolerance
- Sink Current Capability, 80μA to100mA
- Quick Turn-on
- Adjustable Output Voltage, Vo=VREF to 18V
- 0.2 Ω Typical Output Impedance
- Operating temperature range : -40℃ ~ +105℃
- Halogen-Free Package is Available
- High Level ESD Protection : 500V (MM), 5KV (HBM)



TEST CIRCUITS

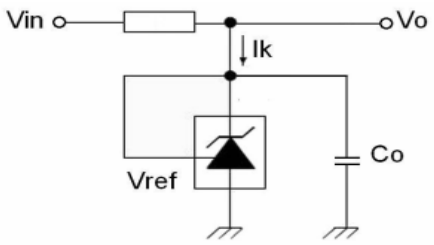


Figure 1 : Test Circuit for $V_{KA} = V_{REF}$

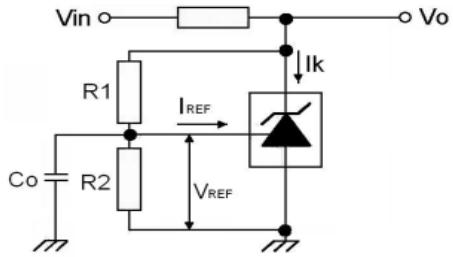


Figure 2 : Test Circuit for $V_{KA} > V_{REF}$
$V_O = V_{KA} = V_{REF} * (1 + R1/R2) + I_{REF} * R1$
$C_O = 1\mu F$

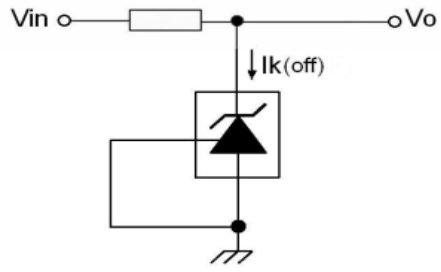


Figure 3 : Test Circuit for I_{OFF}

Maximum Ratings (T_A=25 °C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Cathode to Anode Voltage	V_{KA}	18	V
Continuous Cathode Current Range	I_K	100	mA
Reference Input Current Range	I_{REF}	3	mA
Power Dissipation	P_D	300	mW
Storage Temperature Range	T_j	-40 to 150	℃

Electrical characteristics

Operating Conditions: Vin -Vout ≤7V, TJ = 25℃ unless otherwise specified

Parameter	Symbol	Conditions	Value			Unit
			Min	Typ	Max	
Reference Input Voltage	V_{REF}	$V_{KA} = V_{ref}$, I_K = 10mA(Fig.1) T_a = 25°C	1.228	1.240	1.252	V
Reference Input Voltage Deviation Over-Temperature Range	ΔVref	T_A=full range (see Note1) $V_{KA}=V_{REF}$, I_K=10mA(Fig.1)		10	25	mV
Ratio of Change in Reference Input Voltage to Change in Cathode to Anode Voltage	$\frac{\Delta V_{REF}}{\Delta V_{KA}}$	I_K= 10mA, V_{KA} = 18V to V_{REF} (Fig.2)		-1	-2.7	mV/V
Reference Input Current	I_{REF}	I_K = 10mA, R_1 = 10kΩ,R_2 = ∞ (Fig.2)		0.25	0.5	μA
Reference Input Current Deviation Over Temperature Range	ΔI_{REF}	T_K=full range (see Note1), R1 =10kΩ, R2=∞, IK=10mA (Fig. 2)		0.05	0.3	μA
Minimum Cathode Current for Regulation	$I_{K(MIN)}$	$V_{KA} = V_{REF}$		60	80	μA
Off-State Cathode Current	I_{off}	V_{REF}=0 V,(Fig.3) V_K=18V		0.04	0.5	μA
Dynamic Impedance - note 2	$\lvert Z_{KA} \rvert$	$V_{KA} = V_{REF}$, I_k = 1 to100mA, f ≤1kHz(Fig.1)		0.2	0.4	Ω

Notes: 1. Full temperature range is -40°C to 105°C for TL432

Electrical Characteristic Curves

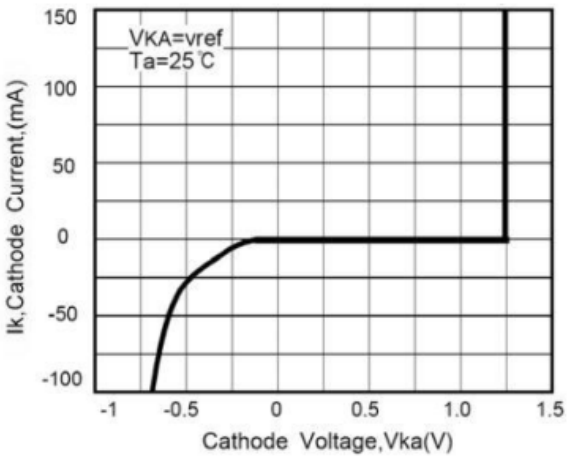


Figure 1. Cathode Current vs. Cathode Voltage

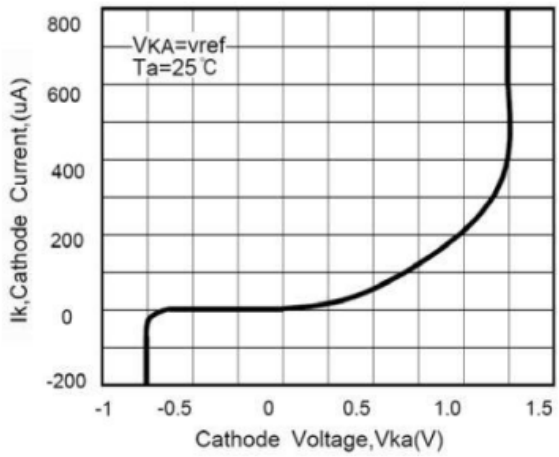


Figure 2. Cathode Current vs. Cathode Voltage

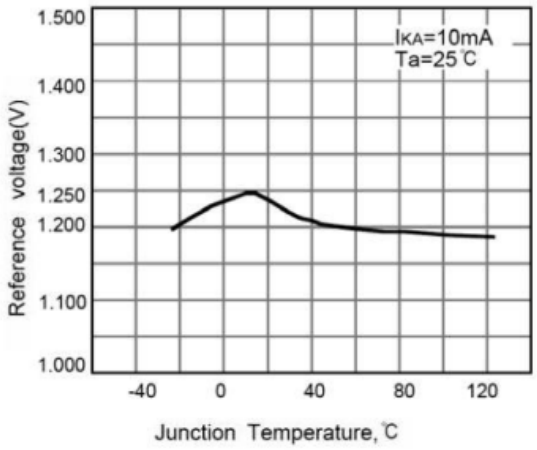


Figure 3. V_{REF}- Juction Tempreature

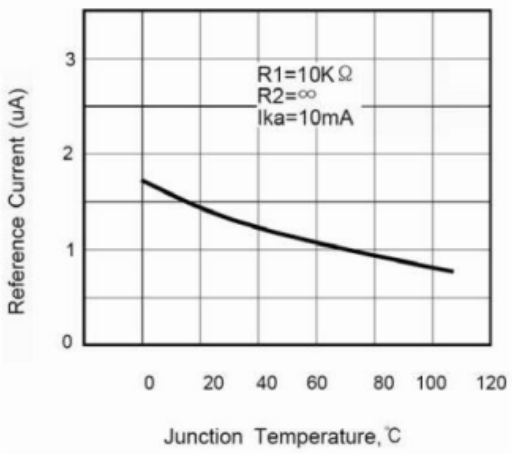
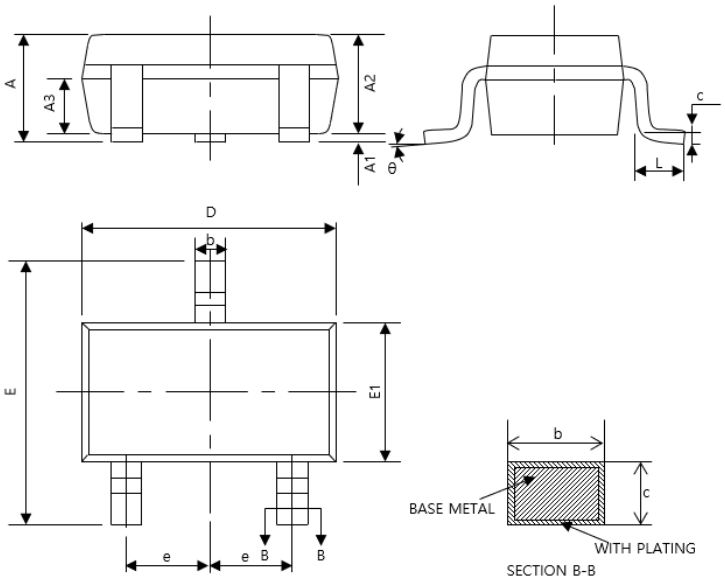


Figure 4. Reference Input Current-Juction Tempreature

Package Dimensions

SOT-23 Outline Dimension

Unit : mm



SOT23-3L unit : mm			
DIM	MIN	NOM	MAX
A	0.9	1.05	1.15
A1	0.00	0.05	0.10
A2	0.90	1.00	1.05
A3	0.55	0.65	0.75
b	0.30	0.40	0.50
c	0.08	—	0.15
D	2.80	2.90	3.00
E	2.25	2.40	2.55
E1	1.20	1.30	1.40
e	0.95BSC		
L	0.50	—	0.60
θ	0	—	8°

Ordering Information

Part No	Package	Marking	Packing	Finish	Halogen	Packing Unit
TL432AS	SOT23-3L	**432A**	Reel taping 3,000pcs/reel	Sn	Free	30,000pcs 10reels

Revision History

No	Date	Contents
1	2015-01-30	Initial Brief Datasheet Release

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