

## Features

- The output voltage can be adjusted to 36V.
- Low dynamic output impedance, its typical value is 0.2Ω
- Trapping 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

## Mechanical data

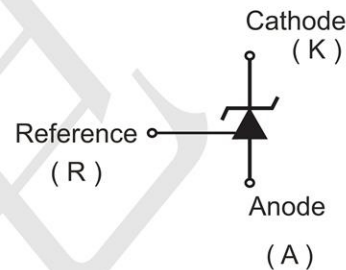
- Case: SOT-23, molded plastic.
- Terminals: solderable per MIL-STD-750, method 2026.

## Package and Pin Configuration

### SOT-23



### Circuit diagram



## Absolute Maximum Ratings

(operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Cathode voltage	V <sub>KA</sub>	37	V
Cathode current range (continuous)	I <sub>KA</sub>	-100~+150	mA
Reference input current range	I <sub>ref</sub>	0.05~+10	mA
Power dissipation	P <sub>D</sub>	300	mW
Thermal resistance from junction to ambient	R <sub>θJA</sub>	417	°C/W
Operating junction temperature	T <sub>J</sub>	150	°C
Operating ambient temperature range	T <sub>opr</sub>	-40~+85	°C
Storage temperature range	T <sub>stg</sub>	-65~+150	°C

**Electrical Characteristics** (  $T_a=25^\circ\text{C}$  unless otherwise specified )

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reference input voltage (Fig.1)	$V_{ref}$	$V_{KA} = V_{REF}, I_{KA} = 10\text{mA}$	2.470		2.520	V
Deviation of reference input voltage over temperature (note) (Fig.1)	$\Delta V_{ref} / \Delta T$	$V_{KA} = V_{REF}, I_{KA} = 10\text{mA}$ $T_{min} \leq T_a \leq T_{max}$		4.5	17	mV
Ratio of change in reference input voltage to the change in cathode voltage (Fig.2)	$\Delta V_{ref} / \Delta V_{KA}$	$I_{KA} = 10\text{mA}$	$\Delta V_{KA} = 10\text{V} - V_{REF}$	-1.0	-2.7	mV/V
			$\Delta V_{KA} = 36\text{V} - 10\text{V}$	-0.5	-2.0	mV/V
Reference input current (Fig.2)	$I_{ref}$	$I_{KA} = 10\text{mA}, R_1 = 10\text{ k}\Omega$ $R_2 = \infty$		1.5	4	$\mu\text{A}$
Deviation of reference input current over full temperature range (Fig.2)	$\Delta I_{ref} / \Delta T$	$I_{KA} = 10\text{mA}, R_1 = 10\text{ k}\Omega$ $R_2 = \infty$ $T_a = \text{full Temperature}$		0.4	1.2	$\mu\text{A}$
Minimum cathode current for regulation (Fig.1)	$I_{KA(min)}$	$V_{KA} = V_{REF}$		0.45	1.0	mA
Off-state cathode current (Fig.3)	$I_{KA(OFF)}$	$V_{KA} = 40\text{V}, V_{REF} = 0$		0.05	0.5	$\mu\text{A}$
Dynamic impedance	$Z_{KA}$	$V_{KA} = V_{REF}, I_{KA} = 1\text{ to }100\text{mA}$ $f \leq 1.0\text{kHz}$		0.15	0.5	$\Omega$

Note:  $T_{MIN} = 0^\circ\text{C}, T_{MAX} = +70^\circ\text{C}$

**Classification of  $V_{ref}$**

Rank	0.5%	1%
Range	2.482 - 2.508	2.47 - 2.52

Fig.1 - Test Circuit for  $V_{KA} = V_{ref}$

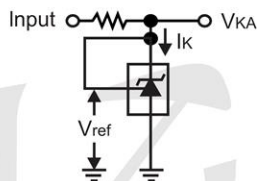
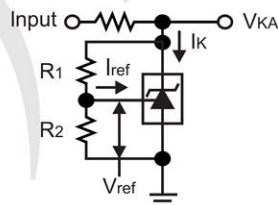
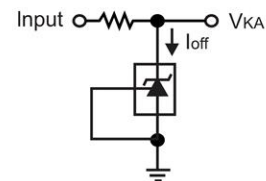


Fig.2 - Test Circuit for  $V_{KA} > V_{ref}$



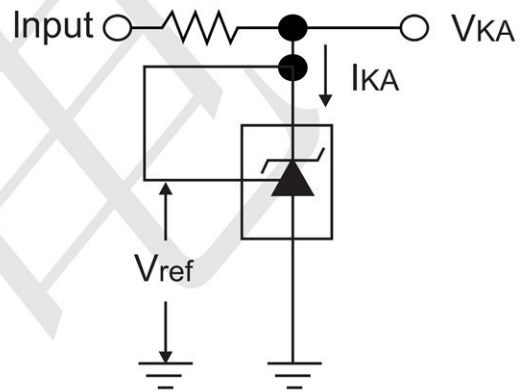
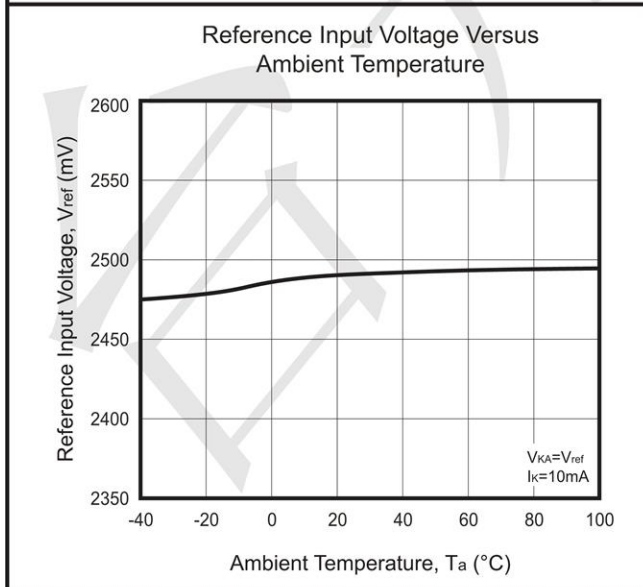
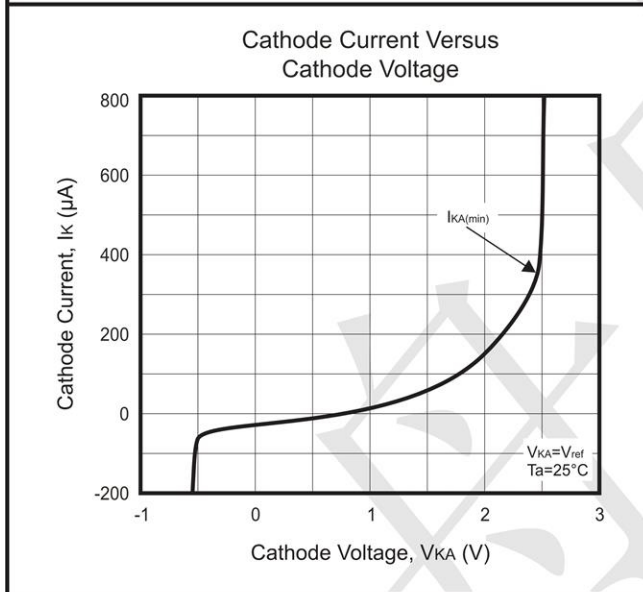
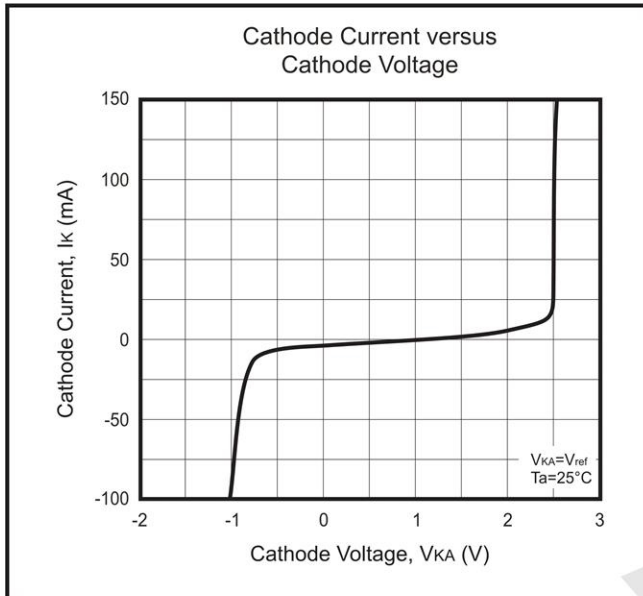
$$V_{KA} = V_{ref} (1 + R_1/R_2) + I_{ref} \cdot R_1$$

Fig.3 - Test Circuit for  $I_{off}$

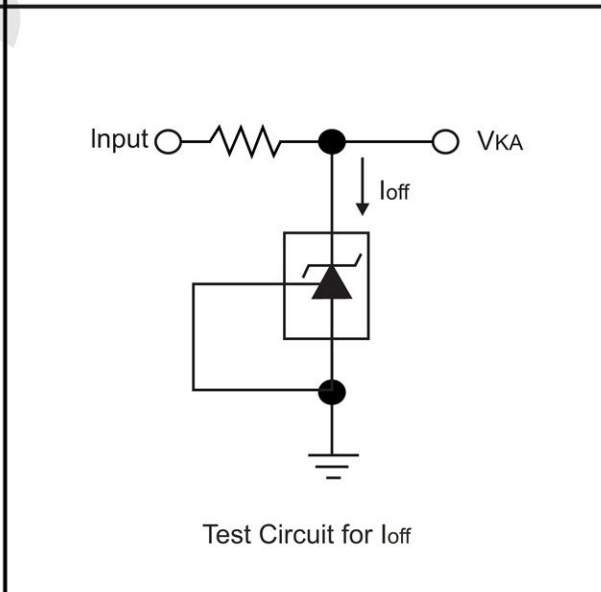
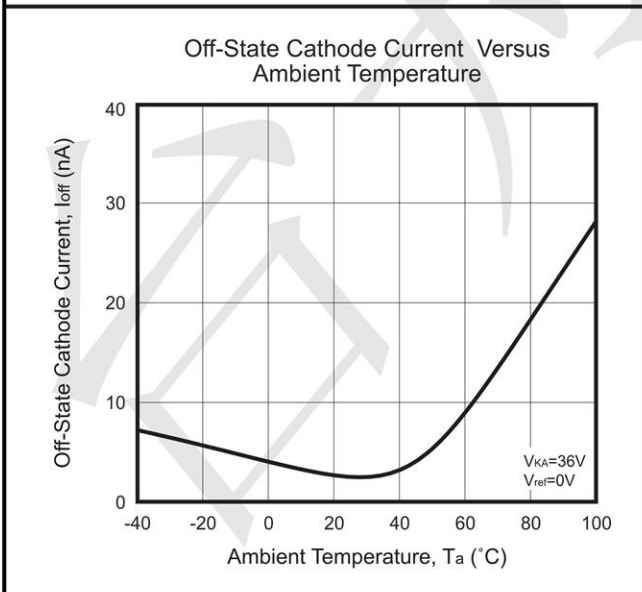
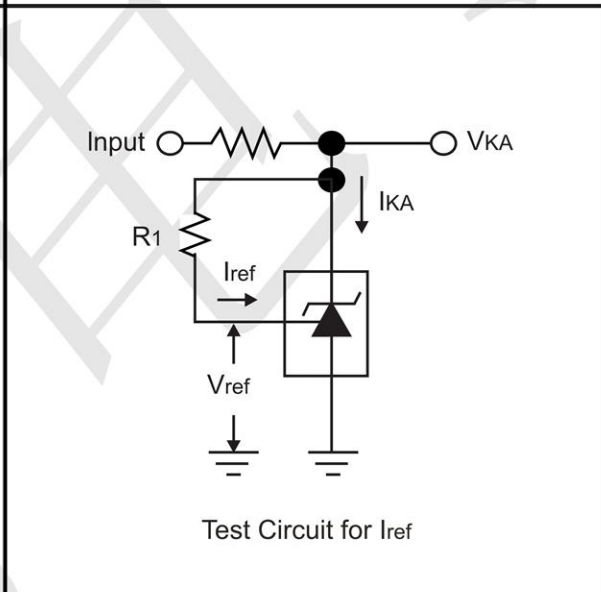
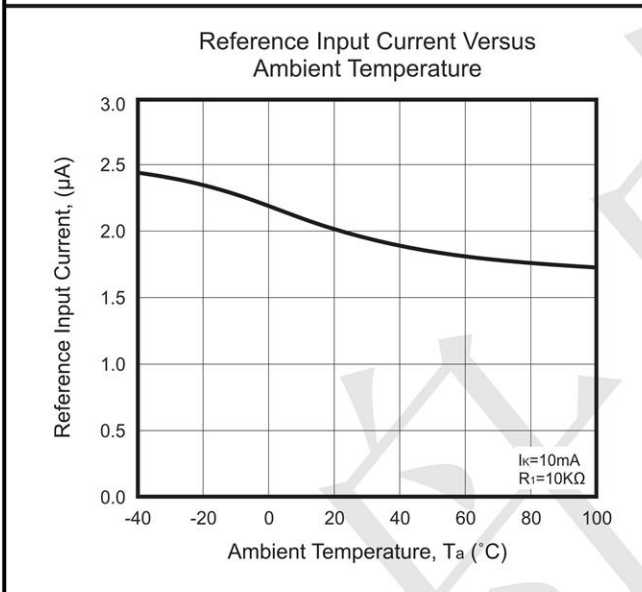
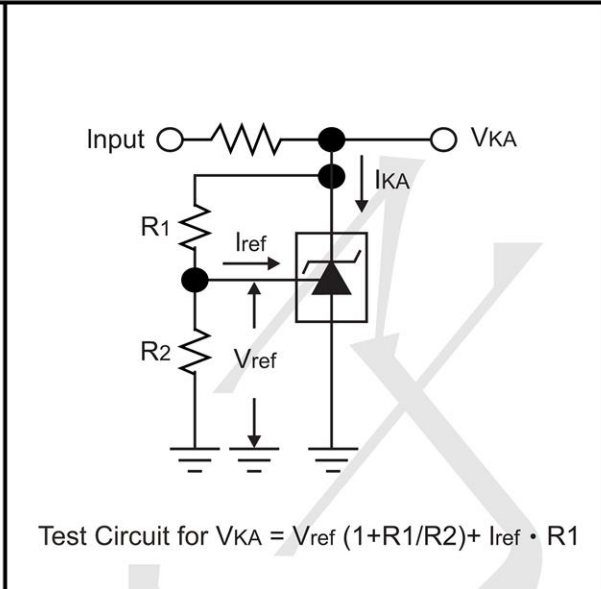
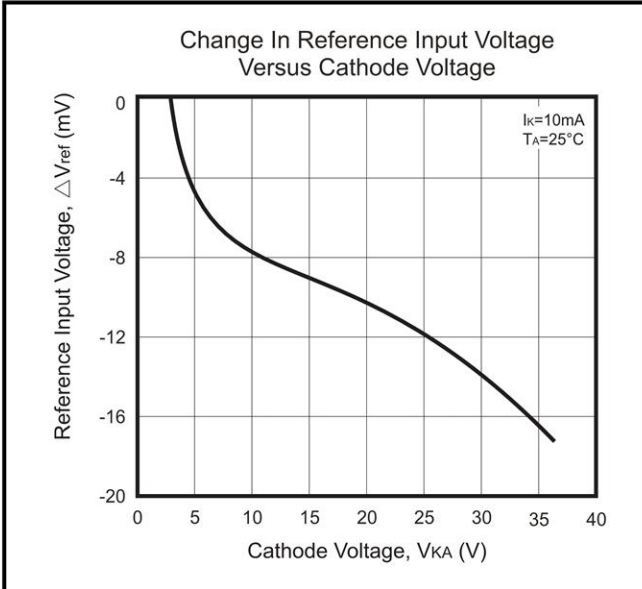




Typical Electrical and Thermal Characteristics

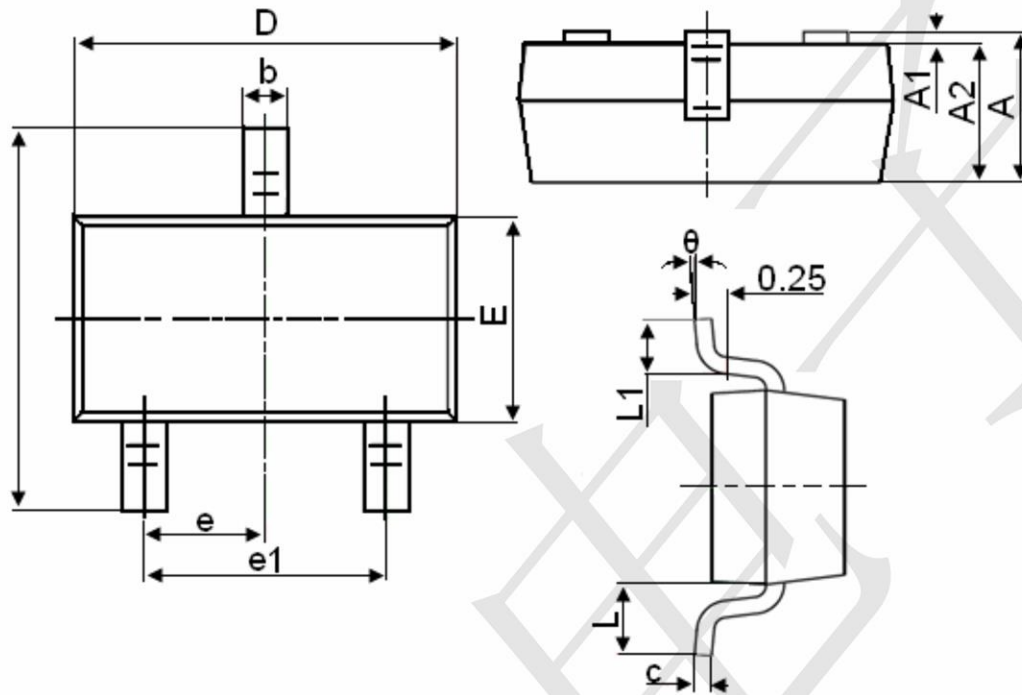


Test Circuit for  $V_{KA} = V_{ref}$





SOT-23 Package Information



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
theta	0°	8°