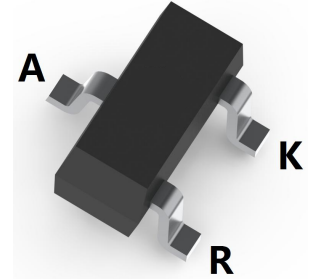


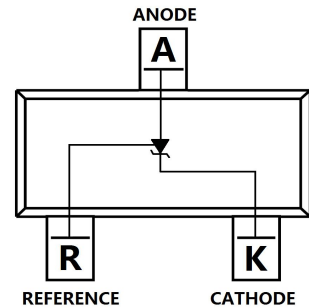
**ADJUSTABLE ACCURATE REFERENCE SOURCE**

**FEATURES**

- 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
- 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
- Surface Mount device



**SOT-23**



**APPLICATION**

- Shunt Regulator
- High-Current Shunt Regulator
- Precision Current Limiter

**MECHANICAL DATA**

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.008 grams (approximate)

**MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)**

Parameter	Symbol	Value	Unit
Cathode Voltage	$V_{KA}$	36	V
Cathode Current Range (Continuous)	$I_{KA}$	-100~+150	mA
Reference Input Current Range	$I_{ref}$	0.05~+10	mA
Power Dissipation	$P_D$	300	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	417	°C/W
Operating Temperature	$T_{opr}$	-20~+85	°C
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 ~+150	°C

**ADJUSTABLE ACCURATE REFERENCE SOURCE**

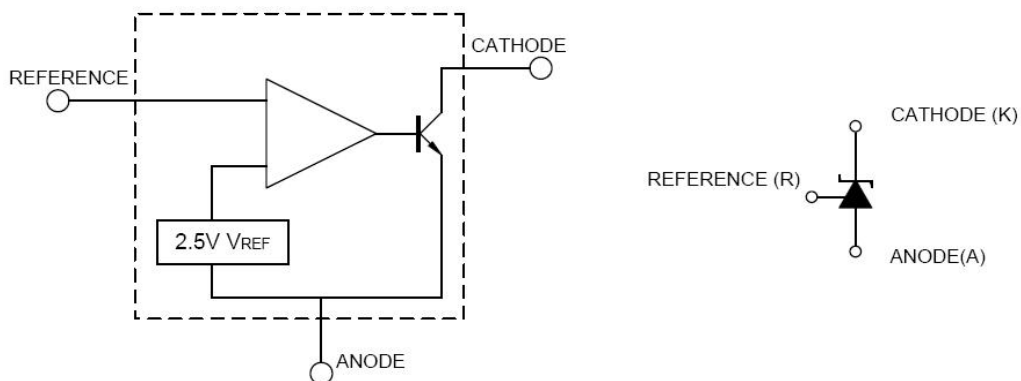
**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Reference Input Voltage	V <sub>ref</sub>	2.475	2.5	2.525	V	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA
Deviation of reference input voltage over temperature	ΔV <sub>ref</sub> /ΔT		4.5	17	mV	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA -25°C ≤ T <sub>A</sub> ≤ +85°C
Ratio of change in reference input voltage to the change in cathode voltage	ΔV <sub>ref</sub> /ΔV <sub>KA</sub>		-1.0	-2.7	mV/V	I <sub>KA</sub> =10mA, ΔV <sub>KA</sub> =10V-V <sub>REF</sub>
			-0.5	-2.0	mV/V	I <sub>KA</sub> =10mA, ΔV <sub>KA</sub> =36V-10V
Reference input current	I <sub>ref</sub>		1.5	4	μA	I <sub>KA</sub> =10mA, R <sub>1</sub> =10KΩ, R <sub>2</sub> =∞
Deviation of reference input current Over full temperature range	ΔI <sub>ref</sub> /ΔT		0.4	1.2	μA	I <sub>KA</sub> =10mA, R <sub>1</sub> =10KΩ, R <sub>2</sub> =∞, -25°C ≤ T <sub>A</sub> ≤ +85°C
Emitter cut-off current	I <sub>KA(min)</sub>		0.45	1.0	mA	V <sub>KA</sub> =V <sub>REF</sub>
Off-state Cathode Current	I <sub>KA(OFF)</sub>		0.05	1.0	μA	V <sub>KA</sub> =36V, V <sub>REF</sub> =0
Dynamic Impedance	Z <sub>KA</sub>		0.15	0.5	Ω	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =1~10mA, f ≤ 1.0kHz

**CLASSIFICATION OF V<sub>ref</sub>**

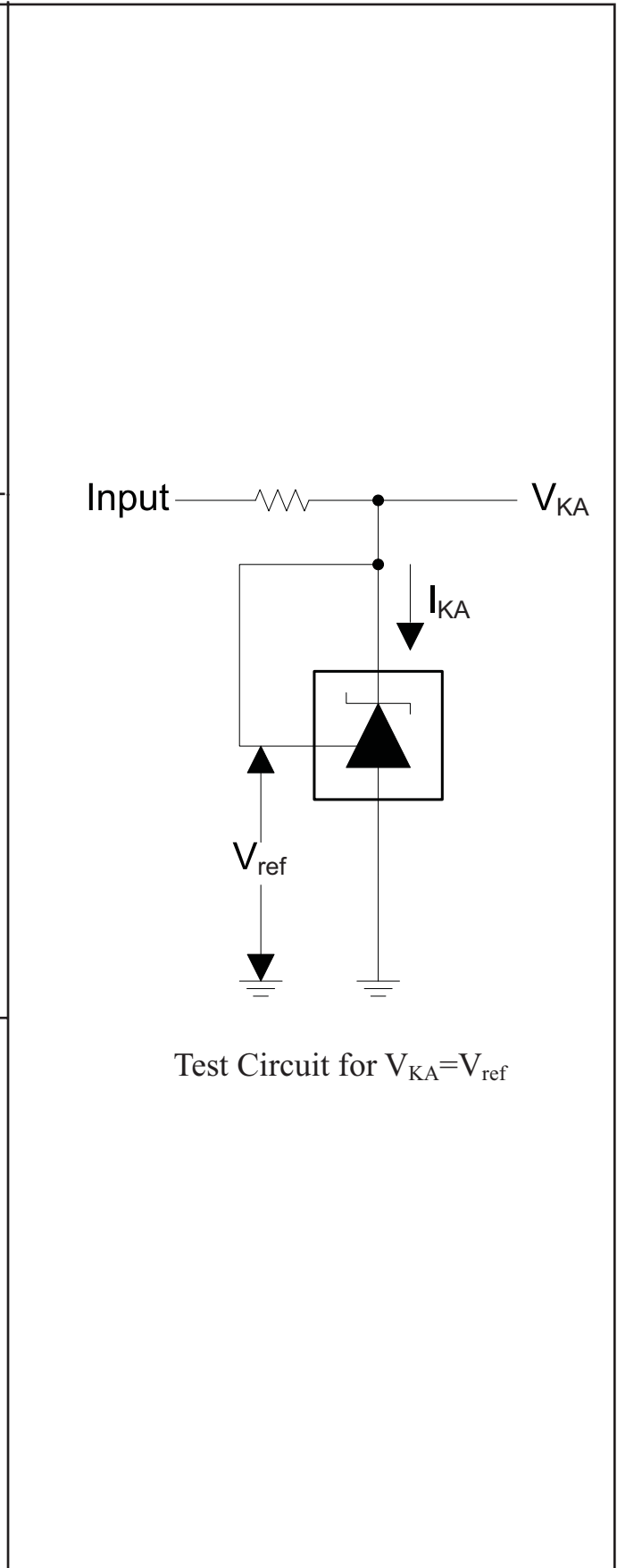
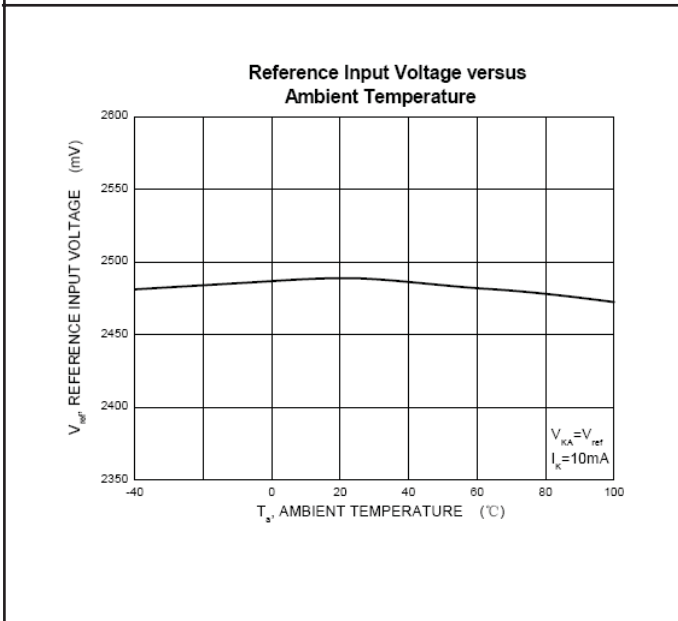
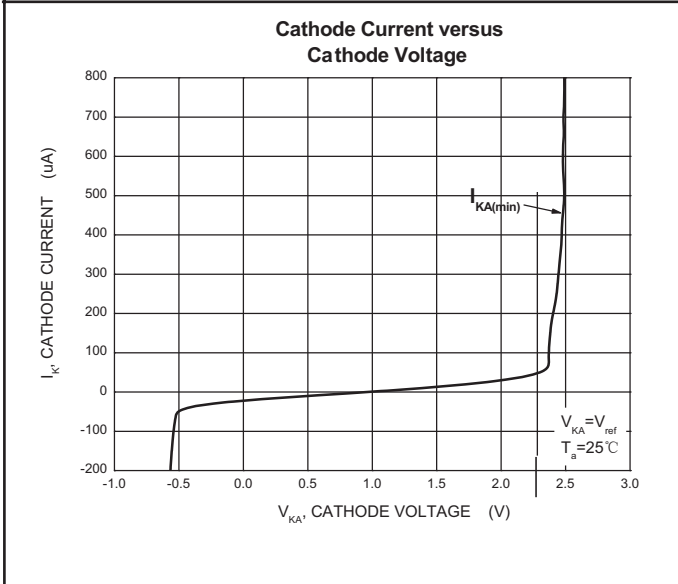
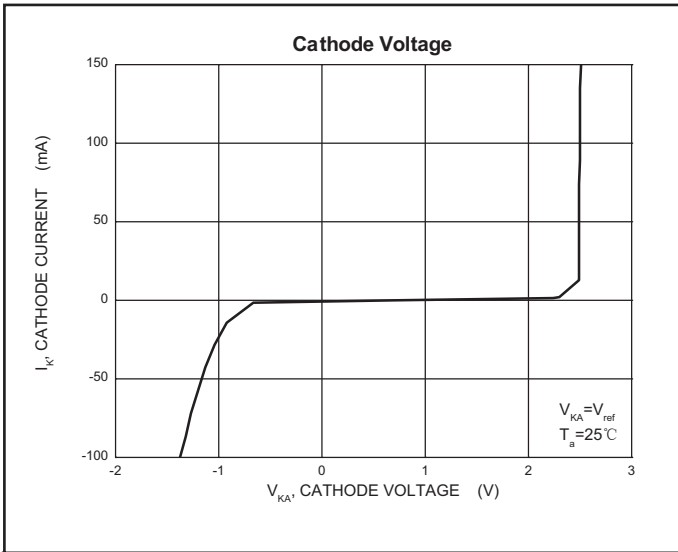
Rank	0.5%	1%	2%
Range	2.487-2.513	2.475-2.525	2.450-2.550

**BLOCK DIAGRAM**

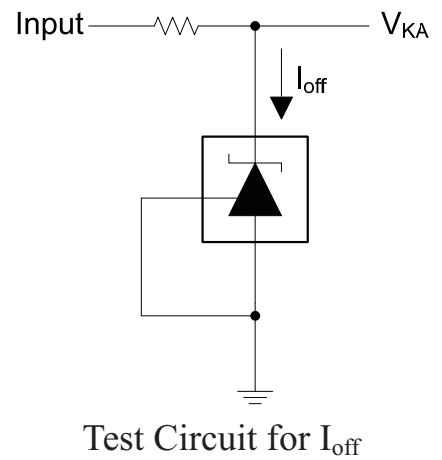
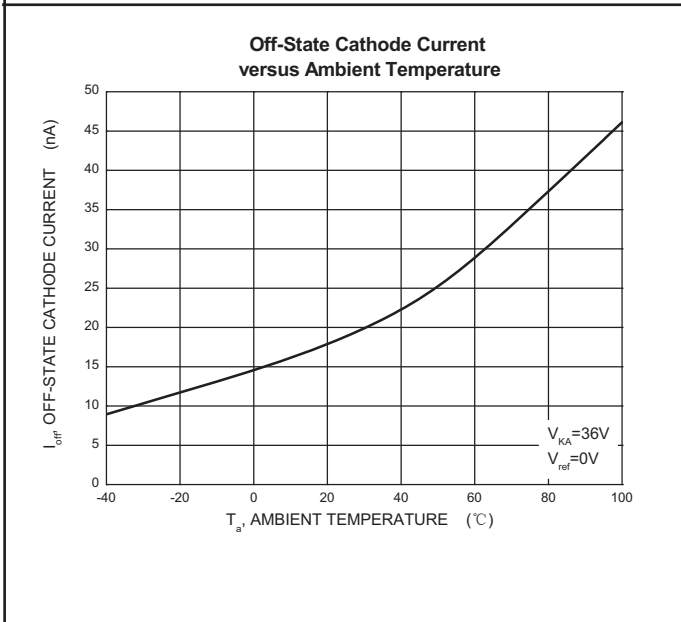
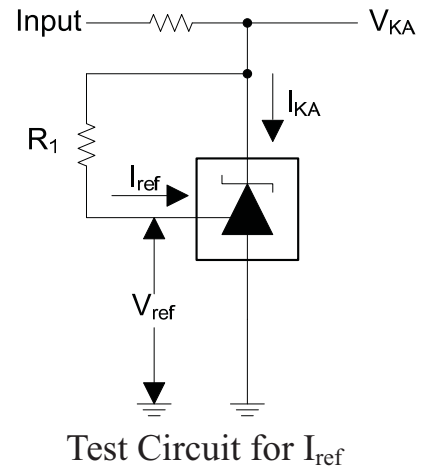
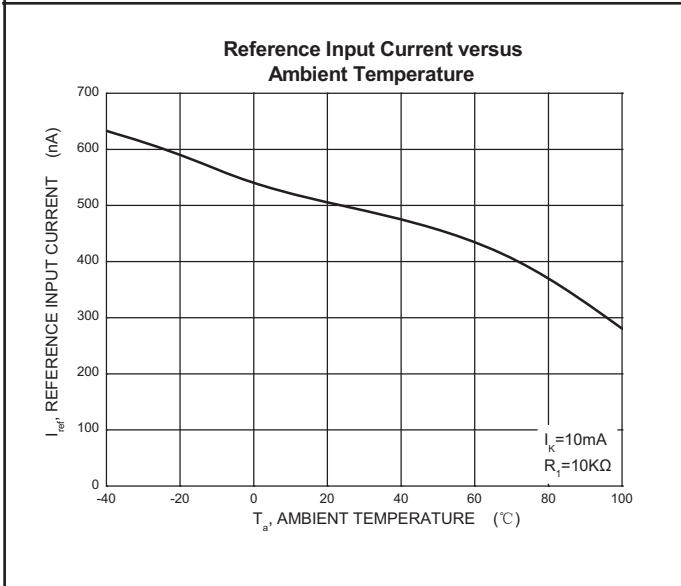
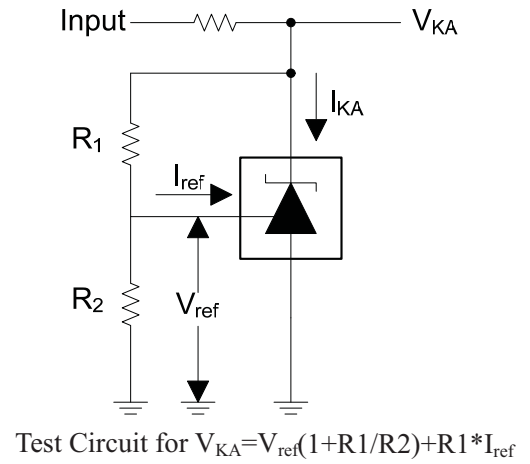
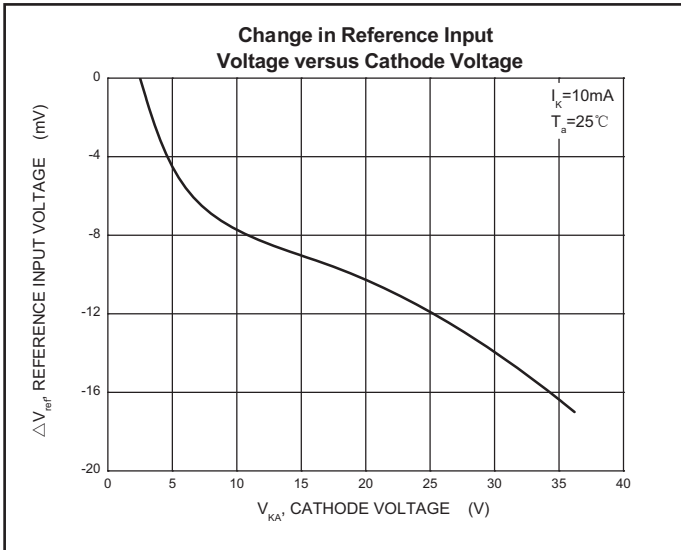


ADJUSTABLE ACCURATE REFERENCE SOURCE

Typical Characteristics



**ADJUSTABLE ACCURATE REFERENCE SOURCE**



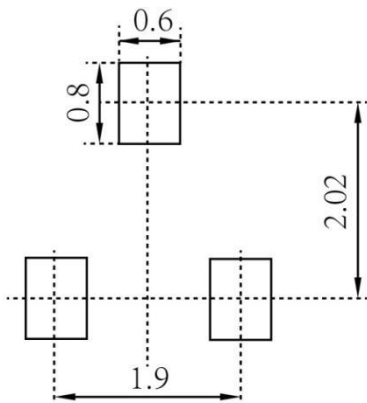
ADJUSTABLE ACCURATE REFERENCE SOURCE

**SOT-23 Package Outline Dimensions**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**SOT-23 Suggested Pad Layout**



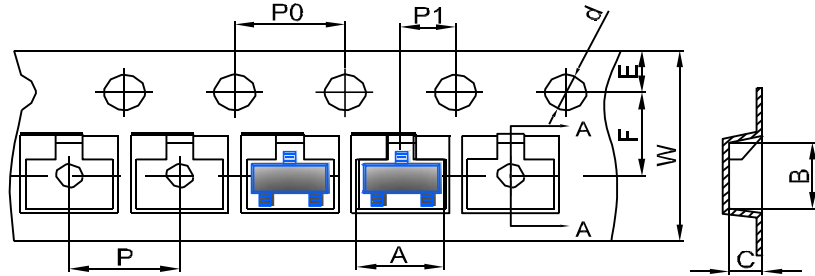
**Note:**

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference purposes only

ADJUSTABLE ACCURATE REFERENCE SOURCE

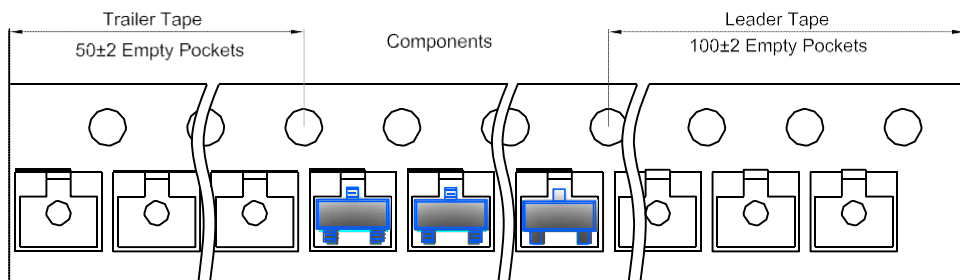
**SOT-23 Tape and Reel**

**SOT-23 Embossed Carrier Tape**

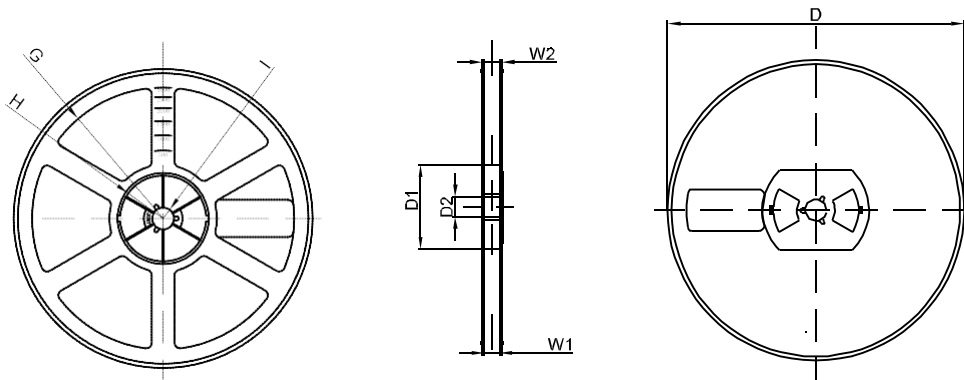


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

**SOT-23 Tape Leader and Trailer**



**SOT-23 Reel**



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1