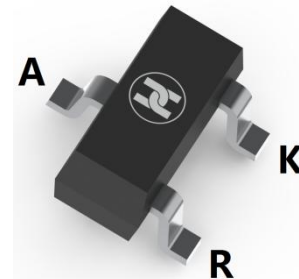


ADJUSTABLE ACCURATE REFERENCE SOURCE

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 20 ppm/°C
- The output voltage can be adjusted to 40V
- Low dynamic output impedance, its typical value is 0.2Ω
- Low output noise voltage
- Fast on-state response
- Surface Mount device



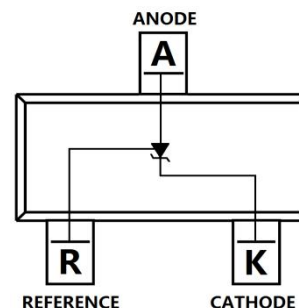
SOT-23

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
- Weight: 0.008 grams (approximate)



MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

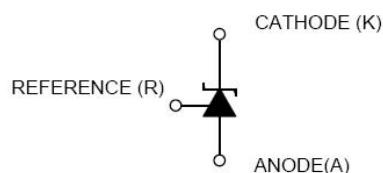
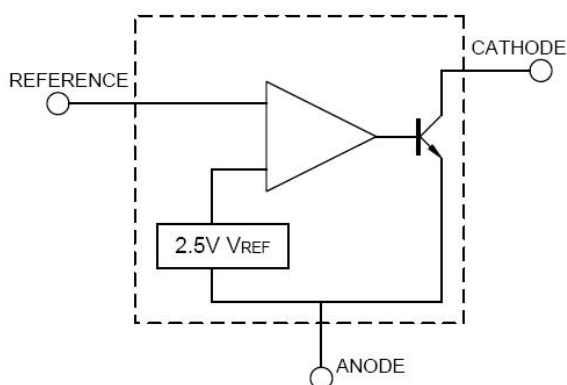
Parameter	Symbol	Value	Unit
Cathode Voltage	V_{KA}	40	V
Cathode Current Range (Continuous)	I_{KA}	-100~+150	mA
Reference Input Current Range	I_{ref}	0.05~+10	mA
Power Dissipation	P_D	230	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 ~+150	°C

ADJUSTABLE ACCURATE REFERENCE SOURCE

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

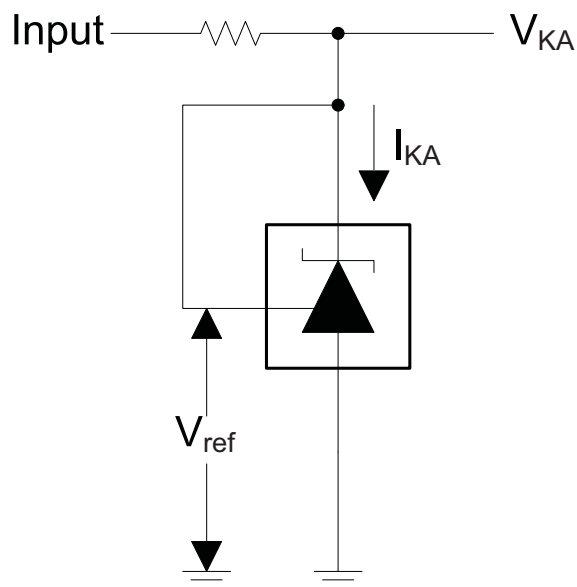
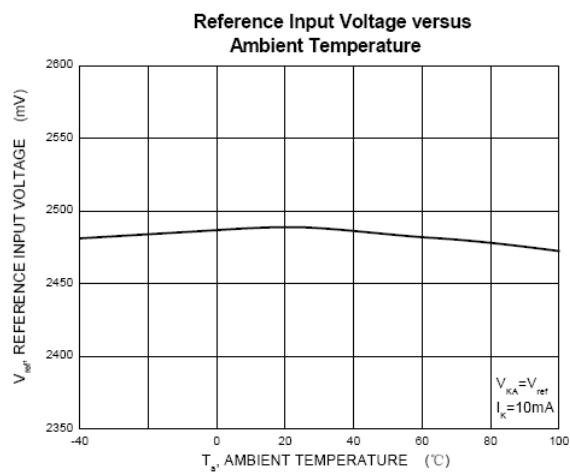
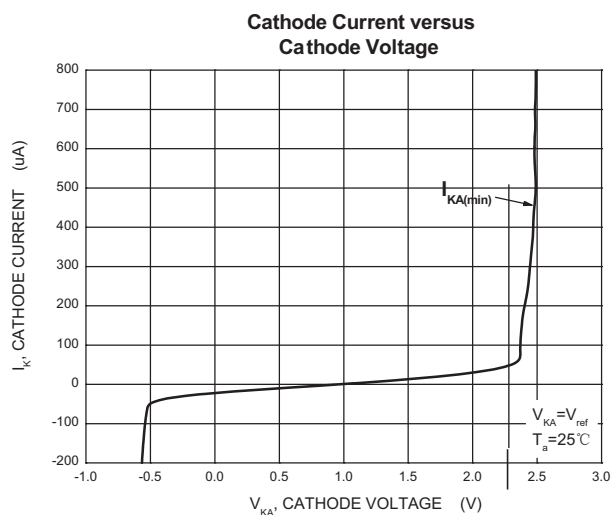
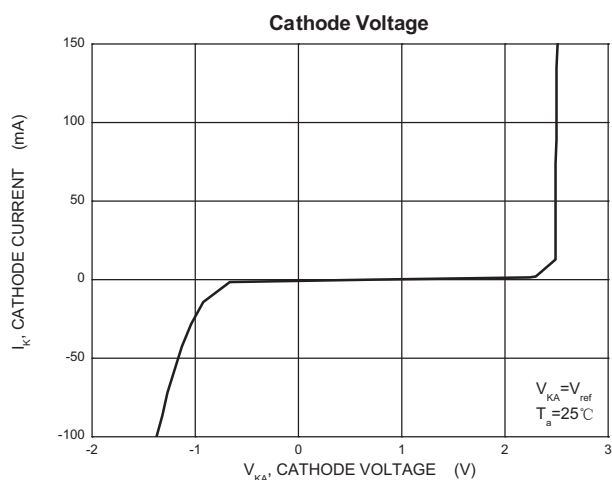
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Reference Input Voltage	V_{ref}	2.49	2.50	2.51	V	$V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=10\text{mA}$
Deviation of reference input voltage over temperature	$\Delta V_{\text{ref}}/\Delta T$		3	17	mV	$V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=10\text{mA}$
Ratio of change in reference input voltage to the change in cathode voltage	$\Delta V_{\text{ref}}/\Delta V_{\text{KA}}$	-2.7	-1.0	0.2	mV/V	$I_{\text{KA}}=10\text{mA}, \Delta V_{\text{KA}}=10\text{V}-V_{\text{REF}}$
		-2.0	-0.5	0.2	mV/V	$I_{\text{KA}}=10\text{mA}, \Delta V_{\text{KA}}=36\text{V}\sim 10\text{V}$
Reference input current	I_{ref}		2	4	μA	$I_{\text{KA}}=10\text{mA}, R_1=10\text{K}\Omega, R_2=\infty$
Deviation of reference input current Over full temperature range	$\Delta I_{\text{ref}}/\Delta T$		0.4	1.2	μA	$I_{\text{KA}}=10\text{mA}, R_1=10\text{K}\Omega, R_2=\infty,$
Emitter cut-off current	$I_{\text{KA(min)}}$		0.4	1.0	mA	$V_{\text{KA}}=V_{\text{REF}}$
Off-state Cathode Current	$I_{\text{KA(OFF)}}$		0.05	1.0	μA	$V_{\text{KA}}=36\text{V}, V_{\text{REF}}=0$
Dynamic Impedance	Z_{KA}		0.2	0.5	Ω	$V_{\text{KA}}=V_{\text{REF}}, I_{\text{KA}}=1\sim 100\text{mA}, f\leq 1.0\text{kHz}$

BLOCK DIAGRAM



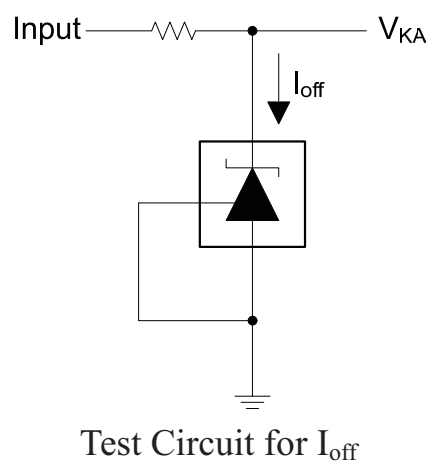
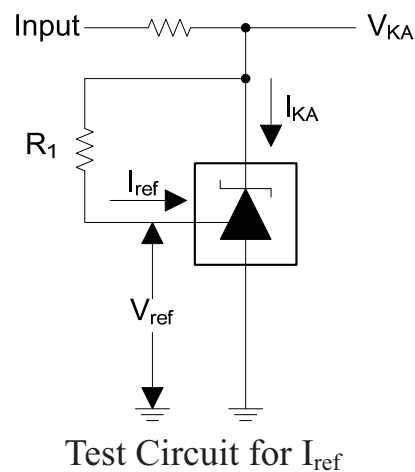
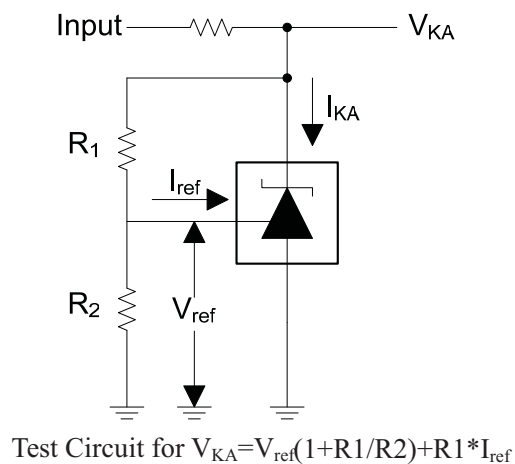
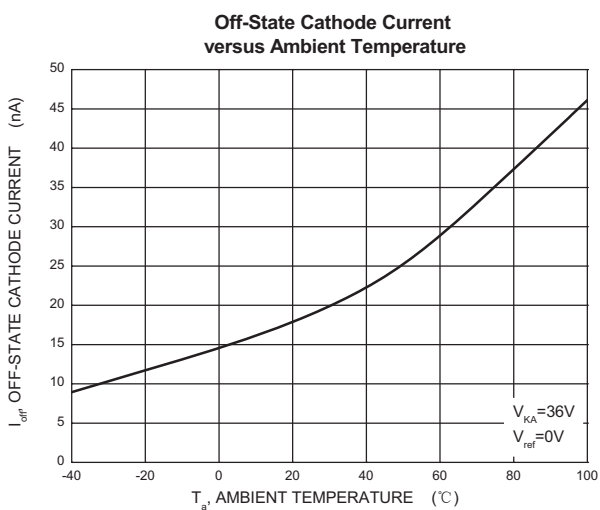
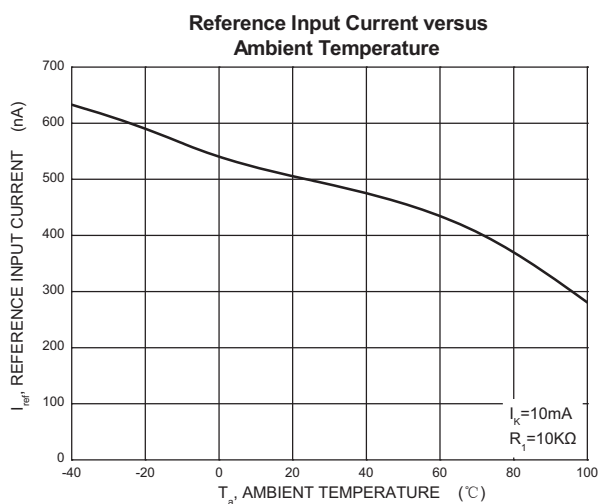
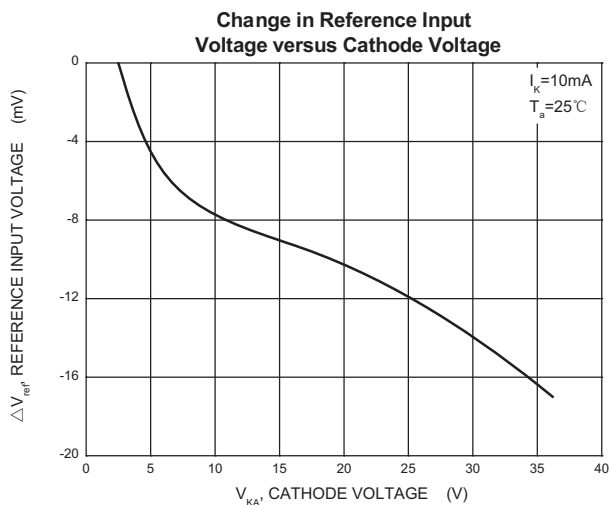
ADJUSTABLE ACCURATE REFERENCE SOURCE

Typical Characteristics



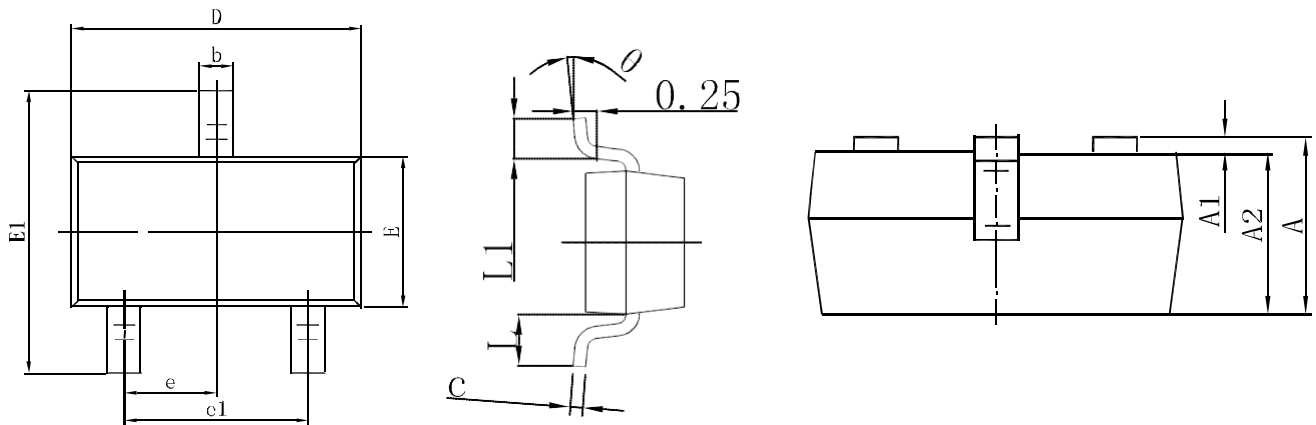
Test Circuit for $V_{KA} = V_{ref}$

ADJUSTABLE ACCURATE REFERENCE SOURCE



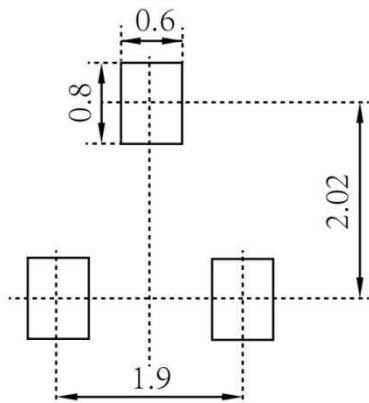
ADJUSTABLE ACCURATE REFERENCE SOURCE

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



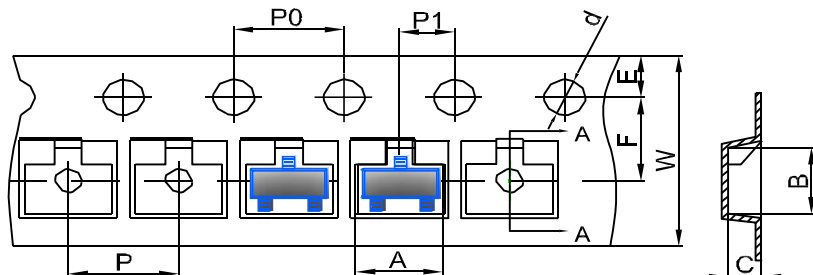
Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

ADJUSTABLE ACCURATE REFERENCE SOURCE

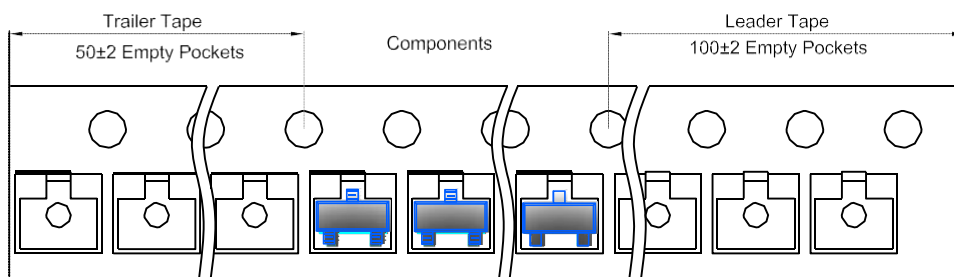
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

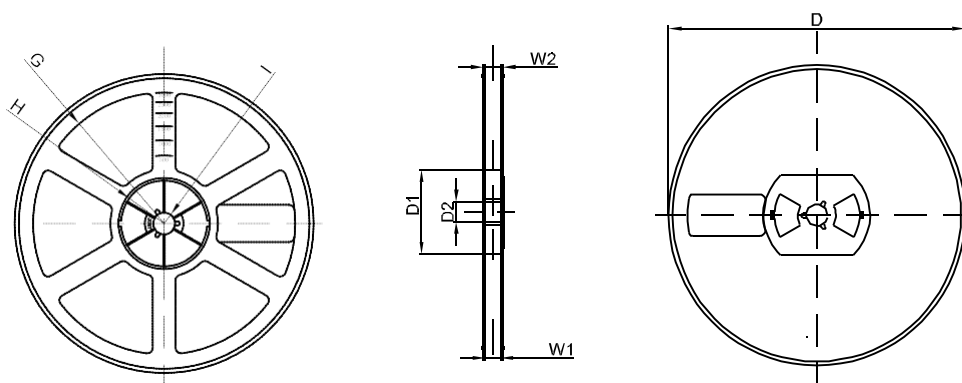


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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