

ADJUSTABLE ACCURATE REFERENCE SOURCE

FEATURES

- Temperature-Compensated: 20ppm/°C
- Low output noise voltage
- Fast on-state response
- Surface Mount device

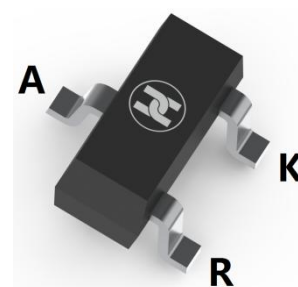
APPLICATION

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

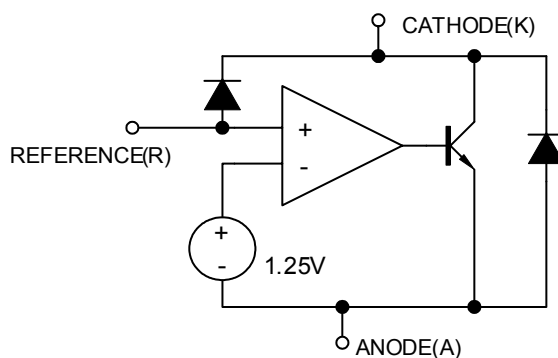
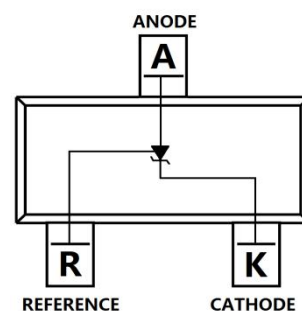
MECHANICAL DATA

- Case: SOT-23
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Weight: 0.008 grams (approximate)

BLOCK DIAGRAM



SOT-23



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MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Cathode Voltage	V_{KA}	20	V
Operating Cathode Current	I_{KA}	-100 to 100	mA
Reference Input Current Range	I_{REF}	10	mA
Thermal Resistance from Junction to Case	$R_{\theta JC}$	76	$^{\circ}\text{C}/\text{W}$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	350	$^{\circ}\text{C}/\text{W}$
Operating Temperature	T_{opr}	-40~+125	$^{\circ}\text{C}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

RECOMMENDED OPERATING CONDITIONS

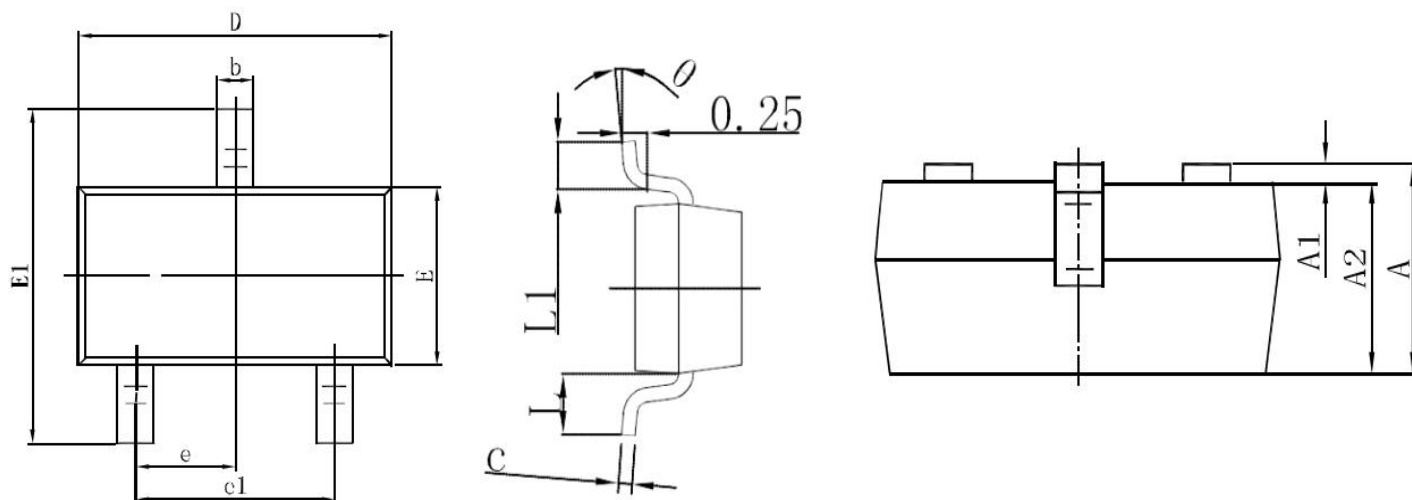
Parameter	Symbol	MIN	TYP	MAX	Unit
Cathode Voltage	V_{KA}	V_{REF}		18	V
Cathode Current	I_K	0.1		100	mA

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_{REF}	Reference Voltage	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$	1.244	1.25	1.256	V
			1.238	1.25	1.262	
ΔV_{REF}	Deviation of Reference Voltage Over Full Temperature Range	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$	—	2	10	mV
		0 to +70 $^{\circ}\text{C}$	—	3	10	
		-40 to +125 $^{\circ}\text{C}$	—	4	15	
$\Delta V_{REF}/\Delta V_{KA}$	Ratio of Change in Reference Voltage to the Change in Cathode Voltage	$I_{KA}=10\text{mA}, \Delta V_{KA}: V_{REF} \text{ to } 16\text{V}$	—	-0.5	-1.5	mV/V
I_{REF}	Reference Current	$I_{KA}=10\text{mA}, R1=10\text{K}\Omega, R2=\infty$	—	0.12	0.4	μA
ΔI_{REF}	Deviation of Reference Current Over Full Temperature Range	$I_{KA}=10\text{mA}, R1=10\text{K}\Omega, R2=\infty, T_A=-40 \text{ to } +125^{\circ}\text{C}$	—	0.1	0.4	μA
$I_{KA}(\text{Min})$	Minimum Cathode Current for Regulation	$V_{KA}=V_{REF}$	—	42	80	μA
$I_{KA}(\text{Off})$	Off-state Cathode Current	$V_{KA}=18\text{V}, V_{REF}=0$	—	0.017	0.1	μA
		$V_{KA}=6\text{V}, V_{REF}=0$	—	0.001	0.05	
Z_{KA}	Dynamic Impedance	$V_{KA}=V_{REF}, I_{KA}=1 \text{ to } 100\text{mA}, f \leq 1.0\text{kHz}$	—	0.05	0.15	Ω
θ_{JC}	Thermal Resistance	TO-92	—	140.8	—	$^{\circ}\text{C}/\text{W}$
		SOT-23	—	84.84	—	

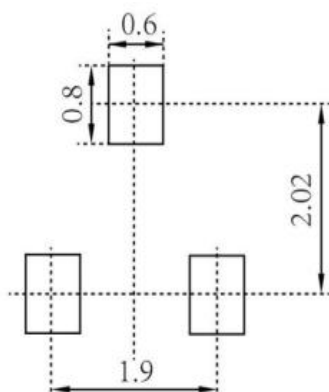
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SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.354	0.453
A1	0.000	0.100	0.000	0.039
A2	0.900	1.050	0.354	0.413
b	0.300	0.500	0.118	0.197
c	0.080	1.150	0.031	0.453
D	2.900	3.100	1.142	1.220
E	1.200	1.400	0.472	0.551
E1	2.250	2.550	0.886	1.004
e	0.95REF		0.374REF	
e1	1.800	2.000	0.709	0.787
L	0.55REF		0.215REF	
L1	0.300	0.500	0.118	0.197

SOT-23 Suggested Pad Layout



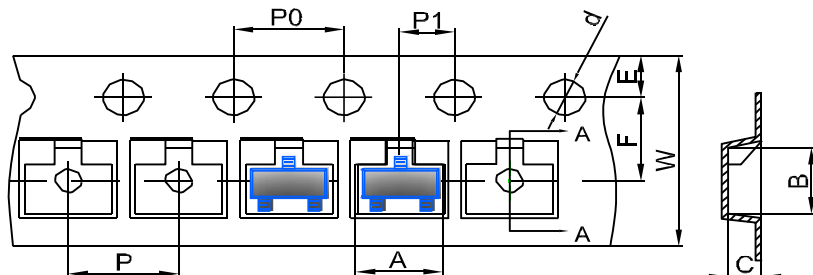
Note:

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

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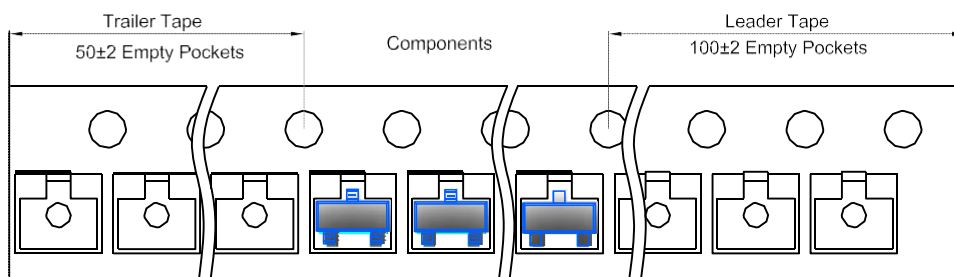
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

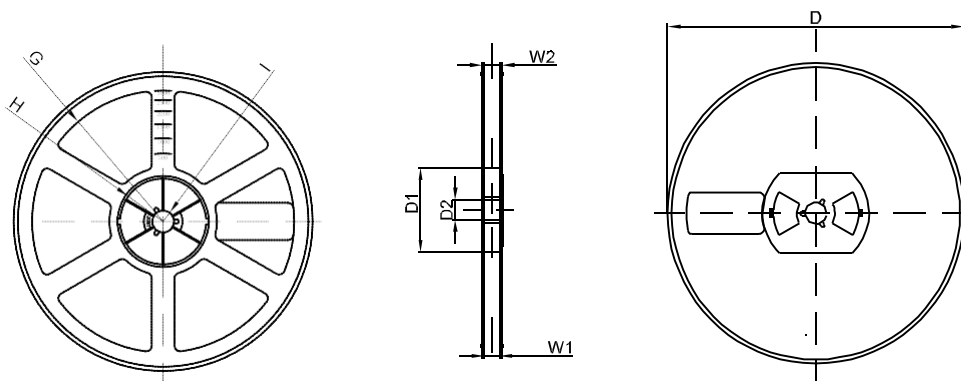


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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