

ADJUSTABLE ACCURATE REFERENCE SOURCE

FEATURES

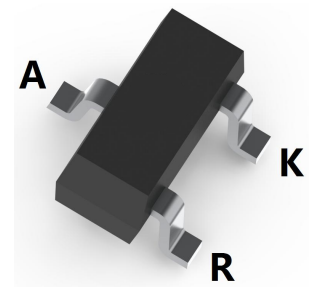
- Temperature-Compensated:50ppm/°C
- Internal amplifier with 50mA capability
- Nominal temperature range extended to 105°C
- Low frequency dynamic output impedance:<150Ω
- Low output noise voltage
- Fast on-state response
- Surface Mount device

APPLICATION

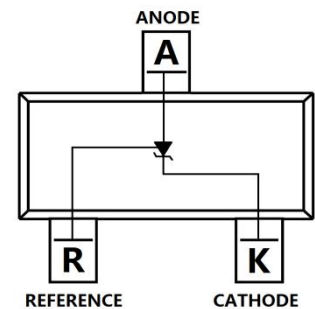
- Shunt Regulator
- High-Current Shunt Regulator
- Precision Current Limiter

MECHANICAL DATA

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



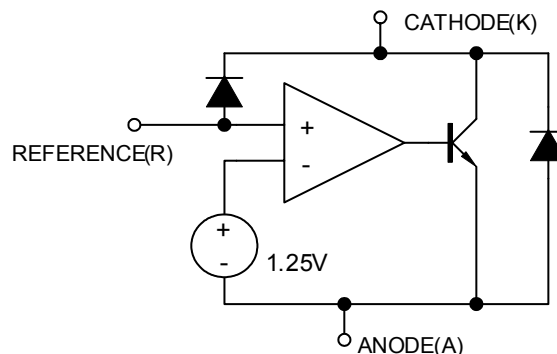
SOT-23



DESCRIPTION

The TL432 is a three-terminal adjustable shunt regulator highly accurate 1.25V bandgap reference with 1%, 2% tolerance. The device offers thermal stability, wide operating current (50mA) and an extended temperature range of 0° to 105°C for operation in power supply applications. The TL432 offers a wide operating voltage range of up to 12V and is an excellent choice for voltage reference requirements in an isolated feedback circuit for 3.0V ~3.3V switching mode power supplies. The tight tolerance guarantees a lower design cost for the power supply manufacturer by virtually eliminating the need for an extra power supply manufacturing process of the power supply.

BLOCK DIAGRAM



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MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Cathode Voltage	V_{KA}	15	V
Anode-Cathode Forward Current	I_{AK}	1	A
Operating Cathode Current	I_{KA}	50	mA
Reference Input Current Range	I_{ref}	1	mA
Thermal Resistance from Junction to Case	$R_{\theta JC}$	76	$^{\circ}C/W$
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	350	$^{\circ}C/W$
Operating Temperature	T_{opr}	0~+70	$^{\circ}C$
Junction Temperature	T_J	125	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 ~+150	$^{\circ}C$

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	MIN	TYP	MAX	Unit
Cathode Voltage	V_{KA}	V_{REF}		15	V
Cathode Current	I_K	5	10		mA

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

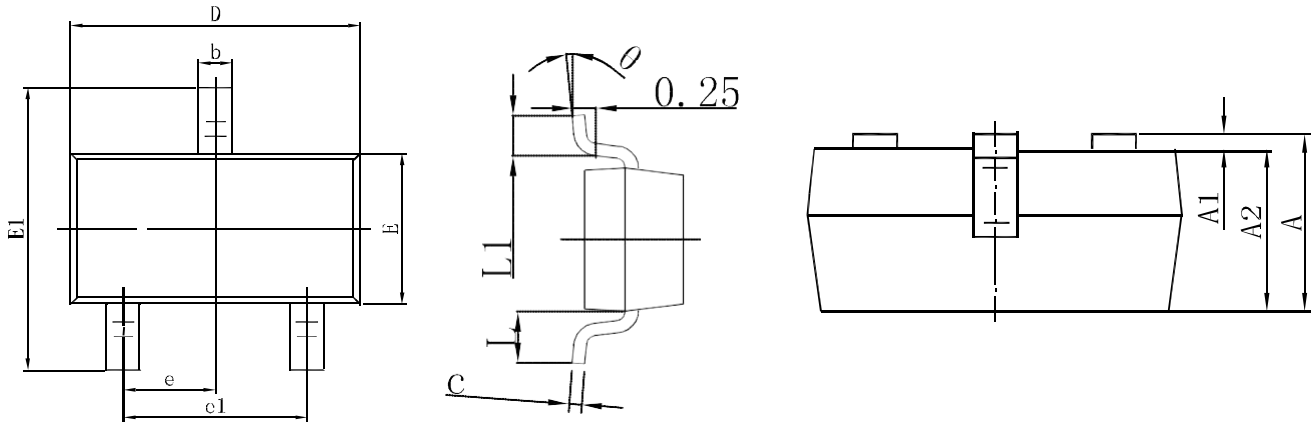
Parameter		Symbol	Min	Typ	Max	Unit	Conditions
Reference Input Voltage	1%	V_{REF}	1.237	1.250	1.263	V	$V_{KA}=V_{REF}, I_{KA}=10mA$
	2%		1.225	1.250	1.275		
Line Regulation		ΔV_{REF}		10	15	mV	$V_K=1.25\sim 15V$
Load Regulation		ΔV_{REF}		6	15	mV	$I_K=5\sim 50mA$
Temperature Deviation		ΔV_{REF}		2	6	mV	$0^{\circ}C \leq T_J \leq +105^{\circ}C$
Reference Input Current		I_{REF}		3	6	μA	
Reference Input Current Temperature Coefficient		ΔI_{REF}		0.3	0.6	μA	$0^{\circ}C \leq T_J \leq +105^{\circ}C$
Minimum Cathode Current for Regulation		$I_{K(MIN)}$		0.6	1	mA	
Off State Leakage		$I_{KA(OFF)}$			500	nA	$V_{REF}=0V, V_{KA}=15V$

CLASSIFICATION OF V_{ref}

Rank	1%	2%
Range	1.237~1.263	1.225~1.275

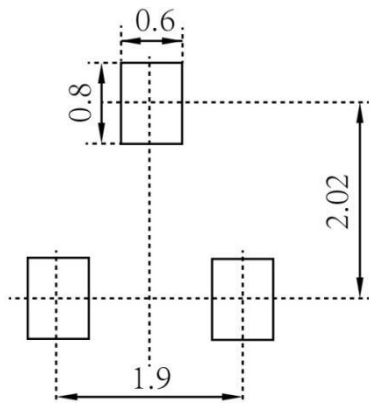
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SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	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



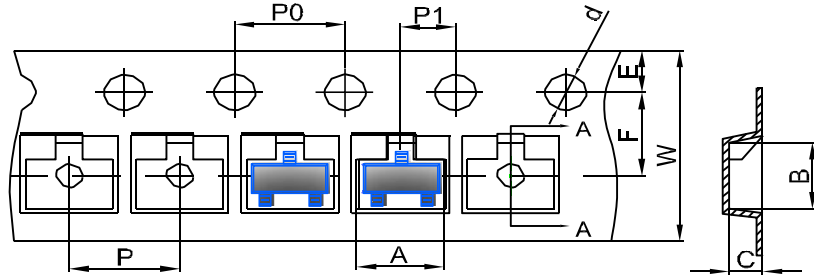
Note:

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

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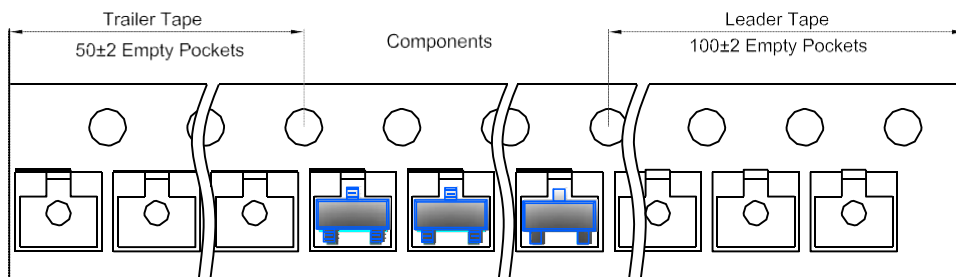
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

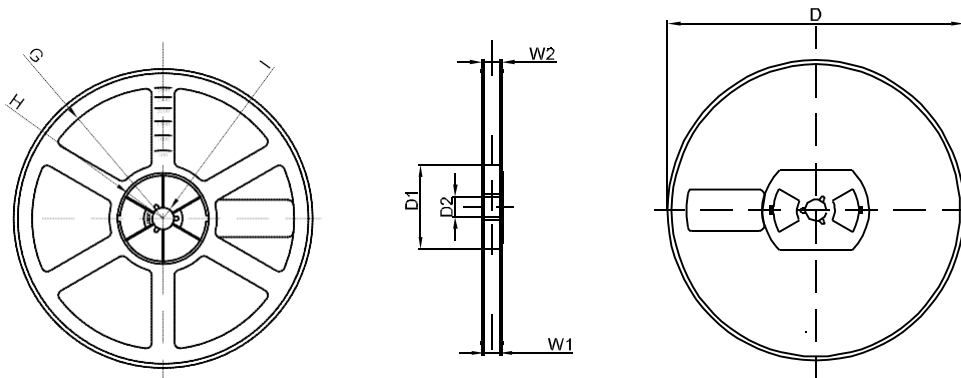


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

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