

TL432 Adjustable Accurate Reference Source

DEVICE DESCRIPTION

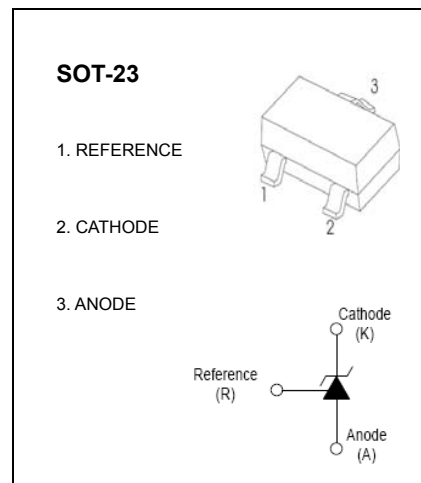
The TL432 is a three-terminal Shunt Voltage Reference providing a highly accurate 1.24V. The TL432 thermal stability and wide operating current, makes it suitable for all variety of applications that are looking for a low cost solution with high performance.

FEATURES

- Low dynamic output impedance
- The effective temperature compensation in the working range of full temperature
- Low output noise voltage
- Fast on-state response
- Sink current capability of 0.1mA to 100mA

APPLICATION

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



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

Parameter	Symbol	Value	Units
Cathode Voltage	V_{KA}	18	V
Cathode Current Range (continuous)	I_{KA}	100	mA
Reference Input Current Range	I_{ref}	6	μA
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}C/W$
Operating Temperature	T_{opr}	0~+70	$^{\circ}C$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{stg}	-65~+150	$^{\circ}C$

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reference input voltage (Fig 1)	V_{ref}	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$	1.2214		1.2586	V
Deviation of reference voltage over full temperature range (Fig 1)	$\Delta V_{ref(DEV)}$	$V_{KA}=V_{REF}, I_{KA}=10\text{mA}$ $0^\circ\text{C}\leq T_a\leq 70^\circ\text{C}$			16	mV
Ratio of change in reference input voltage to the change in cathode voltage (Fig 2)	$\Delta V_{ref}/\Delta V_{KA}$	$I_{KA}=10\text{mA}$, $\Delta V_{KA}=1.25\text{V}\sim 15\text{V}$			2.4	mV/V
Deviation of reference input current over full temperature range (Fig 2)	$\Delta I_{ref}/\Delta T$	$I_{KA}=10\text{mA}$, $R_1=10\text{k}\Omega$, $R_2=\infty$, $0^\circ\text{C}\leq T_a\leq 70^\circ\text{C}$			0.6	μA
Minimum cathode current for regulation (Fig 1)	$I_{KA(min)}$	$V_{KA}=V_{REF}$			0.1	mA
Off-state cathode current(Fig 3)	I_{off}	$V_{KA}=15\text{V}, V_{REF}=0$			0.5	μA
Dynamic impedance	Z_{KA}	$V_{KA}=V_{REF}, I_{KA}=0.1\sim 20\text{mA}$, $f\leq 1.0\text{kHz}$			0.5	Ω

CLASSIFICATION OF V_{ref}

Rank	1%	1.5%
Range	1.2276~1.2524	1.2214~1.2586

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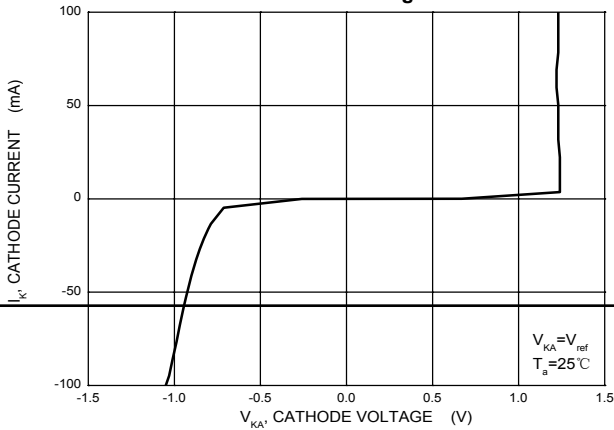
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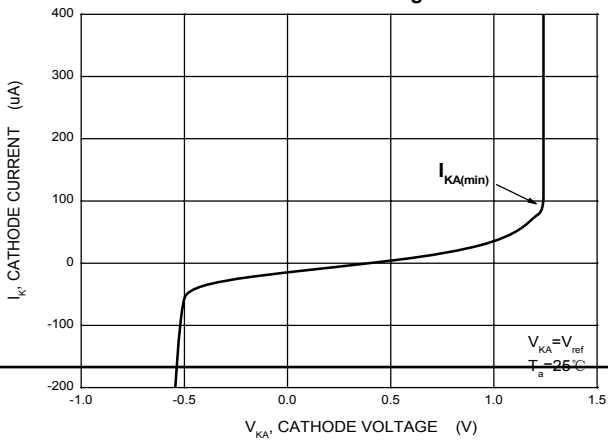
Typical Characteristics

TL432

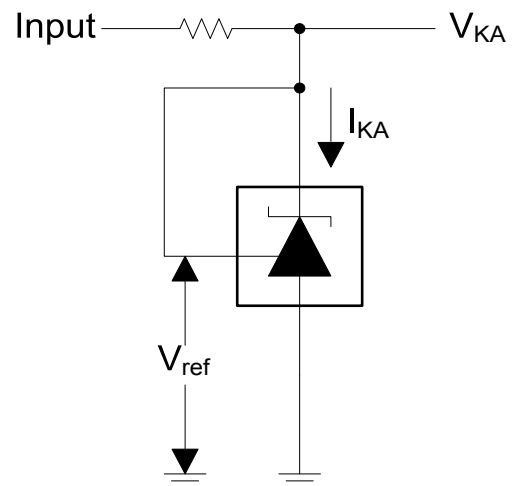
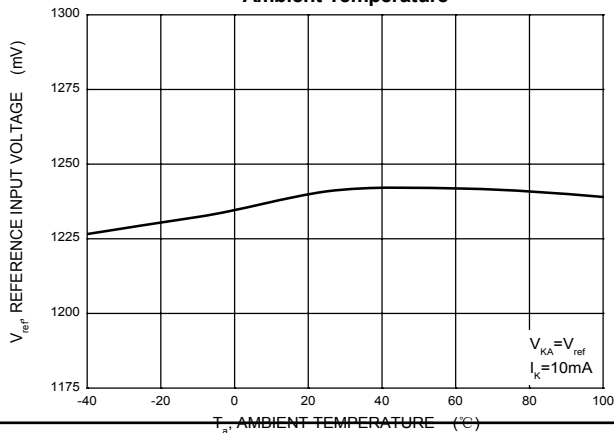
Cathode Current versus Cathode Voltage



Cathode Current versus Cathode Voltage



Reference Input Voltage versus Ambient Temperature



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

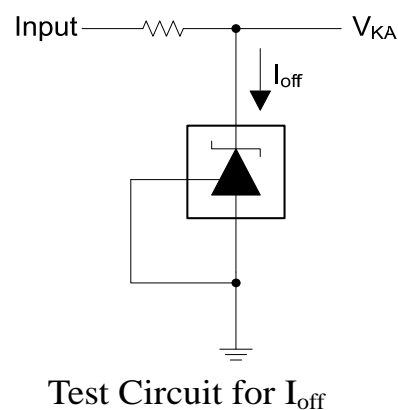
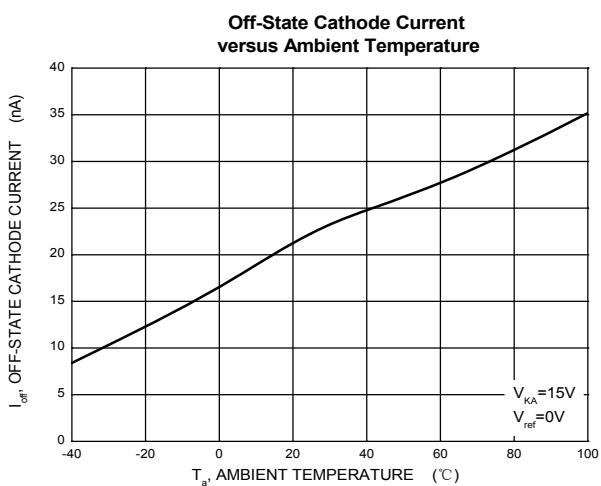
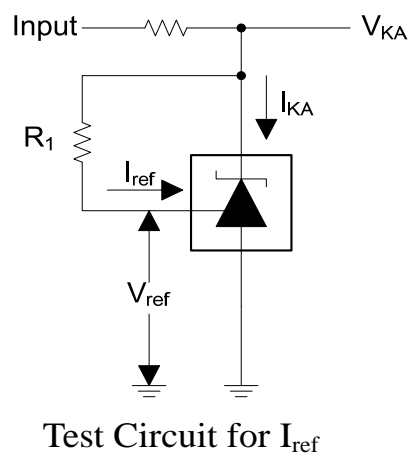
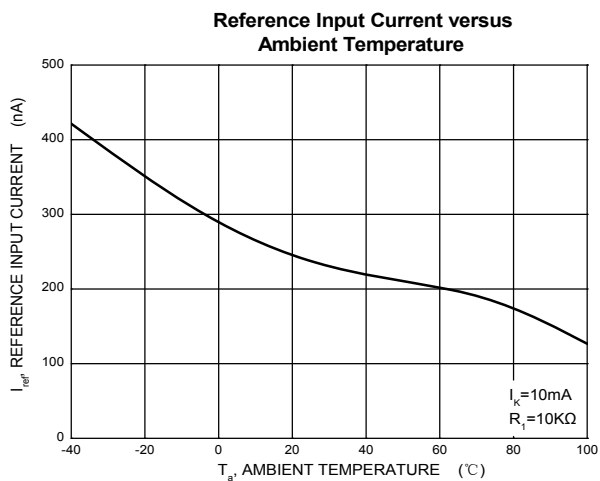
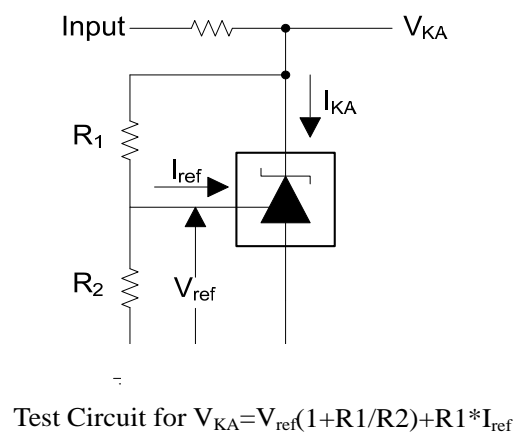
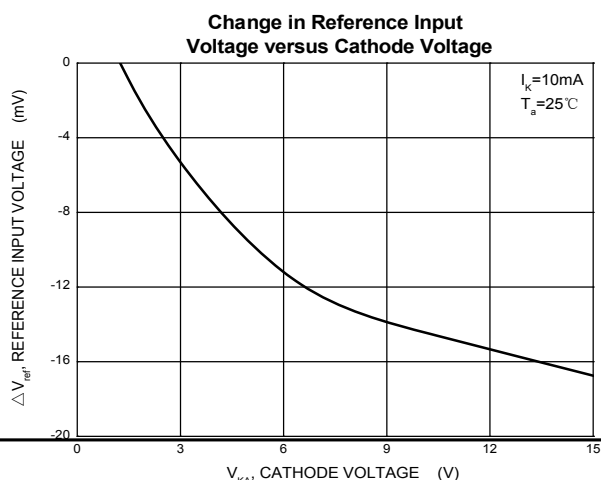
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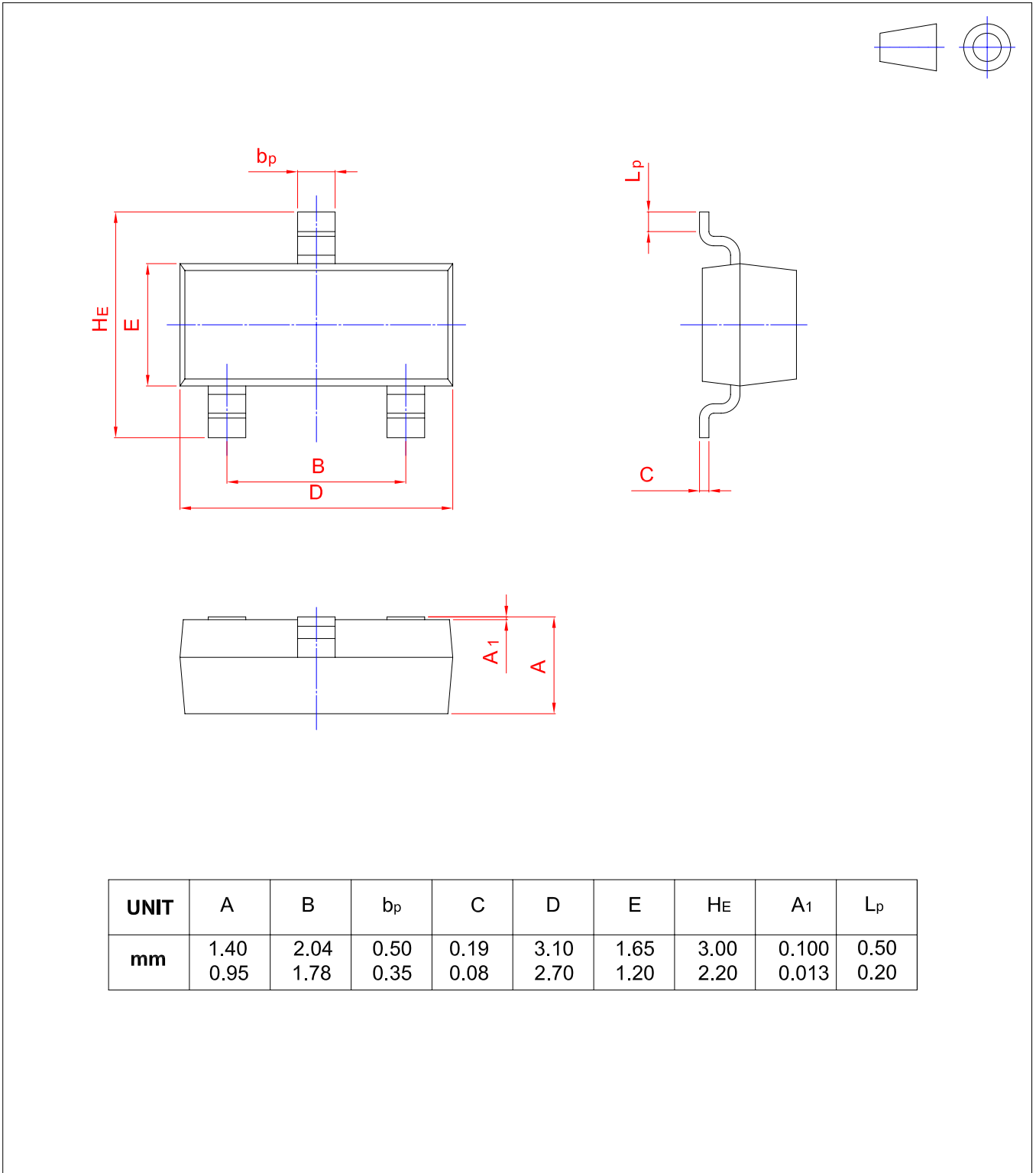
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



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