

SOT-23 Encapsulate Adjustable Reference Source

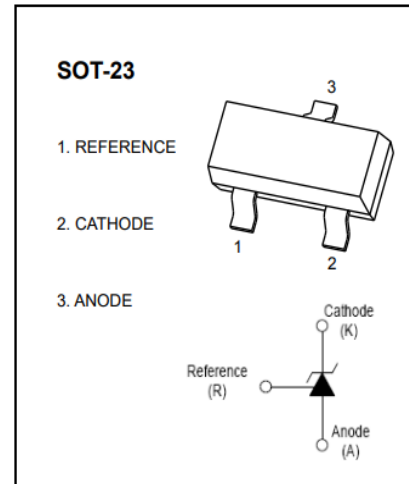
Adjustable Accurate Reference Source

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	$^{\circ}C$

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

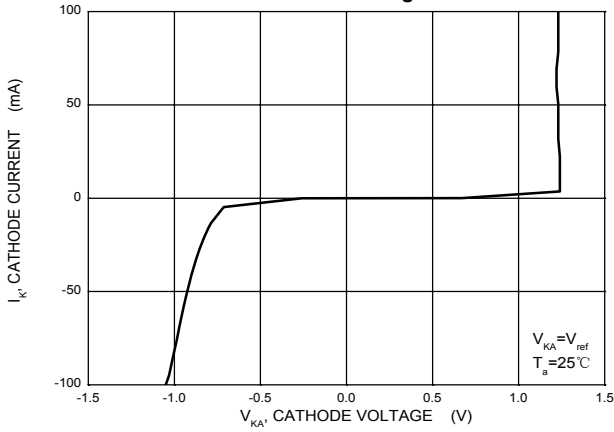
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reference input voltage (Fig 1)	V _{ref}	V _{KA} =V _{REF} , I _{KA} =10mA	1.2214		1.2586	V
Deviation of reference voltage over full temperature range (Fig 1)	ΔV _{ref(DEV)}	V _{KA} =V _{REF} , I _{KA} =10mA 0°C≤T _a ≤70°C			16	mV
Ratio of change in reference input voltage to the change in cathode voltage (Fig 2)	ΔV _{ref} /ΔV _{KA}	I _{KA} =10mA, ΔV _{KA} =1.25V~15V			2.4	mV/V
Deviation of reference input current over full temperature range (Fig 2)	ΔI _{ref} /ΔT	I _{KA} =10mA, R ₁ =10kΩ, R ₂ =∞, 0°C≤T _a ≤70°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} =15V, V _{REF} =0			0.5	μA
Dynamic impedance	Z _{KA}	V _{KA} =V _{REF} , I _{KA} =0.1 ~20mA, f≤1.0kHz			0.5	Ω

CLASSIFICATION OF V_{ref}

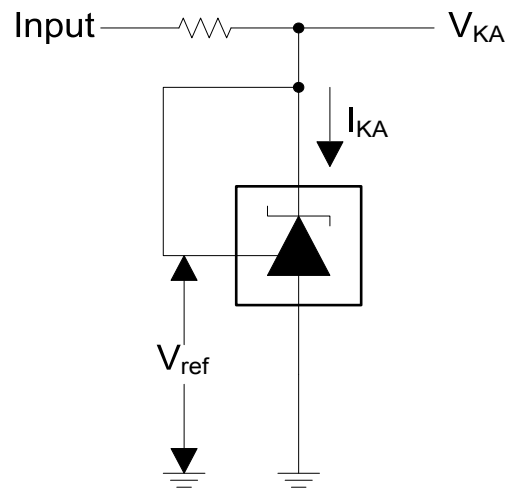
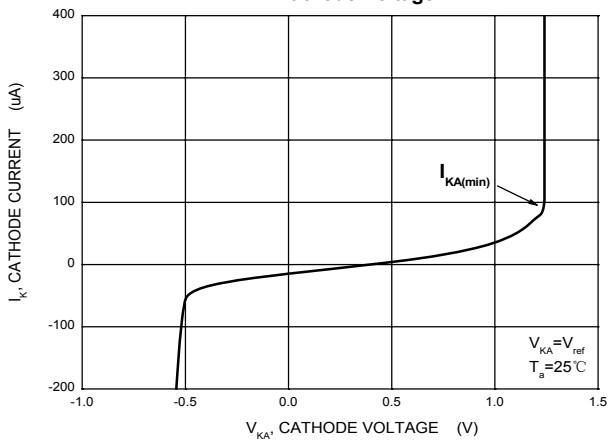
Rank	1%	1.5%
Range	1.2276~1.2524	1.2214~1.2586



Cathode Current versus Cathode Voltage



Cathode Current versus Cathode Voltage



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

Reference Input Voltage versus Ambient Temperature

