

# Encapsulate Adjustable Reference Source

Adjustable Accurate Reference Source

## DEVICE DESCRIPTION

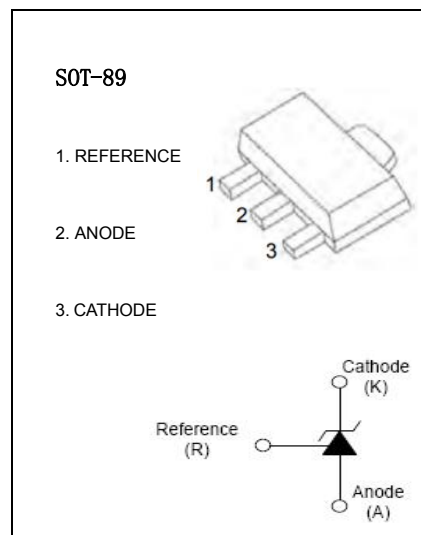
The TL432U is a three-terminal Shunt Voltage Reference providing a highly accurate 1.24V. The TL432U thermal stability and wide operating current, makes it suitable for all variety of applications that are looking for a low cost solution with high performance.

## 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	$\mu A$
Power Dissipation	$P_D$	350	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}C/W$
Operating Temperature	$T_{opr}$	$\sim +70$	$0^{\circ}C$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{stg}$	-65 $\sim$ +150	$^{\circ}C$

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

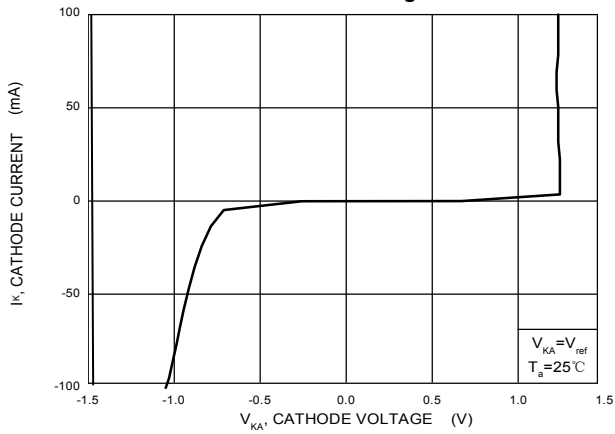
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reference input voltage (Fig 1)	V <sub>ref</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA	1.2214		1.2586	V
Deviation of reference voltage over full temperature range (Fig 1)	ΔV <sub>ref(DEV)</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =10mA 0°C≤T <sub>a</sub> ≤70°C			16	mV
Ratio of change in reference input voltage to the change in cathode voltage (Fig 2)	ΔV <sub>ref</sub> /ΔV <sub>KA</sub>	I <sub>KA</sub> =10mA, ΔV <sub>KA</sub> =1.25V~15V			2.4	mV/V
Deviation of reference input current over full temperature range (Fig 2)	ΔI <sub>ref</sub> /ΔT	I <sub>KA</sub> =10mA, R <sub>1</sub> =10kΩ, R <sub>2</sub> =∞, 0°C≤T <sub>a</sub> ≤70°C			0.6	μA
Minimum cathode current for regulation (Fig 1)	I <sub>KA(min)</sub>	V <sub>KA</sub> =V <sub>REF</sub>			0.1	mA
Off-state cathode current(Fig 3)	I <sub>off</sub>	V <sub>KA</sub> =15V, V <sub>REF</sub> =0			0.5	μA
Dynamic impedance	Z <sub>KA</sub>	V <sub>KA</sub> =V <sub>REF</sub> , I <sub>KA</sub> =0.1 ~20mA, f≤1.0kHz			0.5	Ω

**CLASSIFICATION OF V<sub>ref</sub>**

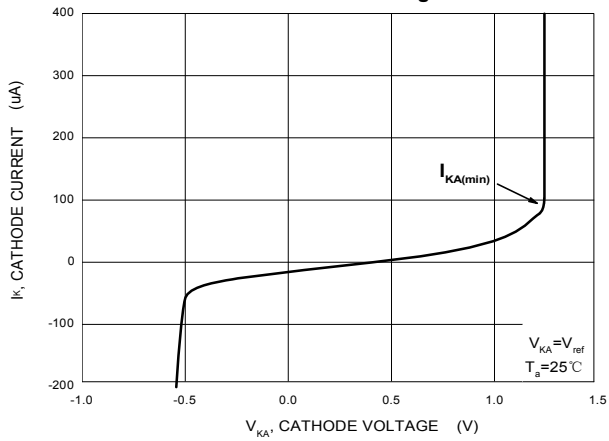
Rank	1%	1.5%
Range	1.2276~1.2524	1.2214~1.2586

# Typical Characteristics

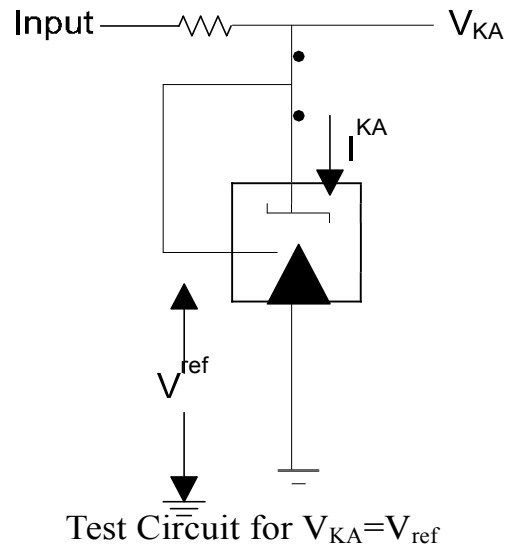
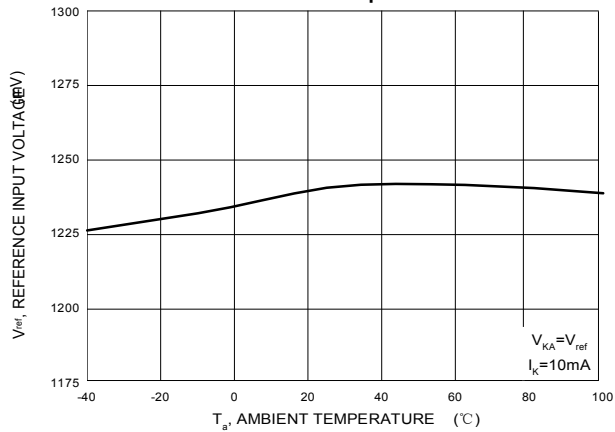
**Cathode Current versus Cathode Voltage**

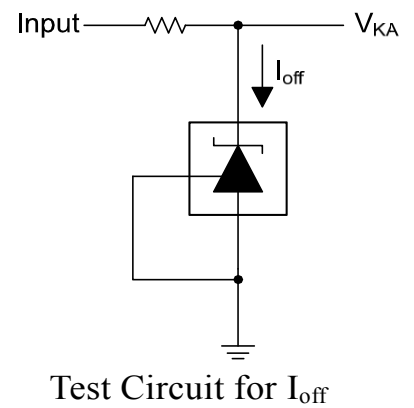
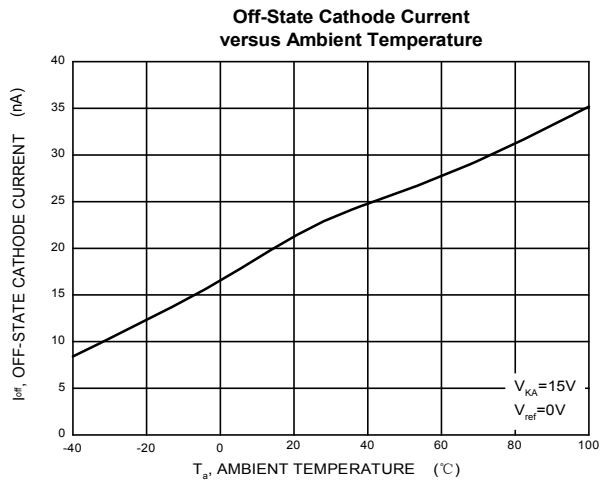
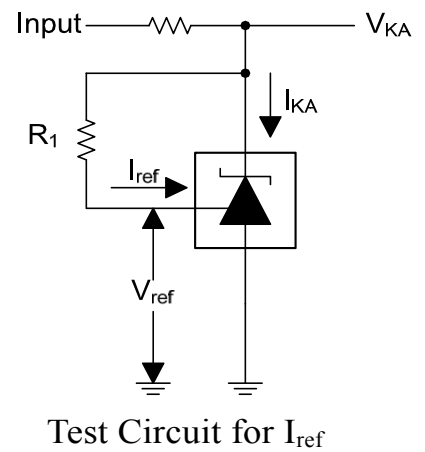
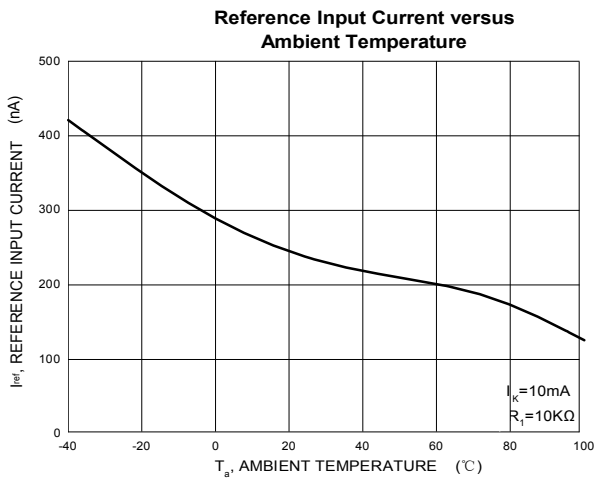
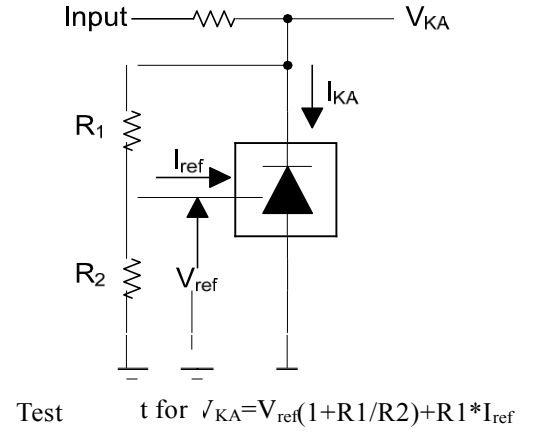
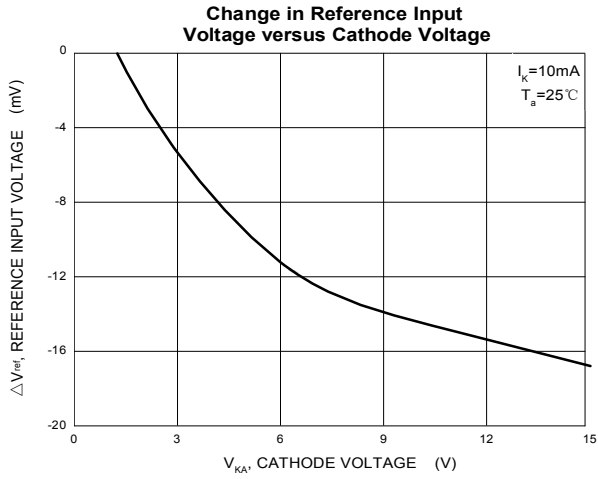


**Cathode Current versus Cathode Voltage**



**Reference Input Voltage versus Ambient Temperature**





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