

SOT-23 Encapsulate Adjustable Reference Source

TL432 Adjustable Accurate Reference Source

Features

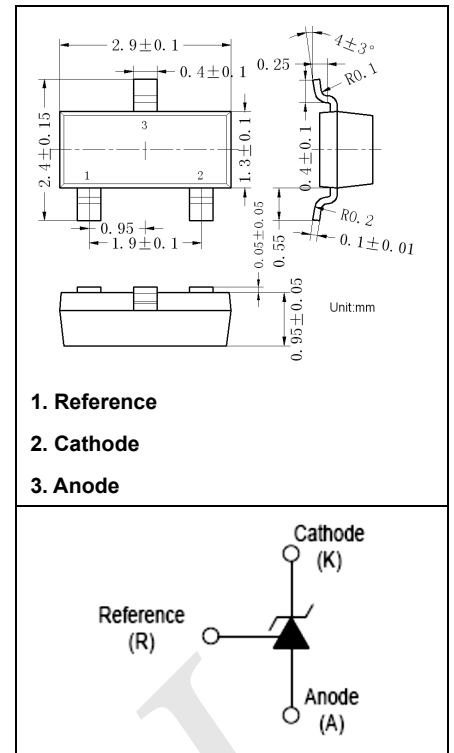
- Low dynamic output impedance
- The effective temperature compensation in the working range of full temperature
- Low output noise voltage
- Fast on-state response
- Sink current capability of 0.1mA to 100mA

Applications

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

Device Description

The TL432LT1 is a three-terminal Shunt Voltage Reference providing a highly accurate 1.24V. The TL432LT1 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.



Marking:432

Maximum Ratings (Operating temperature range applies unless otherwise specified)

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

Electrical Characteristics ($T_a=25^{\circ}C$ unless otherwise specified)

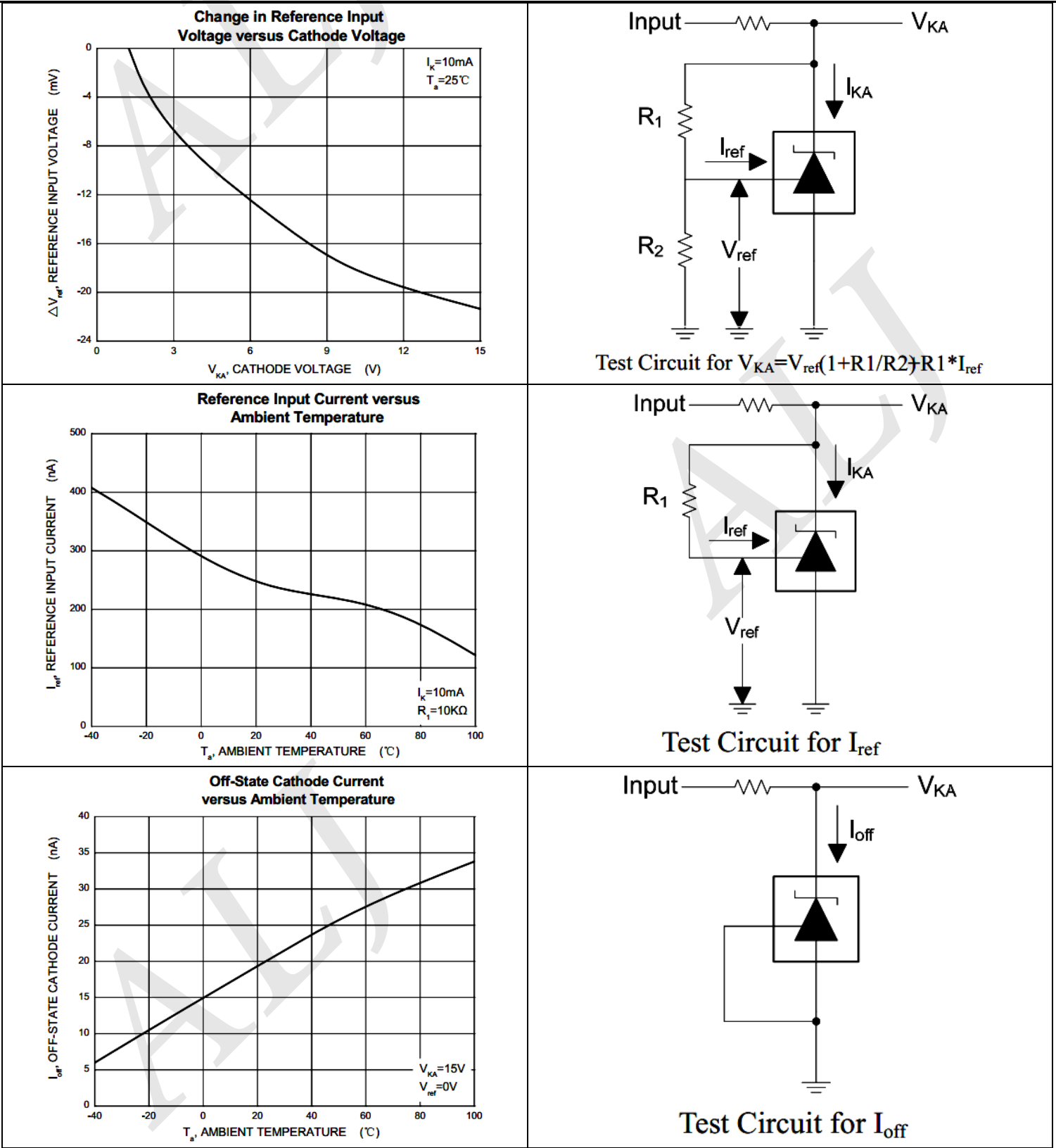
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{ref}	Reference input voltage (Fig 1)	$V_{KA} = V_{REF}$, $I_{KA} = 10mA$	1.221	1.24	1.259	V
$\Delta V_{ref(DEV)}$	Deviation of reference voltage over full temperature range (Fig1)	$V_{KA} = V_{REF}$, $I_{KA} = 10mA$, $0^{\circ}C \leq T_a \leq 70^{\circ}C$			16	mV
$\Delta V_{ref}/\Delta V_{KA}$	Ratio of change in reference input voltage to the change in cathode voltage (Fig 2)	$I_{KA} = 10mA$, $\Delta V_{KA} = 1.25V \sim 15V$			2.4	mV/V
$\Delta I_{ref}/\Delta T$	Deviation of reference input current over full temperature range (Fig 2)	$I_{KA} = 10mA$, $R_1 = 10K\Omega$, $R_2 = \infty$, $0^{\circ}C \leq T_a \leq 70^{\circ}C$			0.6	μA

$I_{KA(min)}$	Minimum cathode current for regulation (Fig 1)	$V_{KA} = V_{REF}$			0.1	mA
I_{off}	Off-state cathode current (Fig 3)	$V_{KA} = 15V, V_{REF} = 0$			0.5	μA
Z_{KA}	Dynamic impedance	$V_{KA} = V_{REF}, I_{KA}=0.1\sim 20mA, f\leq 1.0kHz$			0.5	Ω

Classification of V_{ref}

Rank	0.5%	1.0%	1.2%	1.5%
Range	1.234 – 1.246	1.228 – 1.252	1.225 – 1.255	1.221 – 1.259

Typical Characteristics



Typical Characteristics (Cont.)

Figure 1. Test Circuit for $V_{KA} = V_{ref}$

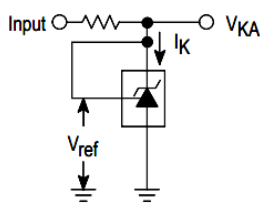


Figure 2. Test Circuit for $V_{KA} > V_{ref}$

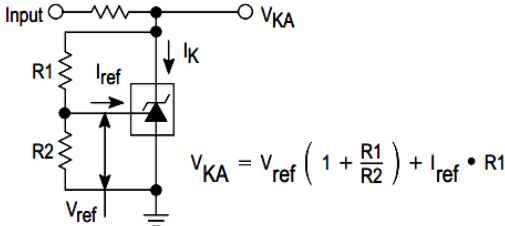
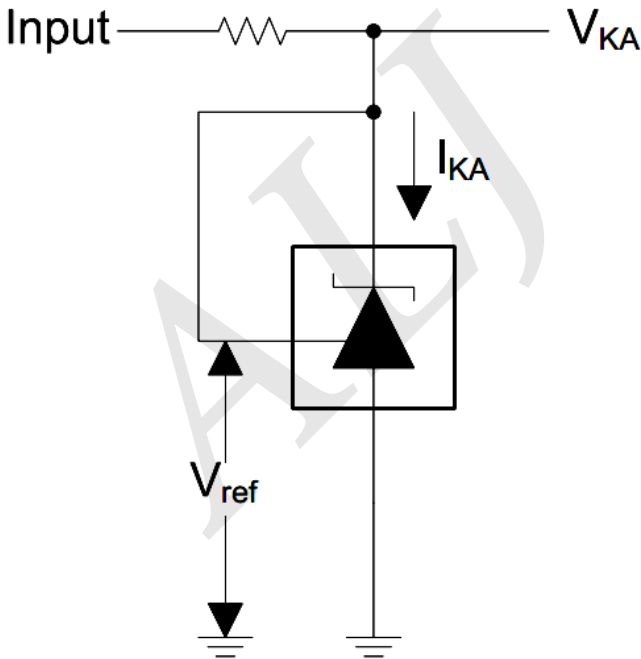
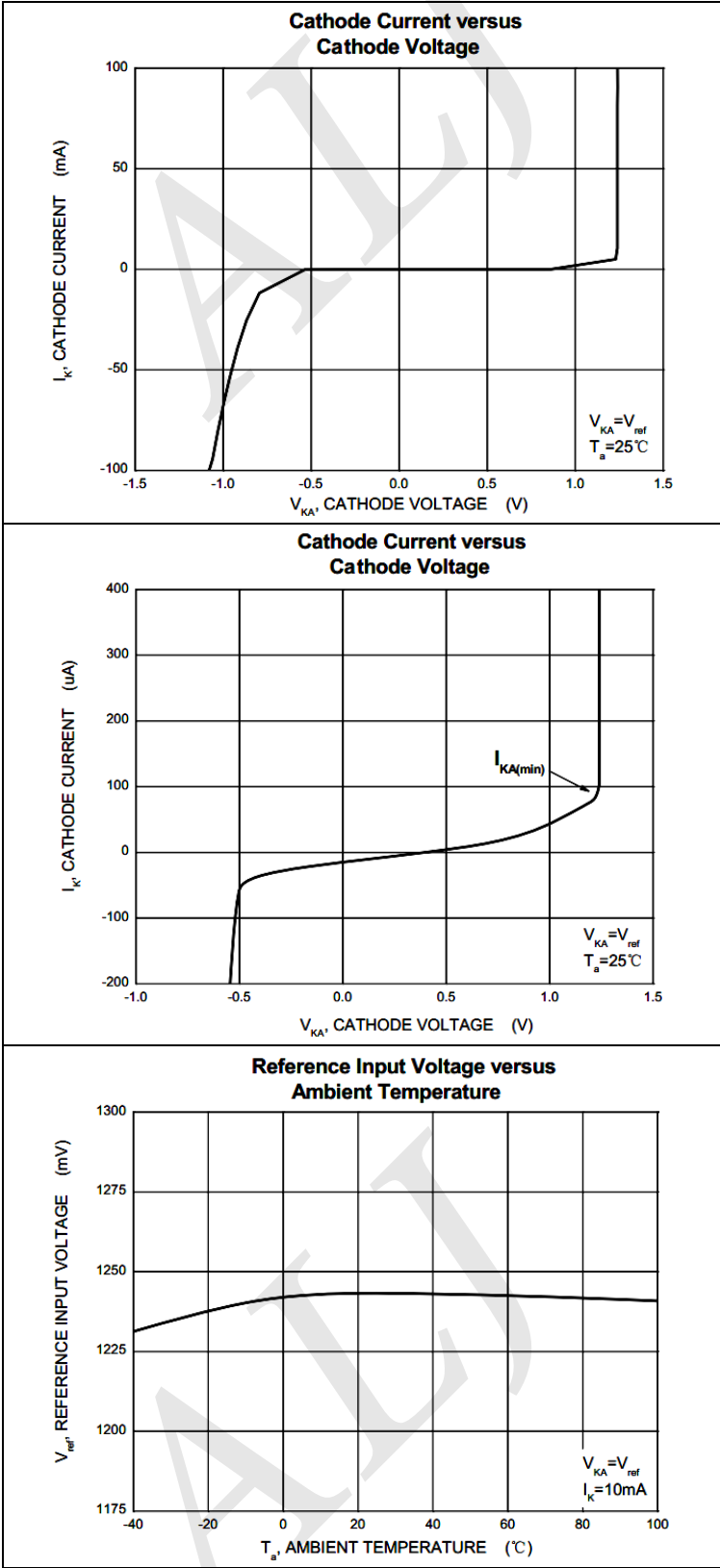
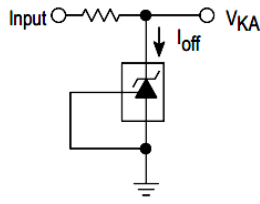


Figure 3. Test Circuit for I_{off}



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