

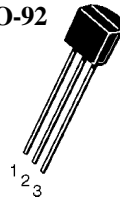
This device has a typical output impedance of  $0.2\Omega$ . Active output circuitry provides a very sharp turn-on characteristic, making the TL432 an excellent replacement for Zener diodes in many applications, including on-board regulation and adjustable power supplies.

## FEATURES

- Precise Reference Voltage to 1.240V
- Guaranteed 1% Voltage Tolerance
- Adjustable Output Voltage  $V_o = V_{ref}$  to 18V
- Sink Current Capability , 80uA to 100mA
- Die size 0.85 x0.85mm<sup>2</sup>, Thickness 270+/- 30um
- TO-92 packages suffix T & SOT-23 suffix add LT1
- Tolerance 1% suffix add A, 0.5% suffix add B

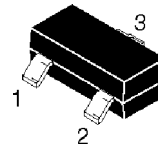
## PINARRANGEMENT

**TO-92**



Pin: 1. Reference  
2. Anode  
3. Cathode

**SOT-23**



Pin: 1. Reference  
2. Cathode  
3. Anode

## MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Cathode Voltage	$V_{KA}$	18	V
Cathode Current Range, Continuous	$I_K$	100	mA
Reference Current Range	$I_{ref}$	3.0	mA
Ambient Temperature Range	$T_A$	0 to +85	°C
Junction Temperature Range	$T_J$	- 40 to +150	°C
Storage Temperature Range	$T_{STG}$	-45 to +150	°C
Lead Temperature for Soldering (10 sec)	$T_{SO}$	260	°C

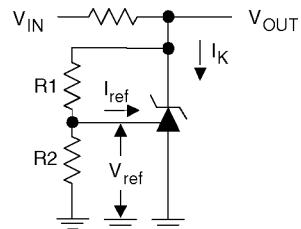
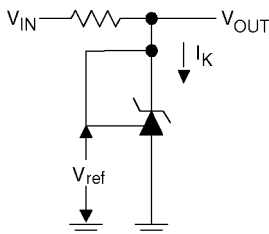
## ELECTRICAL CHARACTERISTICS (Ambient temperature at 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reference Input Voltage $V_{KA} = V_{ref}, I_K = 10mA$	$V_{ref}$	1.228	1.24	1.252	V
Reference Voltage Deviation Over Temperature Range (Fig. 1, Note 2) $I_K = 10mA, T_A = 0 \text{ to } 85^\circ C$	$\Delta V_{ref}/T$	---	10.0	25	mV
Voltage Ratio (open loop gain) $I_K = 10mA$ (Fig. 2), $V_{KA} = V_{ref} \text{ to } 6V$	$\frac{\Delta V_{ref}}{\Delta V_{KA}}$	---	1.0	2.7	mV/V
Reference Current (Fig. 2) $I_K = 10mA, R1 = 10k, R2 = \text{open}$	$I_{ref}$	---	0.25	0.5	$\mu A$
Reference Current Deviation (Fig. 2) $I_K = 10mA, R1 = 10k, R2 = \text{open}$	$I_{ref(dev)}$	---	0.05	0.3	$\mu A$
Dynamic Impedance (Fig. 1) $V_{KA} = V_{ref}, I_K = 0.1mA \text{ to } 20mA,$ $f < 1.0kHz$	$I_{ZKA}$	---	0.2	0.4	ohm
Minimum Cathode Current $V_{KA} = V_{ref}$ (Fig. 1)	$I_{K(min)}$	---	60	80	$\mu A$
Off - State Cathode Current (Fig. 3) $V_{KA} = 6V, V_{ref} = 0V$	$I_{K(off)}$	---	0.04	0.5	$\mu A$
Note 1: Full temperature range is - 40 to +105C					

**Fig. 2 Test Circuit for**

$$V_{KA} = V_{REF}, V_{OUT} = V_{KA} = V_{REF}$$

$$V_{KA} > V_{REF}, V_{OUT} = V_{KA} = V_{REF} \times (1 + R_1/R_2) + I_{REF} \times R_1$$



**Fig. 3 Test Circuit for  $I_{OFF}$**

