TL432 Adjustable Precision Shunt Regulator

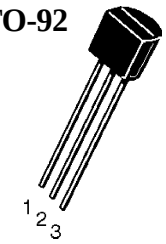
This device has a typical output impedance of 0.2Ω. Active output circuitry provides a very sharp turn-on characteristic, making the TL432 an excellent replacement for Zener diodes in many applications, including on-board regulation and adjustable power supplies.

FEATURES

- Precise Reference Voltage to 1.240V
- Guaranteed 1% Voltage Tolerance
- Adjustable Output Voltage Vo = Vref to 18V
- Sink Current Capability , 80uA to 100mA
- Die size 0.85 x0.85mm2, Thickness 270+/- 30um
- TO-92 packages suffix T & SOT-23 suffix add LT1
- Tolerance 1% suffix add A, 0.5% suffix add B

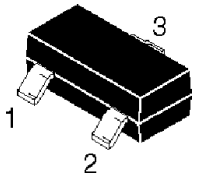
PIN ARRANGEMENT

TO-92



Pin: 1. Reference
2. Anode
3. Cathode

SOT-23



Pin: 1. Reference
2. Cathode
3. Anode

MAXIMUM RATINGS

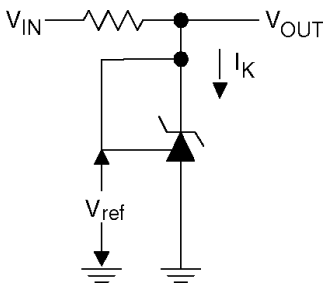
Parameter	Symbol	Rating	Unit
Cathode Voltage	V_{KA}	18	V
Cathode Current Range, Continuous	I_K	100	mA
Reference Current Range	I_{ref}	3.0	mA
Ambient Temperature Range	T_A	0 to +85	°C
Junction Temperature Range	T_J	- 40 to +150	°C
Storage Temperature Range	T_{STG}	-45 to +150	°C
Lead Temperature for Soldering (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 to 85°C	$\Delta V_{ref}/T$	---	10.0	25	mV
Voltage Ratio (open loop gain) I_K = 10mA (Fig. 2), $V_{KA} = V_{ref}$ 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 = open	I_{ref}	---	0.25	0.5	µA
Reference Current Deviation (Fig. 2) I_K = 10mA, R1 = 10k, R2 = open	$I_{ref(dev)}$	---	0.05	0.3	µA
Dynamic Impedance (Fig. 1) VKA = Vref, IK = 0.1mA to 20mA, f< 1.0 kHz	IZkA	---	0.2	0.4	ohm
Minimum Cathode Current $V_{KA} = V_{ref}$ (Fig. 1)	$I_{K(min)}$	---	60	80	µA
Off - State Cathode Current (Fig. 3) V_{KA} = 6V, V_{ref} = 0V	$I_{K(off)}$	---	0.04	0.5	µA
Note1: Full temperature range is - 40 to +105C					

Fig. 2 Test Circuit for

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



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

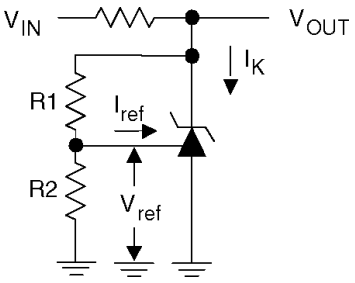


Fig. 3 Test Circuit for I_{OFF}