

ADJUSTABLE PRECISION SHUNT REGULATORS TL432

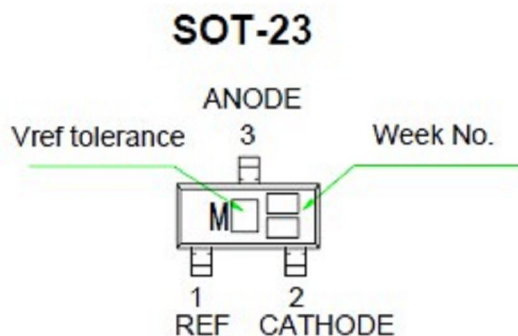
DESCRIPTION & FEATURES

The TL432 series ICs are here-terminal adjustable shunt regulators with guaranteed thermal stability over a full operation range. These ICs feature sharp turn-on characteristics, low temperature coefficient and low output impedance, which make them ideal substitutes for Zener diodes in applications such as switching power supply, charger and other adjustable regulators. The TL432 precision reference is offered in three band gap tolerance: 0.5%, 1.0%, 1.5%

Adjustable output voltage from Vref to 18V
Low dynamic output resistance: 250m Ω typical
Sink current capacity from 60uA to 100 mA
Typical equivalent full range temperature coefficient of 30 ppm/°C

Application:

PC Motherboard
Voltage monitor
Voltage Reference
PWM down converter with reference
Charger



TO-92

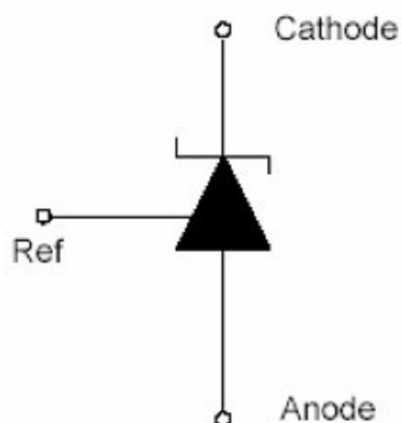
1. REFERENCE
2. ANODE
3. CATHODE



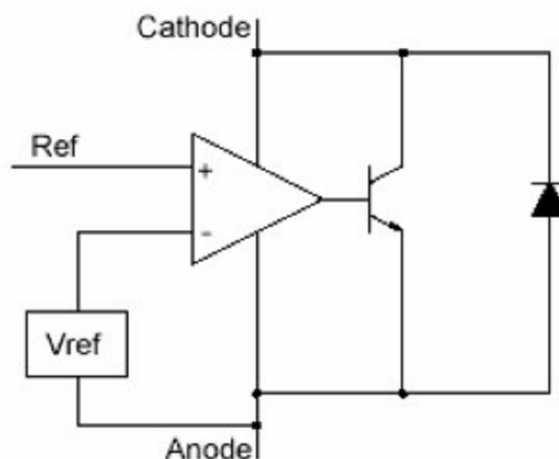
Pin Configuration

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Symbol Diagram and Block Diagram



Symbol Diagram



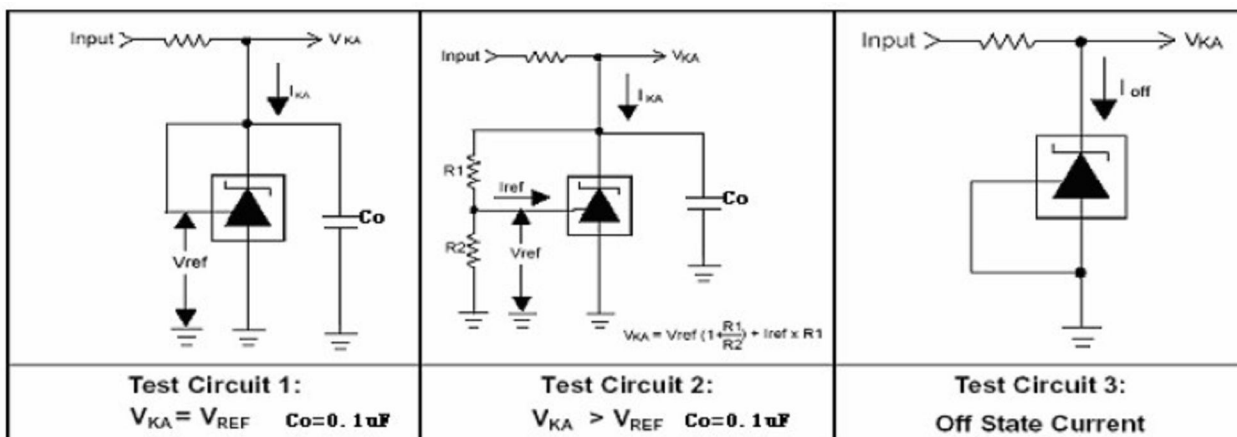
Block Diagram

Maximum ratings (Ta=25°C)			
Characteristic	Symbol	Max.	Unit
Cathode Voltage	V_{KA}	18	V
Continuous Cathode Current	I_K	100	mA
Reference Input Current	I_{REF}	10	mA
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-45~150	°C

Recommended Operating Conditions	Symbol	Min	Max	Unit
Operating free air temperature range	T_A	0	70	°C
Cathode current	I_K	1	100	mA
Cathode voltage	V_{KA}	0	18	V

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Parameter Measurement Information



Electrical Characteristics

$T_A = 25^\circ C$ unless otherwise noted

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Reference Input Voltage	0.5%	V_{REF}	$I_K = 10mA, V_{KA} = V_{REF}$	1.234	1.240	1.246	V
	1%		$I_K = 10mA, V_{KA} = V_{REF}$	1.228	1.240	1.252	
	1.5%		$I_K = 10mA, V_{KA} = V_{REF}$	1.221	1.240	1.258	
Deviation of Reference Voltage over Full Temperature Range		ΔV_{REF}	$I_K = 10mA, V_{KA} = V_{REF}, 0^\circ C \leq T_A \leq 105^\circ C$	-	10	25	mV
Voltage Ratio, Ref to Cathode		$\frac{\Delta V_{REF}}{\Delta V_{KA}}$	$I_K = 10mA, \Delta V_{KA} = 10V$ to V_{REF}	-	-1.4	-2.7	mV/V
Reference Input Current		I_{REF}	$I_K = 10mA, R1 = 10K \Omega, R2 = \infty, T_A = 0^\circ C \sim 105^\circ C$	-	0.15	2	μA
Deviation of Reference Current over Full Temperature Range		$I_{i(DEV)}$	$V_{KA} = V_{REF}$	-	0.10	0.50	μA
Minimum Operating Current		I_{min}	$V_{KA} = 12V, V_{REF} = 0V$	-	60	100	μA
Off-State Cathode Current		I_{off}	$V_{KA} = V_{REF}$	-	0.04	0.8	μA
Dynamic Impedance		$ Z_{KA} $	$I_K = 1mA$ to $100mA, f \leq 1kHz$	-	0.25	1	Ω