UMW®

UMW TL432

## Adjustable Accurate Reference Source

DEVICE DESCRIPSION：

The UMW TL432 is a three-terminal adjustable shunt regulator highly accurate 1.25V band gap reference with 0.5%, 1% tolerance. The device offers thermal stability, wide operating current (50mA) and an extended temperature range of 0℃ to 85℃ for operation in power supply applications. The UMW TL432 offers a wide operating voltage range of up to 12V and is an excellent choice for voltage reference requirements in an isolated feedback circuit for 3.0V ~ 3.3V switching mode power supplies. The tight tolerance guarantees a lower design cost for the power supply manufacturer by virtually eliminating the need for an extra power supply manufacturing process of the power supply

SOT-23

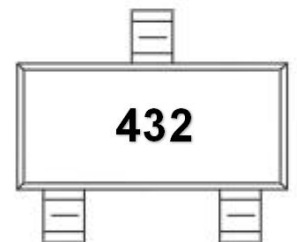1. REFERENCE
2. CATHODE
3. ANODE

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 to100mA

APPLICATION：

● Shunt Regulator

● High-Current Shunt Regulator

● Precision Current Limiter

MARKING：

432
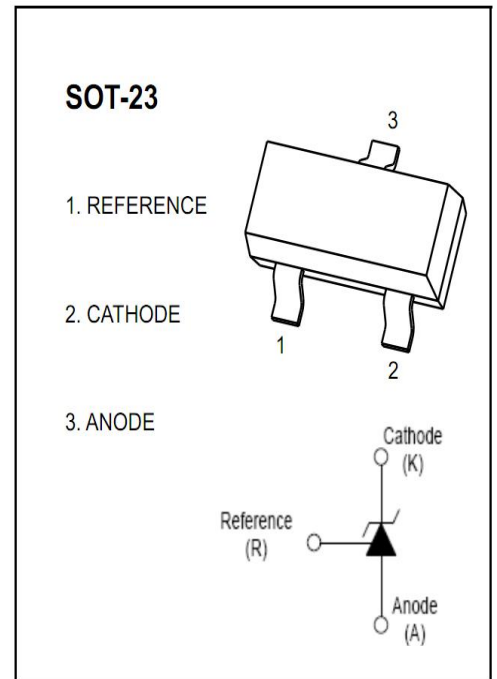
ABSOLUTE MAXIMUM RATINGS (Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Value	Unit
Cathode Voltage	VKA	18	V
Cathode Current Range (Continuous)	IKA	100	mA
Reference Input Current Range	Iref	6	mA
Power Dissipation	PD	350	mW
Thermal Resistance from Junction to Ambient	RθJA	350	℃/W
Operating Junction Temperature	Tj	125	℃
Operating Ambient Temperature Range	Topr	-40~+85	℃
Storage temperature Range	Tstg	-40~+150	℃

ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reference input voltage (Fig.1)	Vref	VKA=VREF, IKA=10mA	1.22	1.25	1.26	V
Deviation of reference voltage over full temperature range (Fig 1)	$\triangle$Vref /$\triangle$T	VKA =VREF, IKA =10mA 0℃≤Ta≤70℃		4.5	16	mV
Ratio of change in reference input voltage to the change in cathode voltage (Fig.2)	$\triangle$Vref /$\triangle$VKA	IKA=10mA $\triangle$VKA=1.25V~15V		1	2.5	mV/V
Reference input current (Fig.2)	Iref	IKA=10mA, R1=10kΩ R2=∞		1.5	4	µA
Deviation Of reference input current over full temperature range (Fig.2)	$\triangle$Iref /$\triangle$T	IKA=10mA, R1=10kΩ R2=∞ 0℃≤Ta≤70℃		0.2	0.6	µA
Minimum cathode current for regulation (Fig.1)	IKA(min)	VKA=VREF, IKA=10mA			0.1	mA
Off-state cathode Current (Fig.3)	IKA(OFF)	VKA=36V,VREF=0		0.05	0.5	µA
Dynamic impedance	ZKA	VKA=VREF, IKA=1 to100mA f≤1.0kHz		0.15	0.5	Ω

Note: TMIN=-25℃ ,TMAX=+85℃

CLASSIFICATION of Vref

Rank	0.5%	1.00%
Range	1.234-1.246	1.228-1.252

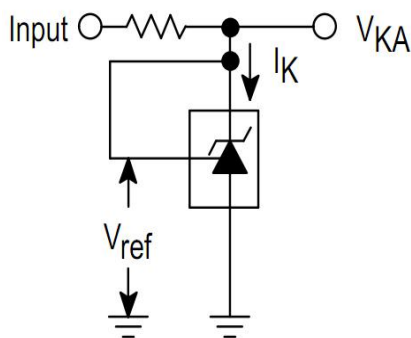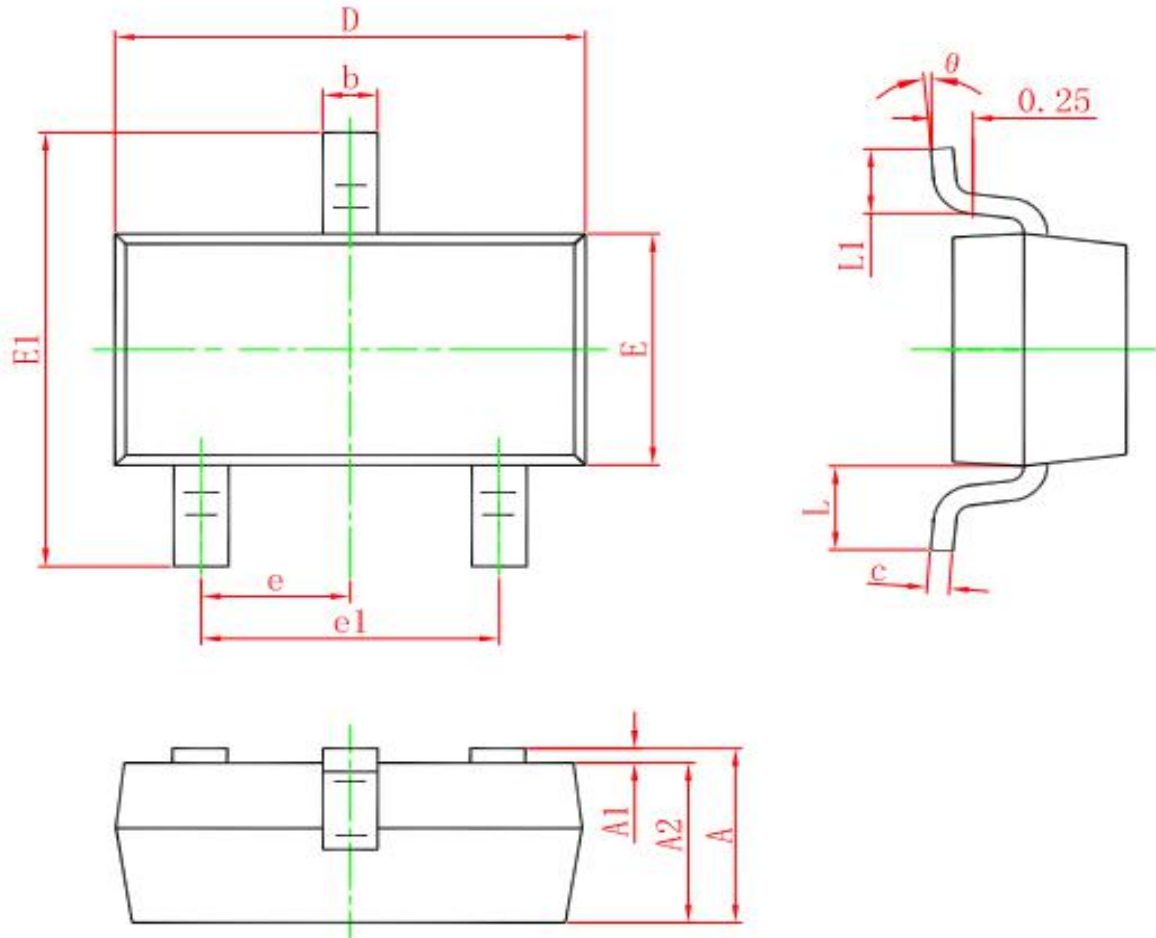**Figure 1. Test Circuit for VKA = Vref**   **Figure 2. Test Circuit for VKA >Vref**   **Figure 3. Test Circuit for Ioff**
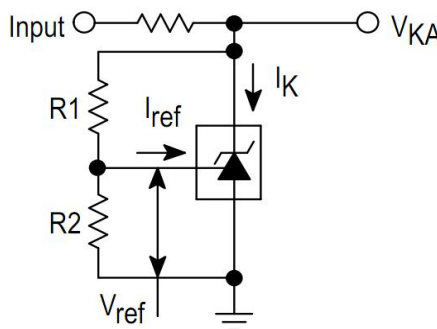
$$V_{KA} = V_{ref} \left(1 + \frac{R1}{R2} \right) + I_{ref} \cdot R1$$
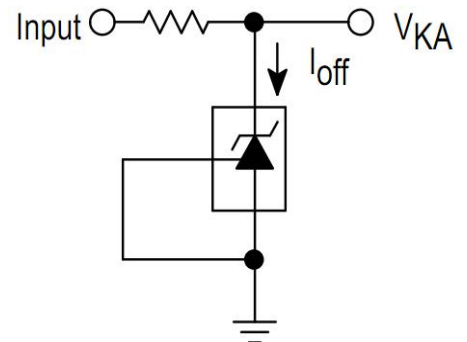
SOT-23 PACKAGE OUTLINE DIMENSIONS

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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