



## TL432D

## LINEAR INTEGRATED CIRCUIT

### 0.8V PRECISION ADJUSTABLE SHUNT REFERENCE REGULATORS

#### DESCRIPTION

The UTC **TL432D** is a three-terminal adjustable shunt regulator highly accurate 0.8V band gap reference with 1%, 2% tolerance. The device offers thermal stability, wide operating current (50mA) and an extended temperature range of 0° to 105°C for operation in power supply applications. The UTC **TL432D** 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.

#### FEATURES

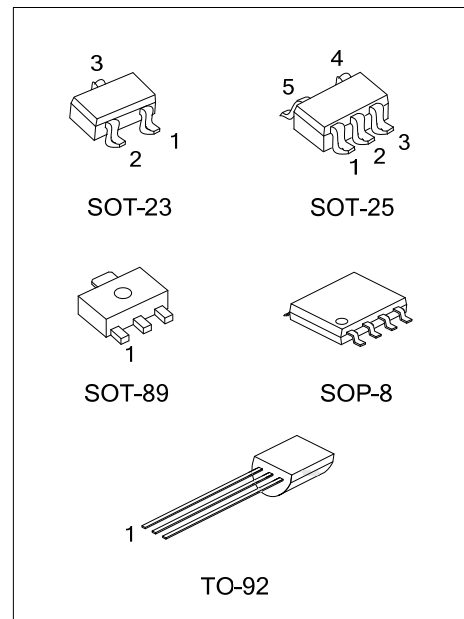
- \* Temperature-Compensated: 50ppm/°C
- \* Internal Amplifier with 50mA Capability
- \* Nominal Temperature Range Extended to 105°C
- \* Low Frequency Dynamic Output Impedance:<150mΩ
- \* Low Output Noise
- \* Halogen Free

#### ORDERING INFORMATION

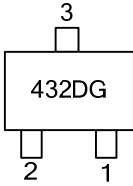
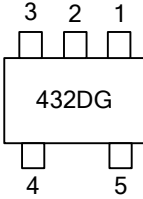
Ordering Number	Pin Assignment								Package	Packing
	1	2	3	4	5	6	7	8		
TL432DG-AB3-R	R	A	K	-	-	-	-	-	SOT-89	Tape Reel
TL432DG-AE3-R	K	R	A	-	-	-	-	-	SOT-23	Tape Reel
TL432DG-AF5-R	X	X	K	R	A	-	-	-	SOT-25	Tape Reel
TL432DG-T92-B	R	A	K	-	-	-	-	-	TO-92	Tape Box
TL432DG-T92-K	R	A	K	-	-	-	-	-	TO-92	Bulk
TL432DG-S08-R	K	A	A	X	X	A	A	R	SOP-8	Tape Reel

Note: Pin Code: C: Cathode A: Anode R: Reference X: No Connection

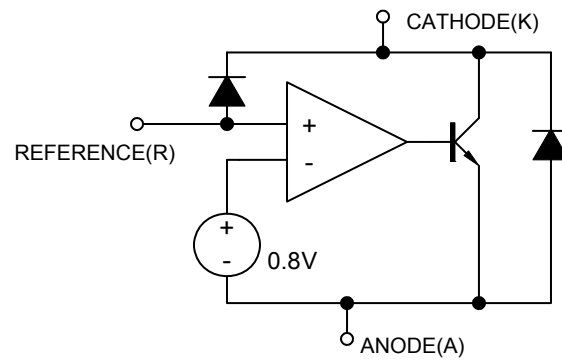
<p>TL432DG-AB3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Halogen Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel</p> <p>(2) AB3: SOT-89, AE3:SOT-23, AF5: SOT-25, S08:SOP-8, T92: TO-92</p> <p>(3) G: Halogen Free</p>
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### ■ MARKING INFORMATION

PACKAGE	MARKING
SOT-23	 <p>A schematic diagram of a SOT-23 package. It is a rectangular component with three pins. Pin 3 is at the top, pin 2 is at the bottom left, and pin 1 is at the bottom right. The marking '432DG' is printed in the center of the component.</p>
SOT-25	 <p>A schematic diagram of a SOT-25 package. It is a rectangular component with five pins. Pins 3, 2, and 1 are at the top, and pins 4 and 5 are at the bottom. The marking '432DG' is printed in the center of the component.</p>

■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Cathode-Anode Reverse Breakdown	$V_{KA}$	15	V
Anode-Cathode Forward Current	$I_{AK}$	1	A
Operating Cathode Current	$I_{KA}$	50	mA
Reference Input Current	$I_{REF}$	1	mA
Junction Temperature	$T_J$	125	°C
Operating Temperature	$T_{OPR}$	-20 ~ +85	°C
Storage Temperature	$T_{STG}$	-40 ~ +150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

### ■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Cathode Voltage	$V_{KA}$	$V_{REF}$		15	V
Cathode Current	$I_K$	5	10		mA

### ■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT
Junction to Ambient	SOT-23/SOT-25	350	°C/W
	TO-92	100	°C/W
	SOP-8	150	°C/W
	SOT-89	220	°C/W

### ■ ELECTRICAL CHARACTERISTICS ( $T_J=25^\circ\text{C}$ , $V_{KA}=V_{REF}$ , $I_K=10\text{mA}$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Input Voltage	$V_{REF}$	$I_K=10\text{mA}$ , $V_K=V_{REF}$	0.792	0.80	0.808	V
			0.784	0.80	0.816	V
Line Regulation	$\Delta V_{REF}$	$V_K=0.8 \sim 15\text{V}$		10	15	mV
Load Regulation	$\Delta V_{REF}$	$I_K=5 \sim 50\text{mA}$		6	15	mV
Temperature Deviation	$\Delta V_{REF}$	$0 < T_J < 105^\circ\text{C}$		2	6	mV
Reference Input Current	$I_{REF}$			3	6	$\mu\text{A}$
Reference Input Current Temperature Coefficient	$\Delta I_{REF}$	$0 < T_J < 105^\circ\text{C}$		0.3	0.6	$\mu\text{A}$
Minimum Cathode Current for Regulation	$I_{K(MIN)}$			0.6	1	mA
Off State Leakage	$I_{KA(OFF)}$	$V_{REF}=0\text{V}$ , $V_{KA}=15\text{V}$			500	nA

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