



TL432C

LINEAR INTEGRATED CIRCUIT

1.24V PRECISION ADJUSTABLE SHUNT REFERENCE REGULATORS

DESCRIPTION

The UTC **TL432C** is a three-terminal adjustable shunt regulator highly accurate 1.24V band gap reference with 1%, 2% tolerance. The device offers thermal stability, wide operating current (50mA) and an extended temperature range of 0°C to 85°C for operation in power supply applications. The UTC **TL432C** 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

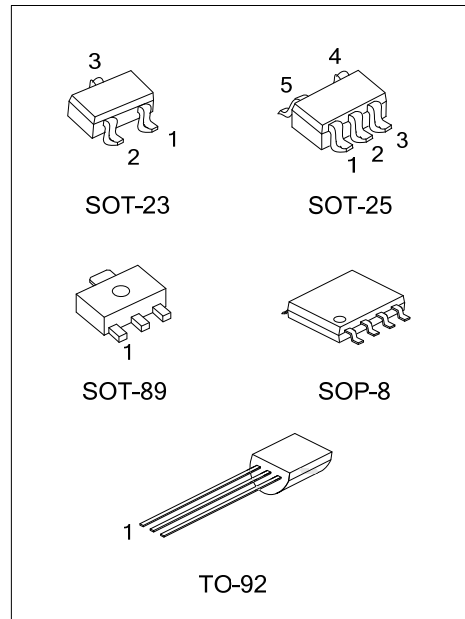
- *Temperature-Compensated: 50ppm/°C
- *Internal Amplifier with 50mA Capability
- *Nominal Temperature Range Extended to 85°C
- *Low Frequency Dynamic Output Impedance:<150mΩ
- *Low Output Noise

ORDERING INFORMATION

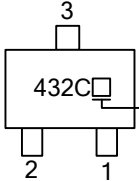
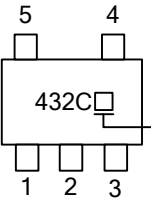
Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
TL432CL-AB3-R	TL432CG-AB3-R	SOT-89	R	A	K	-	-	-	-	-	Tape Reel
TL432CL-AE3-R	TL432CG-AE3-R	SOT-23	K	R	A	-	-	-	-	-	Tape Reel
TL432CL-AF5-R	TL432CG-AF5-R	SOT-25	X	X	K	R	A	-	-	-	Tape Reel
TL432CL-T92-B	TL432CG-T92-B	TO-92	R	A	K	-	-	-	-	-	Tape Box
TL432CL-T92-K	TL432CG-T92-K	TO-92	R	A	K	-	-	-	-	-	Bulk
TL432CL-T92-R	TL432CG-T92-R	TO-92	R	A	K	-	-	-	-	-	Tape Reel
TL432CL-S08-R	TL432CG-S08-R	SOP-8	K	A	A	X	X	A	A	R	Tape Reel
TL432CL-S08-T	TL432CG-S08-T	SOP-8	K	A	A	X	X	A	A	R	Tube

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

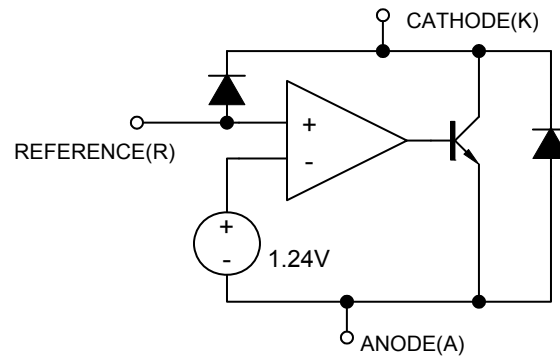
<p>TL432CL-AB3-R</p> <p>(1)Packing Type (2)Package Type (3)Lead Free</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) AB3: SOT-89, AE3: SOT-23, AF5: SOT-25, S08:SOP-8, T92: TO-92 (3) G: Halogen Free, L: Lead Free</p>
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MARKING INFORMATION

PACKAGE	MARKING
SOT-23	 <p>3 432C□ 2 1</p> <p>L: Lead Free G: Halogen Free</p>
SOT-25	 <p>5 4 432C□ 1 2 3</p> <p>L: Lead Free G: Halogen Free</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}	-40 ~ +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	RATINGS	UNIT
Cathode Voltage	V_{KA}	$V_{REF} \sim 15$	V
Cathode Current	I_K	5 ~ 10	mA

■ THERMAL DATA

PARAMETER	SYMBOL	RATING	UNIT	
Junction to Ambient	θ_{JA}	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}	$I_K=10\text{mA}$, $V_K=V_{REF}$	TL432C-A	1.234	1.24	1.246	V
			TL432C-1	1.228	1.24	1.252	
			TL432C-2	1.252		1.265	
			TL432C-3	1.215		1.228	
Line Regulation	ΔV_{REF}	$V_K=1.24 \sim 15\text{V}$		10	26	mV	
Load Regulation	ΔV_{REF}	$I_K=5 \sim 50\text{mA}$		6	15	mV	
Temperature Deviation	ΔV_{REF}	$-40 < T_J < 85^\circ\text{C}$		2	6	mV	
Reference Input Current	I_{REF}			3	6	μA	
Reference Input Current Temperature Coefficient	ΔI_{REF}	$-40 < T_J < 85^\circ\text{C}$		0.3	0.6	μA	
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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