



TL432

LINEAR INTEGRATED CIRCUIT

1.25V PRECISION ADJUSTABLE SHUNT REFERENCE REGULATORS

■ DESCRIPTION

The UTC **TL432** is a three-terminal adjustable shunt regulator highly accurate 1.25V bandgap 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 **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.

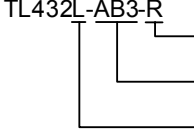
■ FEATURES

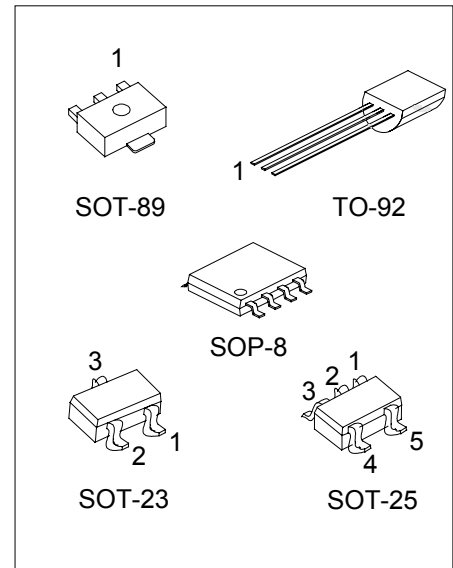
- *Temperature-Compensated: 50ppm/°C
- *Internal amplifier with 50mA capability
- *Nominal temperature range extended to 105°C
- *Low frequency dynamic output impedance: <150
- *Low output noise

■ ORDERING INFORMATION

Order Number		PIN CODE								Package	Packing
Normal	Lead Free Plating	1	2	3	4	5	6	7	8		
TL432-AB3-R	TL432L-AB3-R	R	A	K	-	-	-	-	-	SOT-89	Tape Reel
TL432-AE3-R	TL432L-AE3-R	K	R	A	-	-	-	-	-	SOT-23	Tape Reel
TL432-AF5-R	TL432L-AF5-R	X	X	K	R	A	-	-	-	SOT-25	Tape Reel
TL432-T92-B	TL432L-T92-B	R	A	K	-	-	-	-	-	TO-92	Tape Box
TL432-T92-K	TL432L-T92-K	R	A	K	-	-	-	-	-	TO-92	Bulk
TL432-S08-R	TL432L-S08-R	K	A	A	X	X	A	A	R	SOP-8	Tape Reel
TL432-S08-T	TL432L-S08-T	K	A	A	X	X	A	A	R	SOP-8	Tube

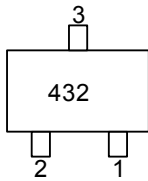
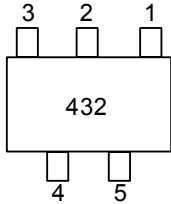
Note: Pin Code: C: Cathode A: Anode R: Reference X: No Connection

	(1) Packing Type	(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube
	(2) Package Type	(2) AB3: SOT-89, AE3: SOT-23, AF3: SOT-25, S08: SOP-8, T92: TO-92
	(3) Lead Plating	(3) L: Lead Free Plating Blank: Pb/Sn

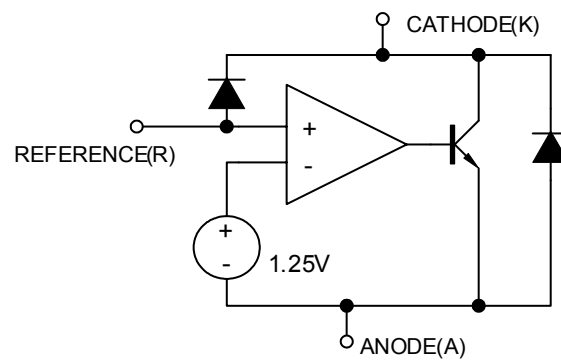


*Pb-free plating product number: TL432L

MARKING INFORMATION

PACKAGE	MARKING
SOT-23	
SOT-25	

BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	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}	0 ~ +70	°C
Storage Temperature	T_{STG}	-40 ~ +150	°C

Note 1. 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.

2. The device is guaranteed to meet performance specification within 0 ~ +70 operating temperature range and assured by design from -20 ~ +85 .

■ RECOMMENDED OPERATING CONDITIONS

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

■ TYPICAL THERMAL DATA

PARAMETER	SYMBOL	PACKAGE	RATING	UNIT
Thermal Resistance Junction to Ambient	θ_{JA}	TO-92	100	°C/W
		SOP-8	150	
		SOT-89	220	
		SOT-23	350	
		SOT-25	350	

■ 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
Refer Input Voltage	V_{REF}	$I_K=10\text{mA}$, $V_K=V_{REF}$	1.237	1.250	1.263	V
			1.225	1.250	1.275	V
Line Regulation	ΔV_{REF}	$V_K=1.25 \sim 15\text{V}$		10	15	mV
Load Regulation	ΔV_{REF}	$I_K=5 \sim 50\text{mA}$		6	15	mV
Temperature Deviation	ΔV_{REF}	$0 < T_J < 105^\circ\text{C}$		2	6	mV
Reference Input Current	I_{REF}			3	6	μA
Reference Input Current Temperature Coefficient	ΔI_{REF}	$0 < T_J < 105^\circ\text{C}$		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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