



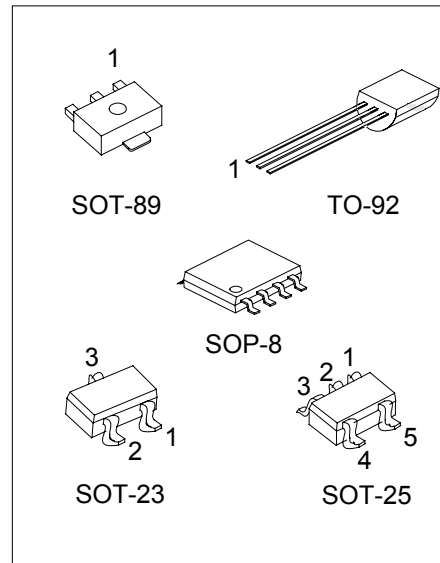
## TL432C

## 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 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 **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.



\*Pb-free plating product number: TL432CL

#### 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

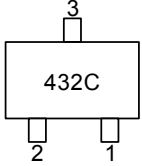
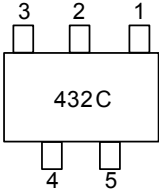
#### ORDERING INFORMATION

Order Number		PIN CODE								Package	Packing
Normal	Lead Free Plating	1	2	3	4	5	6	7	8		
TL432C-AB3-R	TL432CL-AB3-R	R	A	K	-	-	-	-	-	SOT-89	Tape Reel
TL432C-AE3-R	TL432CL-AE3-R	K	R	A	-	-	-	-	-	SOT-23	Tape Reel
TL432C-AF5-R	TL432CL-AF5-R	X	X	K	R	A	-	-	-	SOT-25	Tape Reel
TL432C-T92-B	TL432CL-T92-B	R	A	K	-	-	-	-	-	TO-92	Tape Box
TL432C-T92-K	TL432CL-T92-K	R	A	K	-	-	-	-	-	TO-92	Bulk
TL432C-S08-R	TL432CL-S08-R	K	A	A	X	X	A	A	R	SOP-8	Tape Reel
TL432C-S08-T	TL432CL-S08-T	K	A	A	X	X	A	A	R	SOP-8	Tube

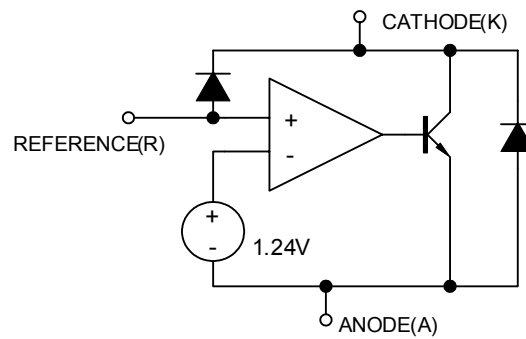
Note: Pin Code: C: Cathode A: Anode R: Reference X: No Connection

<p>TL432CL-AB3-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube</p> <p>(2) AB3: SOT-89, AE3: SOT-23, AF3: SOT-25, S08: SOP-8, T92: TO-92</p> <p>(3) L: Lead Free Plating Blank: Pb/Sn</p>
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### MARKING INFORMATION

PACKAGE	MARKING
SOT-23	
SOT-25	

### 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	$T_{OPR}$	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	$\theta_{JA}$	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
Reference Input Voltage	$V_{REF}$	$I_K=10\text{mA}$ , $V_K=V_{REF}$	1.228	1.240	1.252	V
			1.215	1.240	1.265	V
Line Regulation	$\Delta V_{REF}$	$V_K=1.24 \sim 15\text{V}$		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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