

## LR432A LINEAR INTEGRATED CIRCUIT

### PROGRAMMABLE PRECISION REFERENCE

#### Description

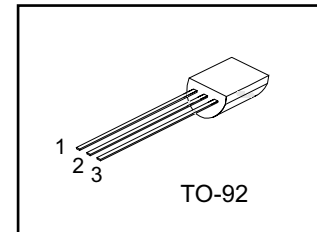
The LRC LR432A is a three-terminal adjustable regulator with a guaranteed thermal stability over applicable temperature ranges. The output voltage may be set to any value between  $V_{REF}$  (approximately 1.24V) and 18V with two external resistors. It provides very wide applications, including shunt regulator, series regulator, switching regulator, voltage reference and others.

#### Features:

- Precise Reference Voltage to 1.24V
- Guaranteed 1% Reference Voltage Tolerance
- Sink Current Capability, 80 $\mu$ A to 100mA
- Quick Turn-on
- Adjustable Output Voltage,  $V_o = V_{REF}$  to 18V
- 0.2  $\Omega$  Typical Output Impedance

We declare that the material of product is ROHS compliant and does not contain any Br, Cl, and Sb203

LR432A



TO-92 1: Ref ; 2: Anode; 3: Cathode

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## Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
$V_{KA}$	Cathode voltage	18	V
$I_K$	Continuous cathode current range	100	mA
$I_{REF}$	Reference current range	3	mA
$T_j$	Operating Junction Temperature Range	150	°C
$T_{opr}$	Operating Ambient Temperature	- 40 to 105	°C

## Electrical Characteristics $T_A=25^\circ\text{C}$ ( unless otherwise noted)

Symbol	Parameter	Test Conditions	LR432A			Unit
			Min	Typ	Max	
$V_{REF}$	Reference voltage	$V_{KA}=V_{REF}$ , $I_K=10\text{mA}$ (Fig. 1) $T_A=25^\circ\text{C}$	1.228	1.240	1.252	V
$V_{DEV}$	$V_{REF}$ Temp Deviation	$T_A$ =full range(see Note1) $V_{KA}=V_{REF}$ , $I_K=10\text{mA}$ (Fig. 1)		10	25	mV
$\Delta V_{REF}/\Delta V_{KA}$	Ratio of Change in $V_{REF}$ to Change in Cathode Voltage	$I_K=10\text{mA}$ , $V_{KA}=18\text{V}$ to $V_{REF}$ (Fig. 2)		-1	-2.7	mV / V
$I_{REF}$	Reference Input Current	$I_K=10\text{mA}$ , $R_1=10\text{k}\Omega$ $R_2=\infty$ (Fig.2)		0.25	0.5	$\mu\text{A}$
$I_{REF(DEV)}$	$I_{REF}$ Temp Deviation	$T_K$ =full range (see Note 1), $R_1=10\text{k}\Omega$ , $R_2=\infty$ , $I_K=10\text{mA}$ (Fig. 2)		0.05	0.3	$\mu\text{A}$
$I_k(\text{off})$	Off-state cathode current	$V_{REF}=0\text{V}$ , (Fig.3) $V_K=18\text{V}$		0.04	0.5	$\mu\text{A}$
$Z_{ka}$	Dynamic Output Impedance	$V_{ka}=V_{ref}$ , $I_k=1\text{mA}$ to $100\text{mA}$ $F \leq 1\text{kHz}$ (Fig. 1)		0.2	0.4	$\Omega$
$I_K(\text{MIN})$	Minimum Operating Current	$V_{KA}=V_{REF}$ (Fig. 1)		60	80	$\mu\text{A}$

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## TEST CIRCUITS

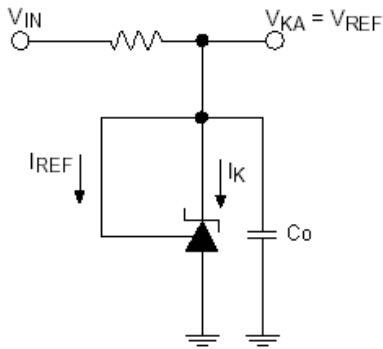


Fig.1 Test Circuit for  $V_{ka}=V_{ref}$ ,  
 $V_o=V_{ka}=V_{ref}$ ,  $C_o=0.1\mu F$

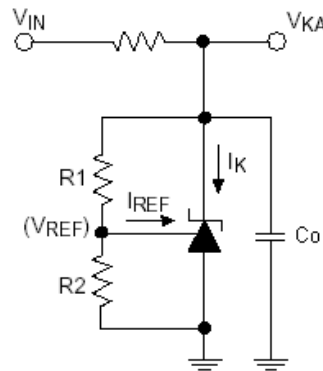


Fig.2 Test Circuit for  $V_{ka}>V_{ref}$ ,  
 $V_o=V_{ka}=V_{ref}\cdot(1+R_1/R_2)+I_{ref}\cdot R_1$ ,  
 $C_o=0.1\mu F$

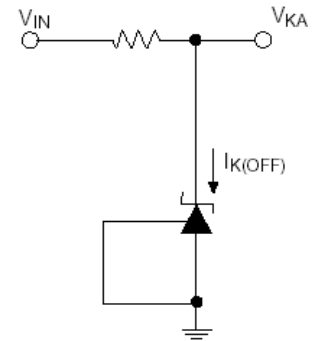
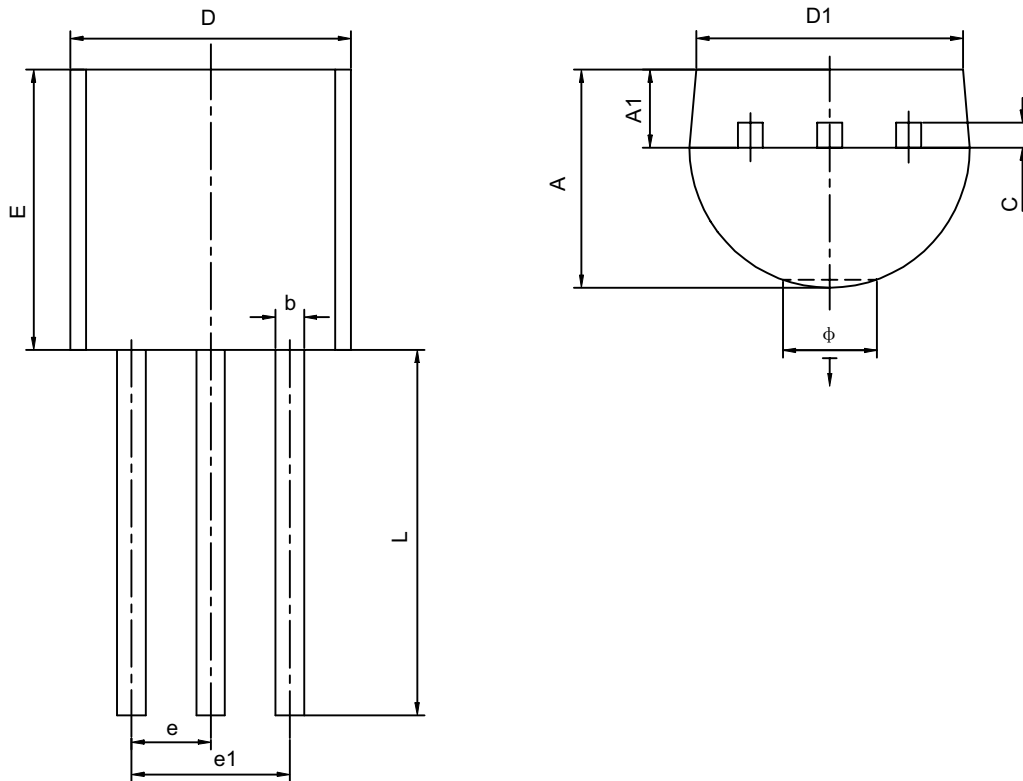


Fig.3 Test Circuit for  $I_{k(off)}$

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## TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
phi		1.600		0.063
T	0.000	0.380	0.000	0.015