

## 描述 / Descriptions

TO-92 塑封封装电压调整器。Voltage Regulator in a TO-92 Plastic Package.

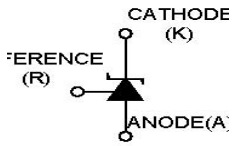
## 特征 / Features

精确参考电压 1.240V，允许电压误差为 0.5%、1%，阴极电流能力为 100uA ~ 100mA，快速导通，可调节输出电压为  $V_O = V_{ref} \sim 20V$ ，阴极工作电流低(典型值:55μA)，动态输出阻抗低(典型值:0.05Ω)。  
Precise reference voltage to 1.240V, guaranteed 0.5%, 1% ,reference voltage Tolerance, sink current capability, 100uA ~ 100mA, quick turn-on, adjustable output voltage,  $V_O = V_{ref} \sim 20V$ , low operational cathode current, 55μA typical, 0.05Ω typical output impedance.

## 用途 / Applications

用于线性调整器，可调节电源和开关电源。  
Linear regulators, adjustable power supply, switching power supply.

## 内部等效电路 / Equivalent Circuit



## 引脚排列 / Pinning



PIN 1 : K

PIN 2 : A

PIN 3 : R

## 印章代码 / Marking

见印章说明。See Marking Instructions

**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

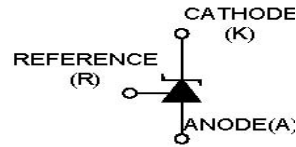
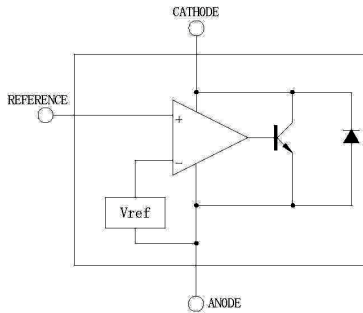
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Cathode-Anode Reverse Breakdown	$V_{KA}$	20	V
Cathode Current	$I_K$	-100~+100	mA
Reference Input Current	$I_{REF}$	10	mA
Continuous Power Dissipation	$P_D$	770	mW
Lead Temperature	$T_{amb}$	-40~125	°C
Junction Temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	-65~150	°C

**电性能参数 / Electrical Characteristics(Ta=25°C)**

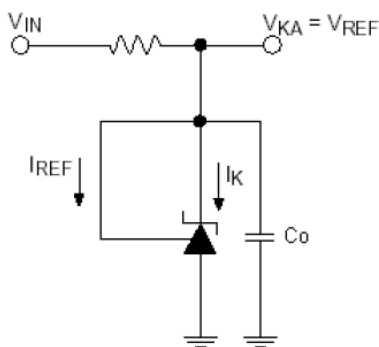
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Reference Voltage	$V_{REF}$	$V_{KA}=V_{REF}$ $I_K=10mA(A=0.5\%)$	1.234	1.240	1.246	V
		$V_{KA}=V_{REF}$ $I_K=10mA(B=1\%)$	1.228	1.240	1.252	V
Ratio of Change in VREF to Cathode Voltage	$\frac{\Delta V_{REF}}{I}$	$V_{KA}=V_{REF}$ $I_K=10mA$ $T_A=-40\sim 85^\circ C$		3	10	mV
Ratio of Change in VREF to Cathode Voltage	$\frac{\Delta V_{REF}}{I \Delta V_{KA}}$ $I_{REF}$	$I_K=10mA,$ $\Delta V_{KA}=V_{REF}$ to 16V		-0.5	-1.5	mV/V
		$I_K=10mA$ $R_1=10K\Omega$ $R_2=open$		0.15	0.4	$\mu A$
Reference Input Current	$\Delta I_{REF}/T$	$I_K=10mA$ $R_1=10K\Omega,$ $R_2=open, T_A=-40\sim 85^\circ C$		0.1	0.4	$\mu A$
IREF Temp Deviation	$I_{K(min)}$	$V_{KA}=V_{REF}$		55	80	$\mu A$
Min IK for Regulation	$I_{K(off)}$	$V_{KA}=18V$ $V_{REF}=0V$		0.04	0.1	$\mu A$
Off State Leakage		$V_{KA}=6V$ $V_{REF}=0V$		0.01	0.05	$\mu A$
Dynamic Output Impedance	$ Z_{KA} $	$V_{KA}=V_{REF}$ $I_K=1mA$ to 100mA, $f \leq 1.0KHz$		0.05	0.15	$\Omega$

测试电路图&典型应用图 Test circuits&Typical Application

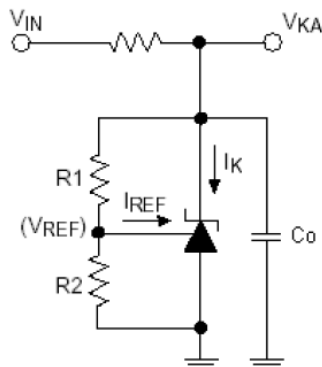
BLOCK DIAGRAM:



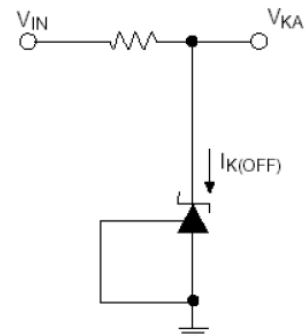
TEST CIRCUITS:



Test Circuit For  $V_{KA} = V_{REF}$ ,  
 $C_o = 0.1\mu F$

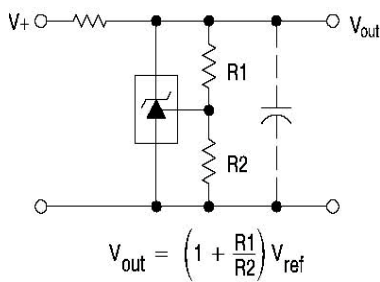


Test Circuit for  $V_{KA} \geq V_{REF}$   
 $C_o = 0.1\mu F$

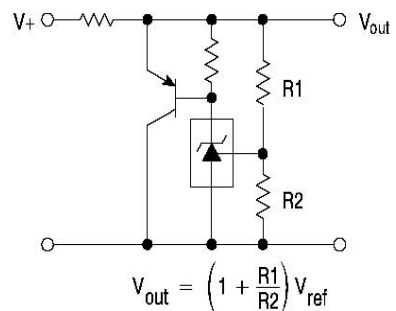


Test Circuit For  $I_{K(OFF)}$

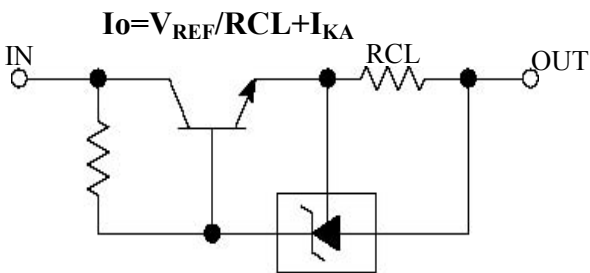
TYPICAL APPLICATIONS:



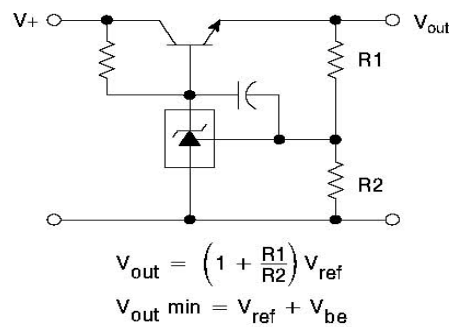
Shutdown Regulator



Higher-current Shunt



Constant Current Source



Series Pass Regulator

电参数曲线图 / Electrical Characteristic Curve

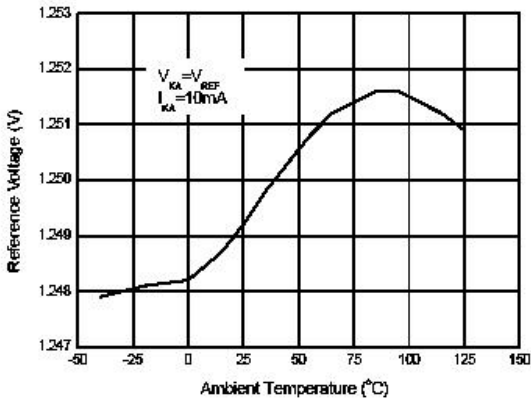


Figure 7. Reference Voltage vs. Ambient Temperature

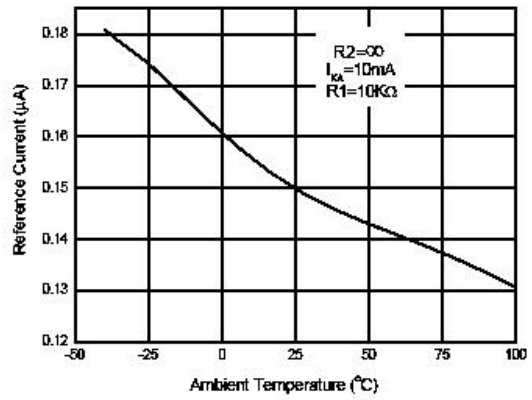


Figure 8. Reference Current vs. Ambient Temperature

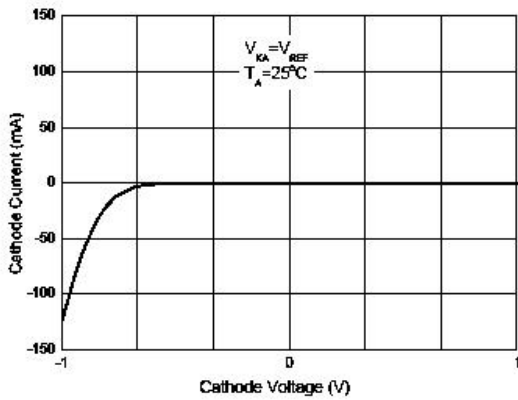


Figure 9. Cathode Current vs. Cathode Voltage

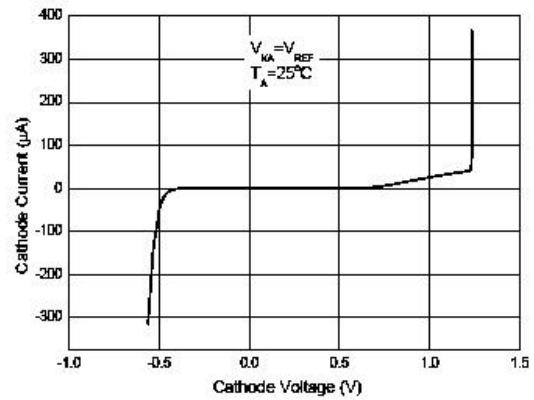
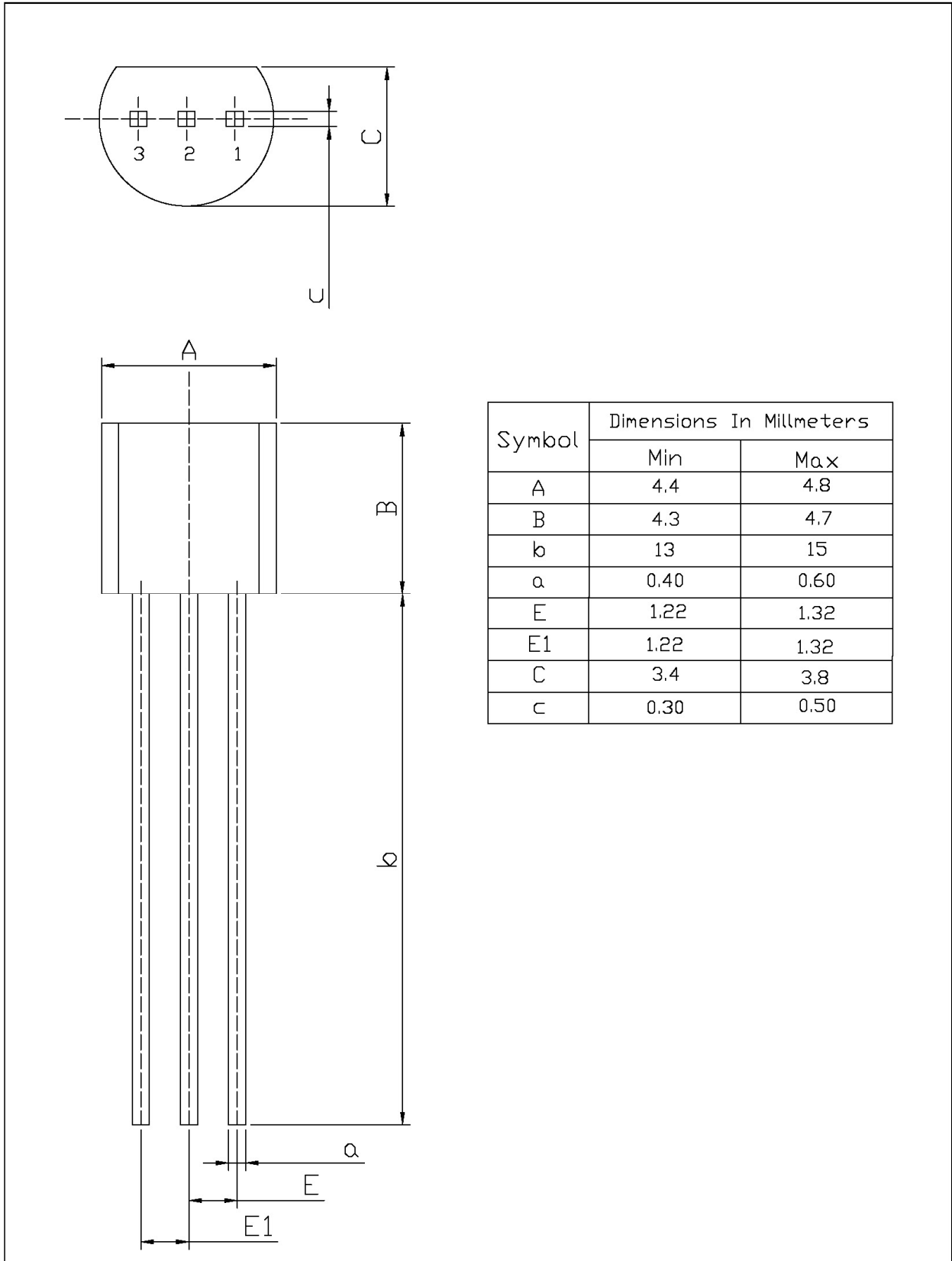


Figure 10. Current vs. cathode Voltage

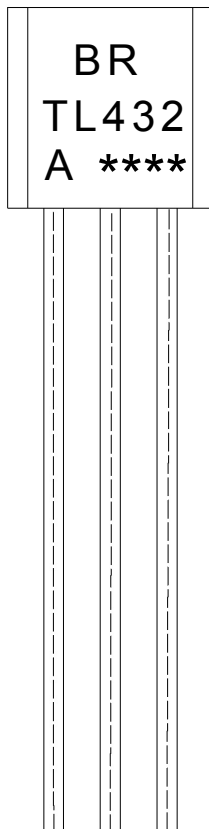
外形尺寸图 / Package Dimensions

TO-92

Unit: mm



印章说明 / Marking Instructions



说明：

BR： 为公司代码

TL432： 为产品型号

A： 为  $V_{REF}$  分档代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

Note:

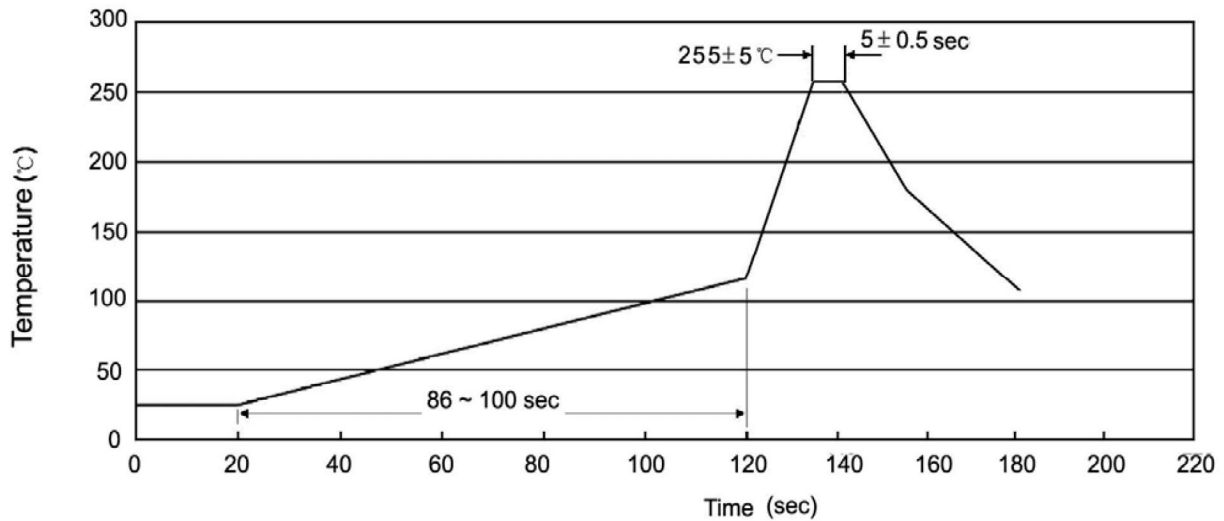
BR: Company Code.

TL432: Product Type.

A:  $V_{REF}$  Classifications Symbol

\*\*\*\*: Lot No. Code, code change with Lot No.

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C      时间：10±1 sec.      Temp:270±5°C      Time:10±1 sec

**包装规格 / Packaging SPEC.**

散件包装 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-92	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195
	1,000	10	10,000	10	100,000	135×190	237×172×102	560×245×375

编带包装 / AMMO

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	Units/tape 只/纸带	Tape/Inner Box 纸带/盒	Rows/Inner Box 纸带层/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Inner Box 盒	Outer Box 箱
TO-92	3,000	1	120	10	30,000	328×230×42	小箱 480×346×235, 大箱 547×407×268

**使用说明 / Notices**