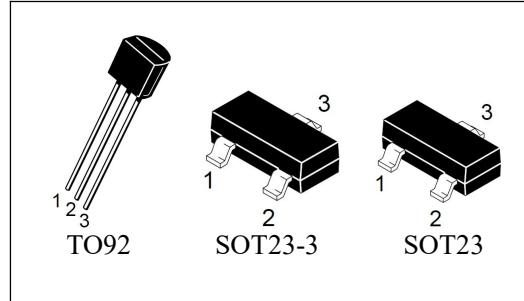


### 概述:

WL431 为三端可调节精密基准源。通过两个外接电阻，输出电压可在  $V_{ref}$  ( 约 2.5 V ) 到 36V 连续调节。该电路输出阻抗小 ( $0.2 \Omega$  )。开启特性好，在许多应用场合，它能较好地替换齐纳二极管。

WL431 采用 TO92、SOT23-3 和 SOT23 的封装形式封装。



### 主要特点:

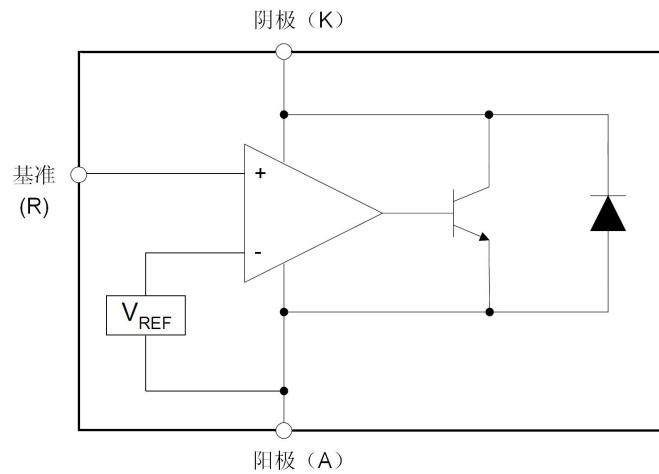
- 温度系数  $50\text{ppm}/^{\circ}\text{C}$
- 在工作温度范围内有温度补偿
- 输出电压可设定
- 响应速度快
- 输出噪声低

### 包装信息:

型号	订单型号	封装信息	打印形式	包装形式
WL431	WL431	TO92	CHMC WL431 SXXXX	1000/袋 2000/盘
WL431R	WL431R	SOT23-3	WL431R SXXXX	3000/盘
WL431W	WL431W	SOT23-3	WL431W SXXXX	3000/盘
WL431R	WL431RS	SOT23	431RXX	3000/盘
WL431W	WL431WS	SOT23	431WXX	3000/盘

其中 CHMC 为商标，WL431/WL431R/WL431W 为产品名，XX/SXXXX 为周号。

## 内部框图:



## 管脚排列图:

Order Number	Pin Configuration (Top View)
WL431 (TO-92)	<p>3 Cathode 2 Anode 1 Ref</p>
WL431W	<p>Anode 3 2 Cathode 1 Ref</p>
WL431R	<p>Anode 3 2 Ref 1 Cathode</p>

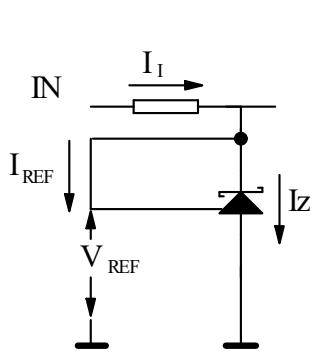
## 极限值：

参数名称	符号	规范	单位
阴极电压	V <sub>KA</sub>	37	V
阴极连续电流	I <sub>KA</sub>	-100~+150	mA
基准输入电流	I <sub>REF</sub>	10	mA
功耗	TO92	PD	mW
	SOT23-3/SOT23		
工作温度范围	T <sub>OPR</sub>	-40~+125	°C
贮存温度范围	T <sub>STG</sub>	-65~+150	°C
结温到封装外壳的最大热阻	θ <sub>J-C</sub>	55	°C/W

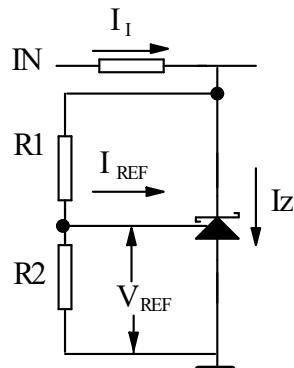
## 电特性：（除非另有说明， Tamb=25°C）

参数名称	条件		符号	最小	典型	最大	单位
基准电压	V <sub>Z</sub> =V <sub>REF</sub> I <sub>K</sub> =10mA	±0.5% A 档	V <sub>REF</sub>	2.487	2.500	2.513	V
		-1.0%~+0.5% B1 档		2.475		2.488	
		+0.5%~+1.0% B2 档		2.512		2.525	
		-2.0%~+1.0% C1 档		2.440		2.476	
		+1.0%~+2.0% C2 档		2.524		2.550	
工作温度范围内， 基准输入电压漂移	V <sub>Z</sub> =V <sub>REF</sub> , I <sub>K</sub> =10mA		V <sub>REF</sub> (dev)	-	8.0	17.0	mV
基准电压变化与 阴极电压变化比率	I <sub>Z</sub> =10mA	V <sub>Z</sub> =V <sub>REF</sub> ~10V	ΔV <sub>REF</sub> / ΔV <sub>Z</sub>	-	-1.0	-2.7	mV/V
		V <sub>Z</sub> =10V~36V		-	-0.5	-2.0	
基准输入电流	R <sub>1</sub> =10kΩ, R <sub>2</sub> =∞, I <sub>K</sub> =10mA		I <sub>REF</sub>	-	2.0	4.0	μA
工作温度范围内， 基准输入电流漂移	R <sub>1</sub> =10kΩ, R <sub>2</sub> =∞, I <sub>K</sub> =10mA		I <sub>REF</sub> (dev)	-	0.4	1.2	μA
最小阴极电流	V <sub>Z</sub> =V <sub>REF</sub>		I <sub>Z</sub> (min)	-	0.4	1.0	mA
漏电流	V <sub>Z</sub> =36V, V <sub>REF</sub> =0V		I <sub>Z</sub> (off)	-	0.05	1.0	μA
输出动态阻抗	V <sub>Z</sub> =V <sub>REF</sub> , I <sub>K</sub> =1 to 100mA, f≤1kHz		Z <sub>KA</sub>	-	0.2	0.5	Ω

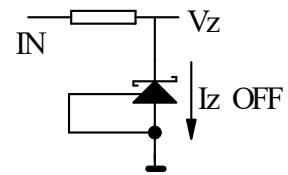
## 测试图:



测试图 1  $V_z = V_{REF}$

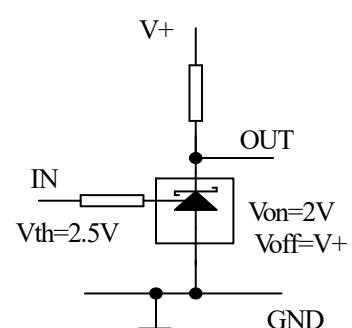
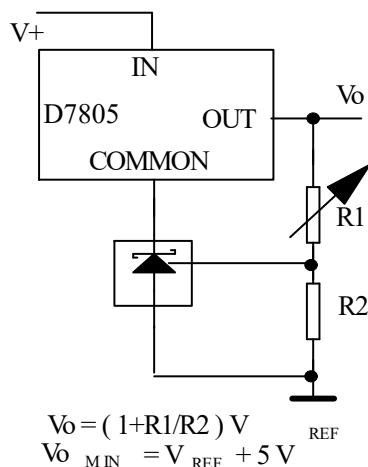
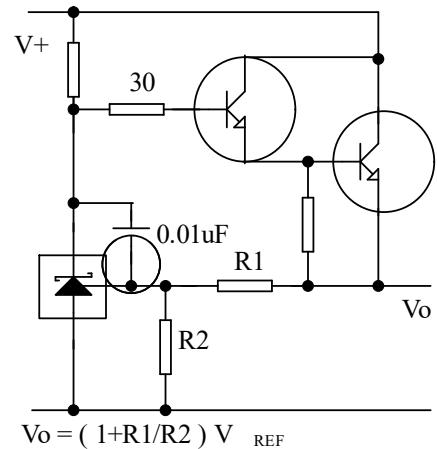
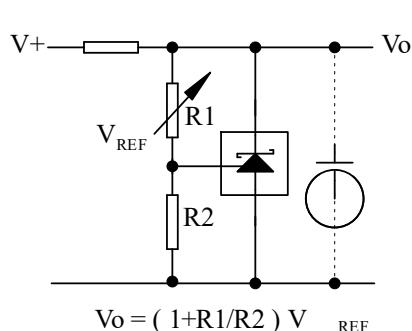


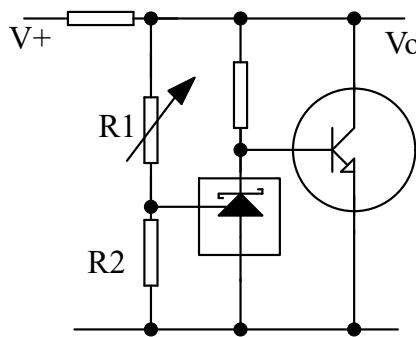
测试图 2  $V_z > V_{REF}$



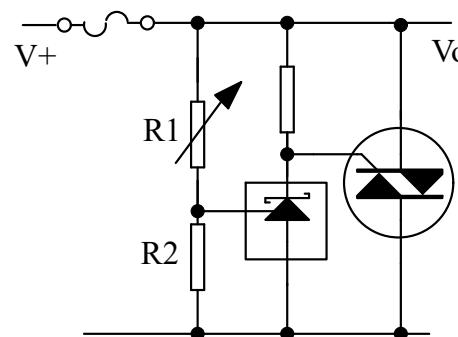
测试图 3 漏电流测试

## 应用图:



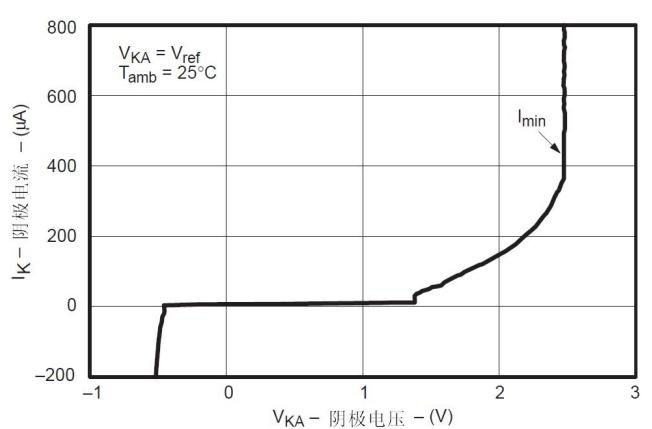
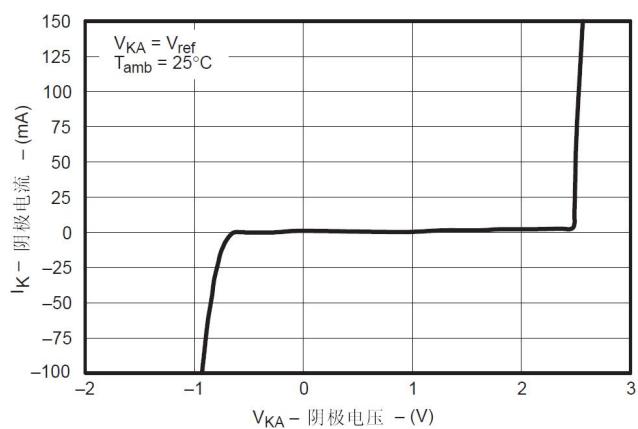
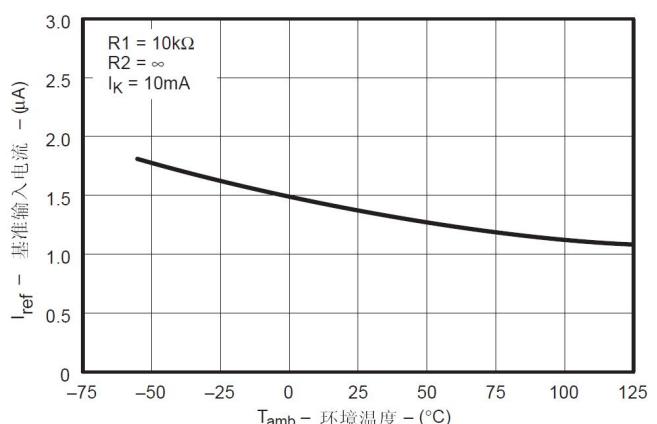
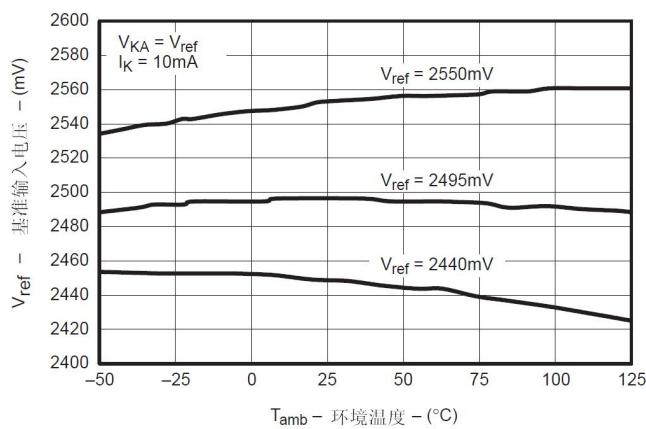


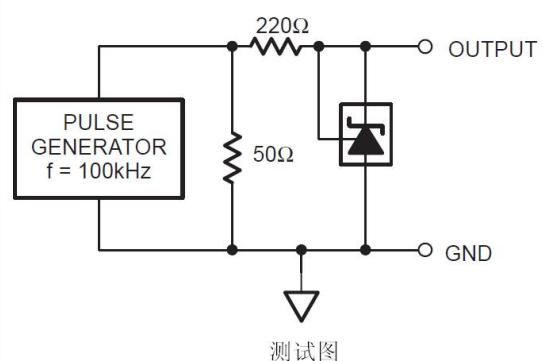
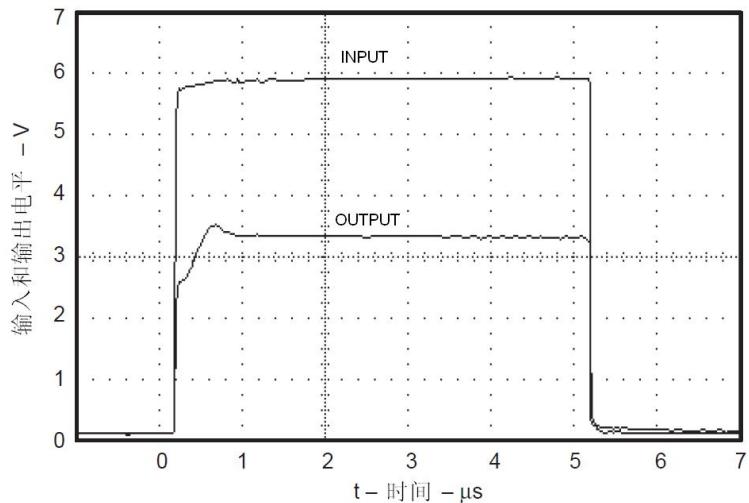
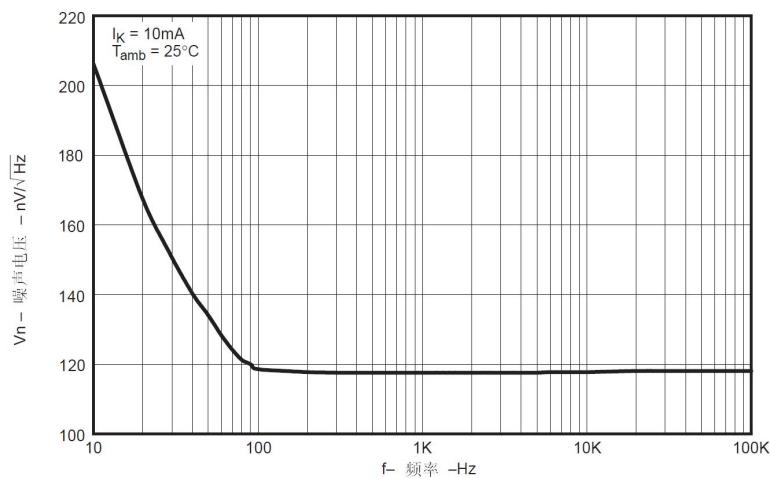
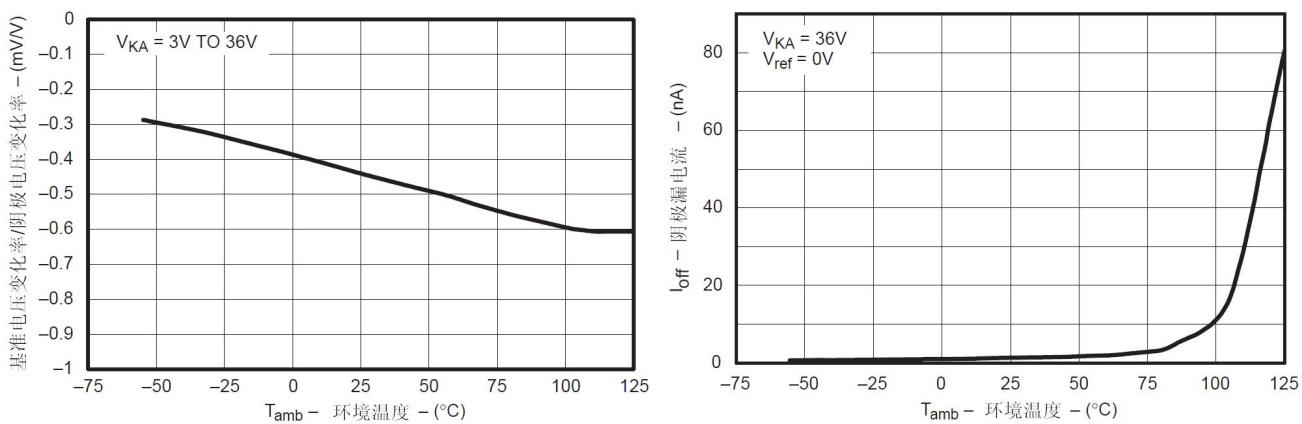
$$V_o = (1 + R1/R2) * V_{REF}$$

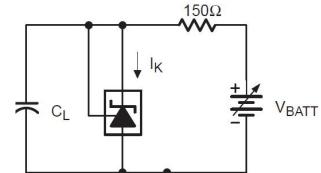
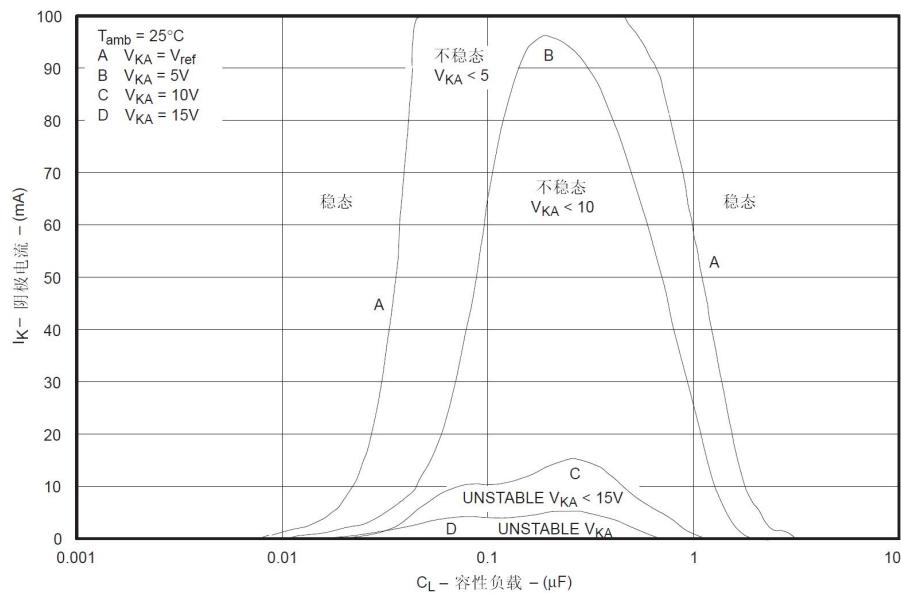


$$V_{limit} = (1 + R1/R2) * V_{REF}$$

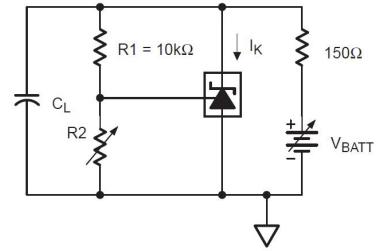
## 特性曲线:





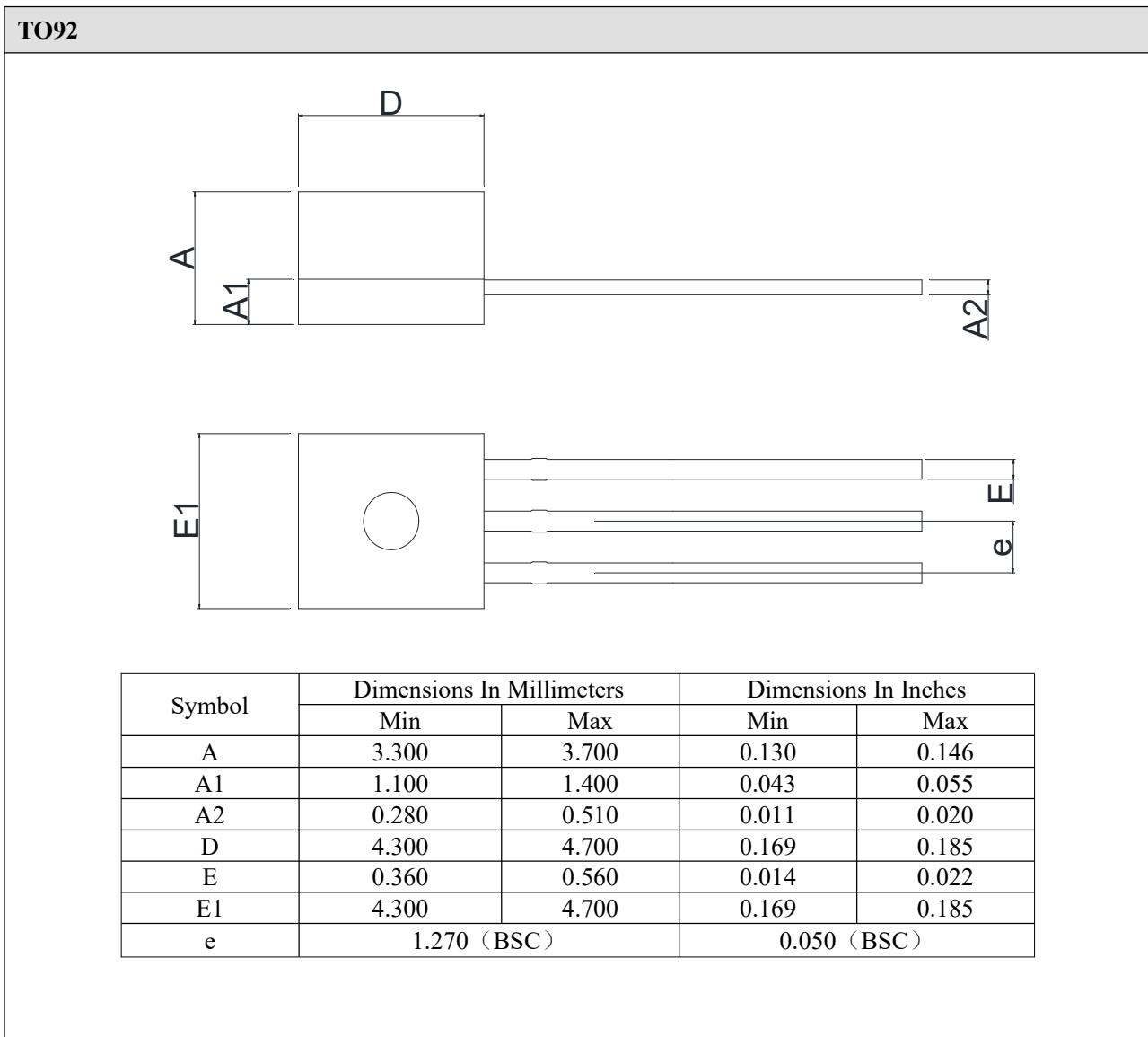


测试图 (曲线A)

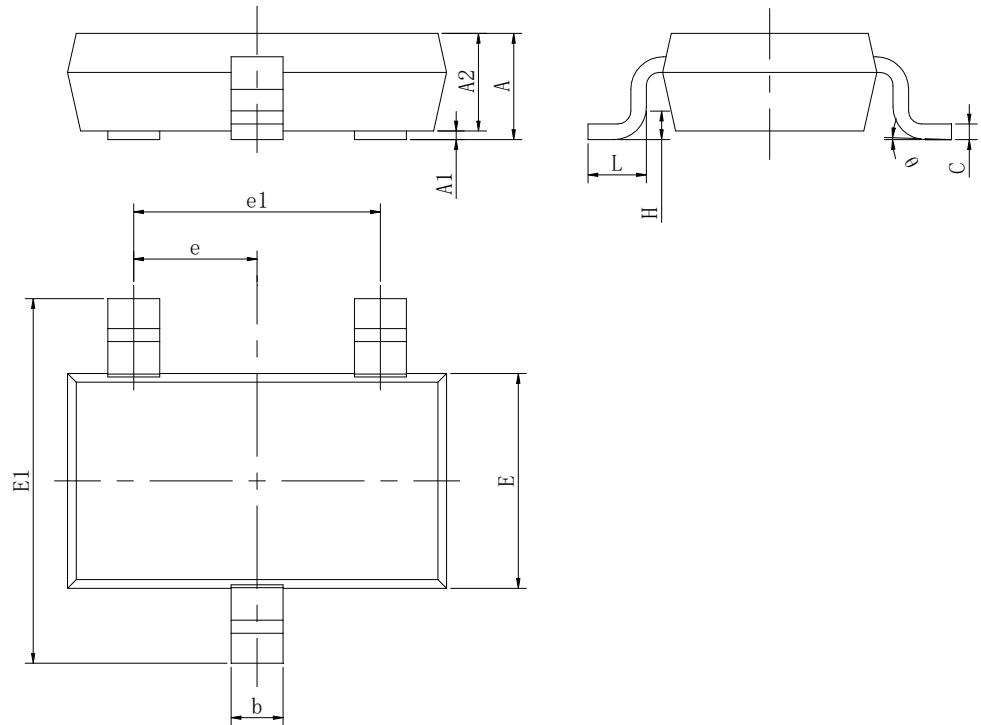


测试图 (曲线B, C, D)

封装外形图:



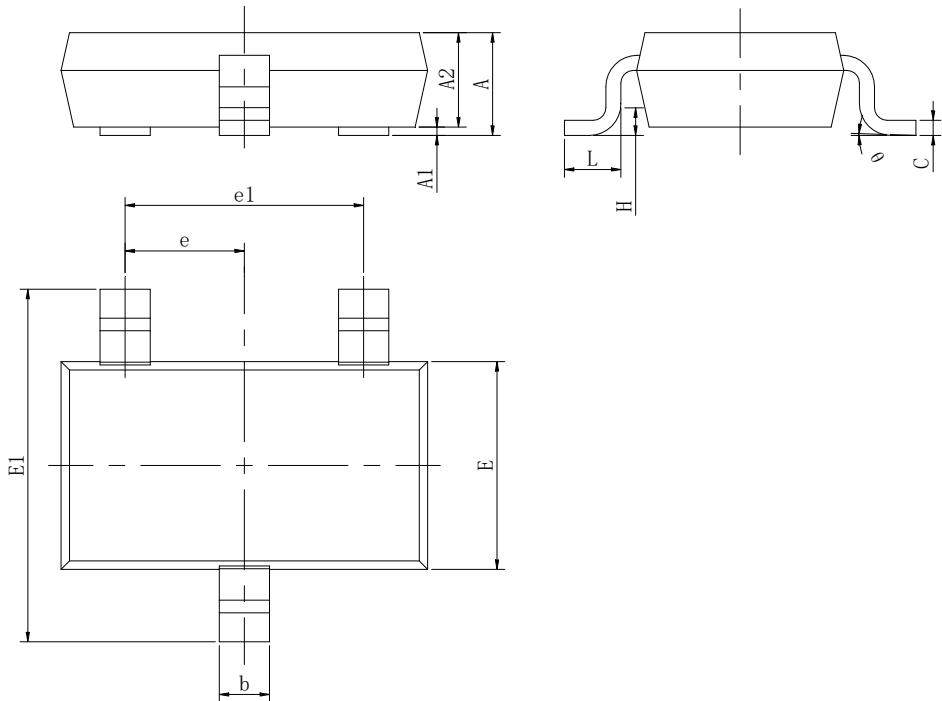
## SOT23-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.130	0.000	0.005
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.600	0.012	0.024
$\theta$	0°	8°	0°	8°

SOT23

单位:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.200	0.003	0.008
D	2.800	3.020	0.110	0.119
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

**声明:**

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