

### 描述 / Descriptions

TO-92 塑封封装 PNP 半导体三极管。Silicon PNP transistor in a TO-92 Plastic Package.

### 特征 / Features

高电压，大电流，低饱和压降。

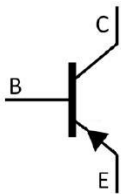
High breakdown voltage, high current, low saturation voltage.

### 用途 / Applications

用于低频功率放大。

Low frequency power amplifier applications.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN 1 : Base      PIN 2 : Collector      PIN 3 : Emitter

### 放大及印章代码 / hFE Classifications & Marking

h <sub>FE</sub> Classifications Symbol	D	E	F
h <sub>FE</sub> Range	60~120	100~200	160~320

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

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit	
Collector to Base Voltage	$V_{CBO}$	2SA984	-60	V
		2SA984K	-100	
Collector to Emitter Voltage	$V_{CEO}$	2SA984	-50	V
		2SA984K	-80	
Emitter to Base Voltage	$V_{EBO}$	-5.0	V	
Collector Current - Continuous	$I_C$	-500	mA	
Collector Current – Continuous(Pulse)	$I_{CP}$	-800	mA	
Collector Power Dissipation	$P_C$	600	mW	
Junction Temperature	$T_j$	150	°C	
Storage Temperature Range	$T_{stg}$	-55~150	°C	

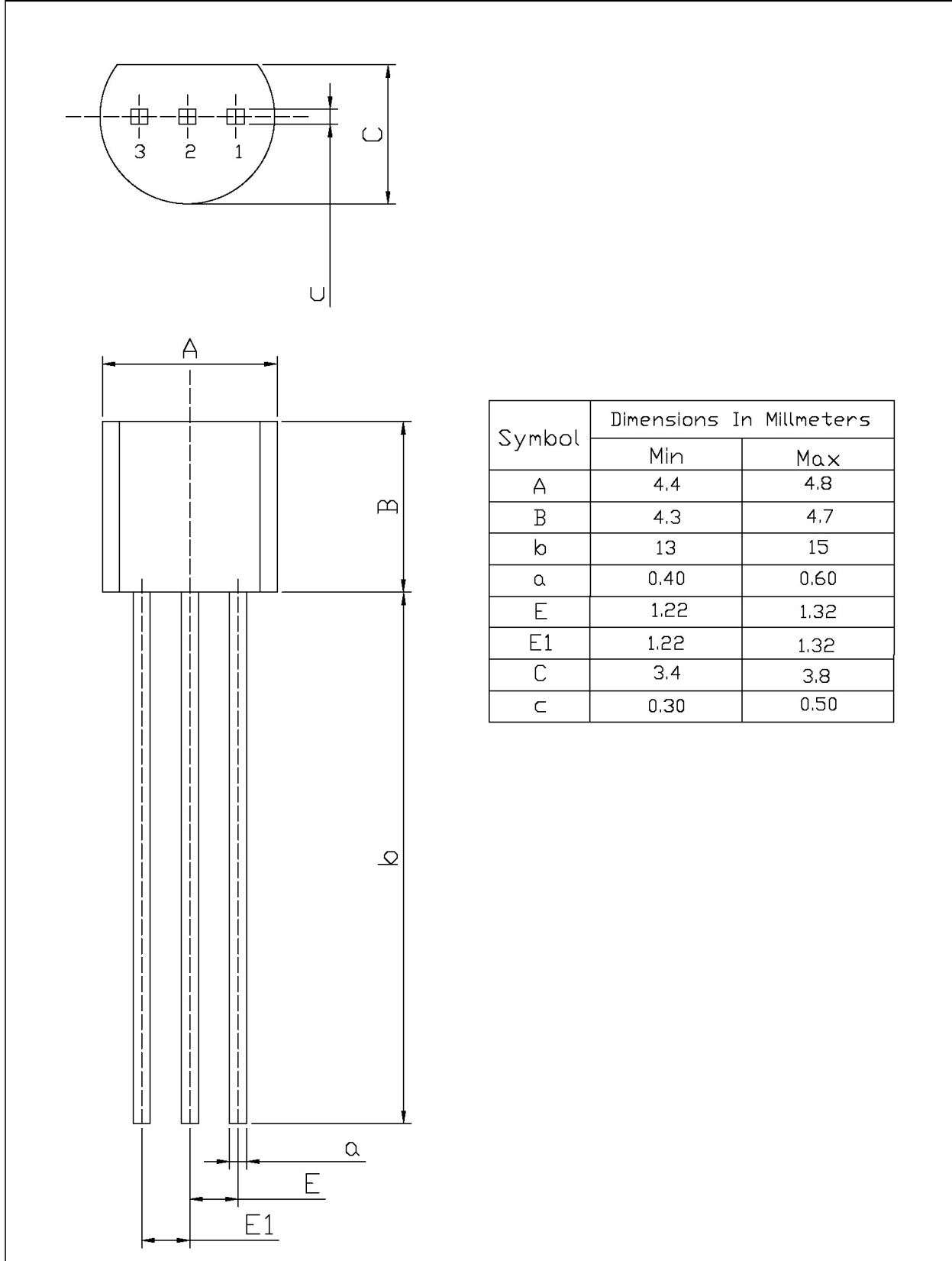
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C = -10\mu A$ $I_E = 0$	2SA984	-60		V
			2SA984K	-100		
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C = -1.0mA$ $R_{BE} = \infty$	2SA984	-50		V
			2SA984K	-80		
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E = -10\mu A$ $I_C = 0$	-5.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = -40V$ $I_E = 0$			-1.0	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = -4.0V$ $I_C = 0$			-1.0	$\mu A$
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -5.0V$ $I_C = -50mA$	60		320	
	$h_{FE(2)}$	$V_{CE} = -5.0V$ $I_C = -400mA$	35			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -400mA$ $I_B = -40mA$		-0.25	-0.6	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -400mA$ $I_B = -40mA$		-0.9	-1.2	V
Transition Frequency	$f_T$	$V_{CE} = -10V$ $I_C = -10mA$		120		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB} = -10V$ $f = 1.0MHz$		9.0		pF

外形尺寸图 / Package Dimensions

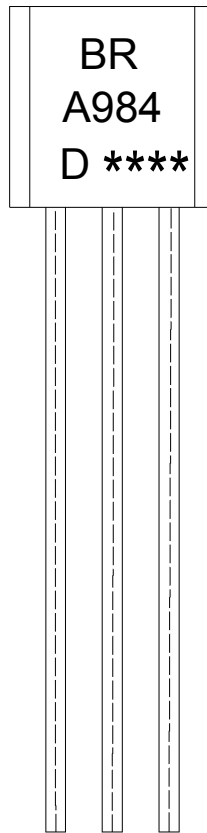
TO-92

Unit: mm



Symbol	Dimensions In Millimeters	
	Min	Max
A	4.4	4.8
B	4.3	4.7
b	13	15
a	0.40	0.60
E	1.22	1.32
E1	1.22	1.32
C	3.4	3.8
c	0.30	0.50

印章说明 / Marking Instructions



说明：

BR: 为公司代码

A984 : 为型号代码

D: 为  $h_{FE}$  分档代码

\*\*\*\* : 为生产批号代码，随生产批号变化。

Note:

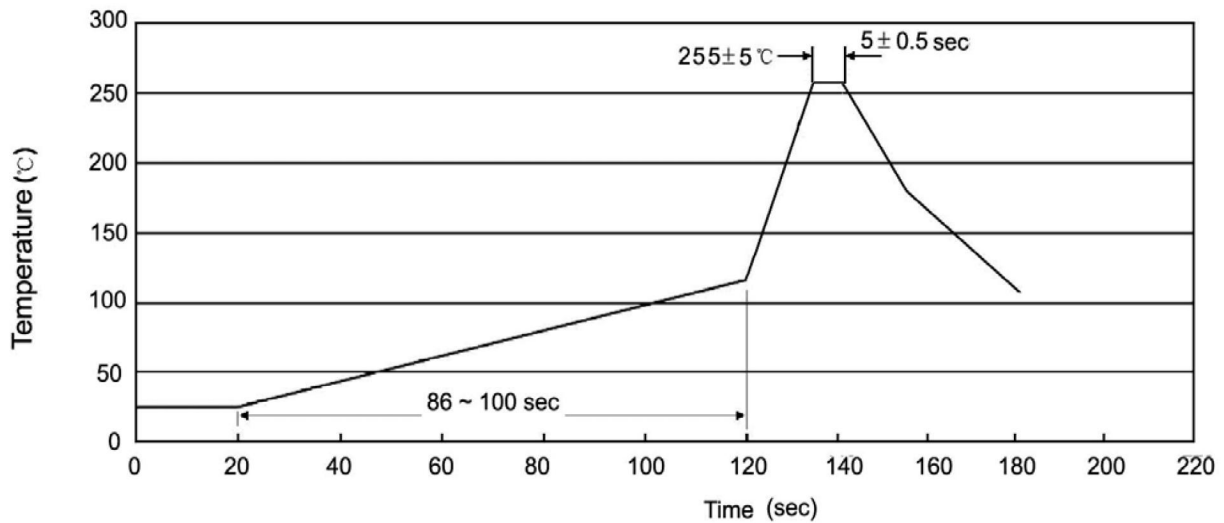
BR: Company Code.

A984: Product Type.

D:  $h_{FE}$  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**