

描述 / Descriptions

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

特征 / Features

共发射极直流电流放大系数大,饱和压降低。

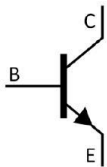
High h_{FE} , low $V_{CE(sat)}$.

用途 / Applications

用于一般放大。

General purpose amplifier.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : Base PIN 2 : Collector PIN 3 : Emitter

放大及印章代码 / h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	Q	R	S
h_{FE} Range	160~260	200~340	290~460

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}	30	V
Collector to Emitter Voltage	V _{CEO}	25	V
Emitter to Base Voltage	V _{EBO}	7.0	V
Collector Current - Continuous	I _C	100	mA
Collector Current – Continuous(Pulse)	I _{CP}	200	mA
Collector Power Dissipation	P _C	400	mW
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

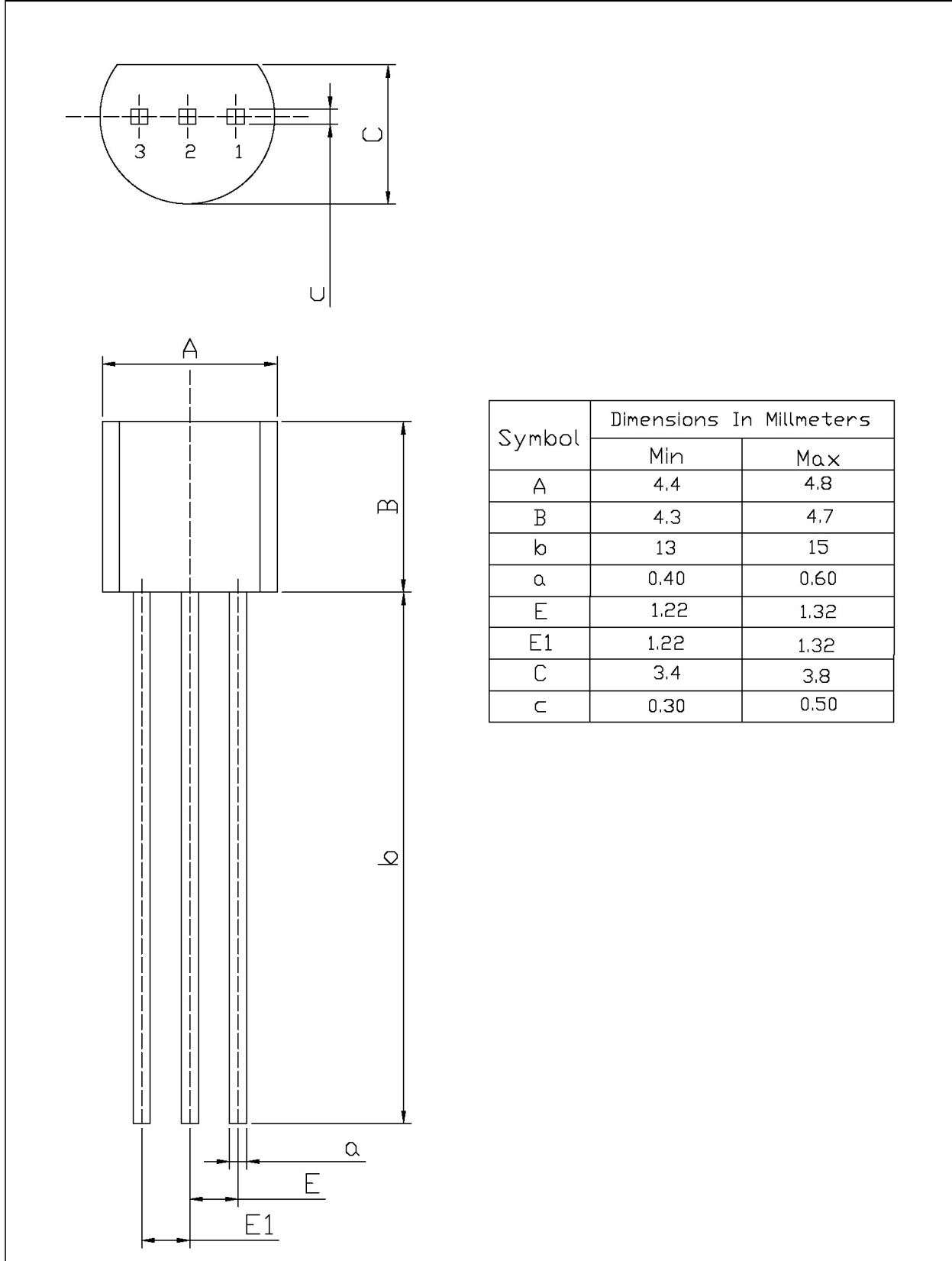
电性能参数 / Electrical Characteristics(Ta=25°C)

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 =10μA I _E =0	30			V
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =2.0mA I _B =0	25			V
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =10μA I _C =0	7.0			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =10V I _E =0			1.0	μA
Collector Cut-Off Current	I _{CEO}	V _{CE} =10V I _B =0			100	μA
DC Current Gain	h _{FE(1)}	V _{CE} =10V I _C =2.0mA	160		460	
	h _{FE(2)}	V _{CE} =2.0V I _C =100mA	90			
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C =100mA I _B =10mA		0.15	0.5	V
Transition Frequency	f _T	V _{CE} =10V I _C =2.0mA		150		MHz
Collector Output Capacitance	C _{ob}	V _{CB} =10V I _E =0mA f=1.0MHz		3.5		pF
Noise Figure	NV	V _{CE} =10V I _C =1.0mA G _V =80dB R _g =100KΩ Function=FLAT		300		mV

外形尺寸图 / Package Dimensions

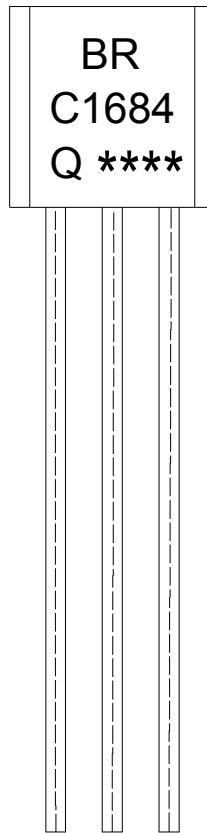
TO-92

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



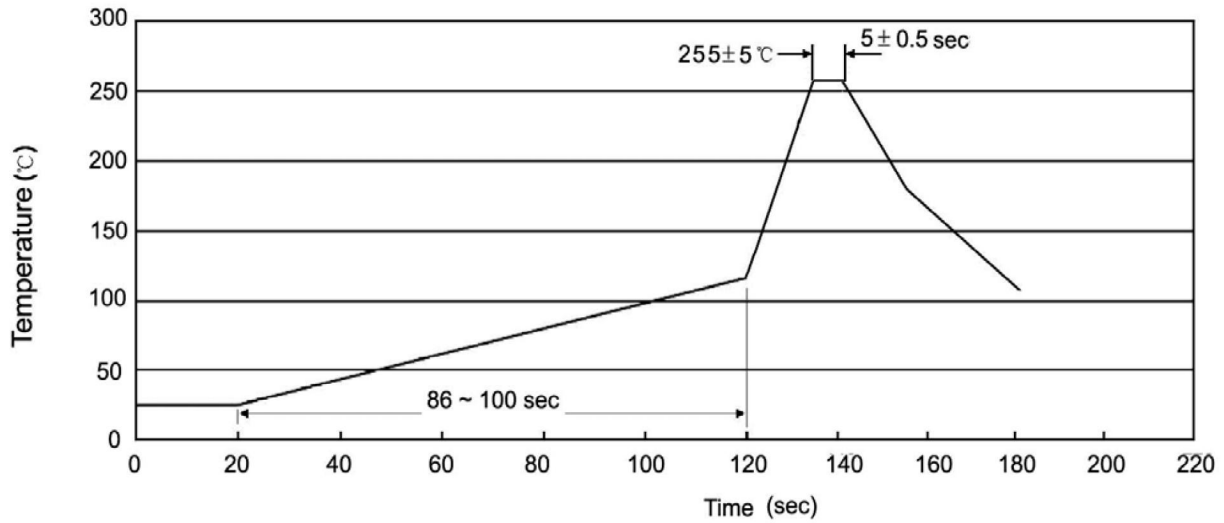
说明：

BR: 为公司代码
C1684 : 为型号代码
Q: 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.
C1684: Product Type.
Q: 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