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.

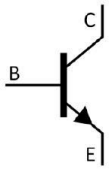
特征 / Features

频率高。
High frequency.

用途 / Applications

用于高频放大。
High frequency 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 / hFE Classifications & Marking

h_{FE} Classifications Symbol	E	F	G	H	I
h_{FE} Range	40~59	54~80	72~108	97~146	132~200

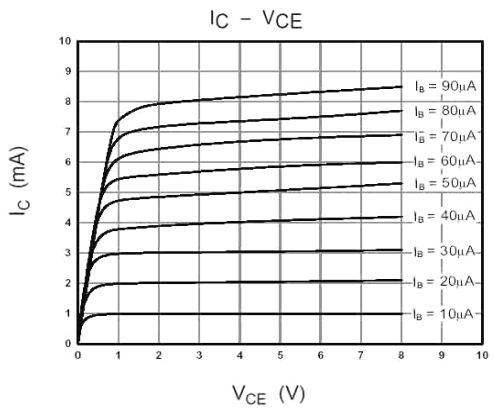
极限参数 / Absolute Maximum Ratings(Ta=25℃)

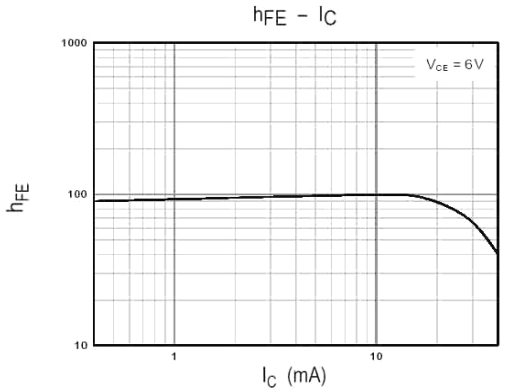
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	15	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current - Continuous	I_C	30	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55～150	℃

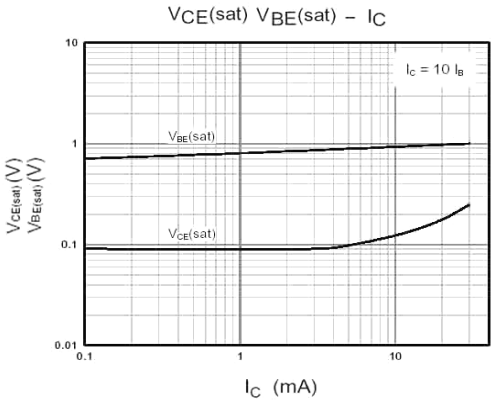
电性能参数 / Electrical Characteristics(Ta=25℃)

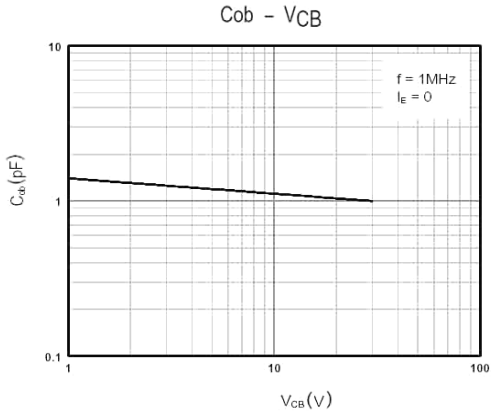
参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=10μA I_E=0	20			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA I_B=0	15			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=10μA I_C=0	3.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=10V I_E=0			1.0	μA
DC Current Gain	h_{FE}	V_{CE}=6.0V I_C=1.0mA	40		200	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=10mA I_B=1.0mA		0.6	0.7	V
Base to Emitter Voltage	V_{BE}	V_{CE}=6.0V I_C=1.0mA		0.7	0.85	V
Transition Frequency	f_T	V_{CE}=6.0V I_C=1.0mA		300		MHz
Collector Output Capacitance	C_{ob}	V_{CB}=10V I_E=0 f=1.0MHz		1.4		pF
Power Gain	G_{pe}	V_{CE}=6.0V I_C=1.0mA R_L=55 R_G=100 f=100MHz		7.0		dB

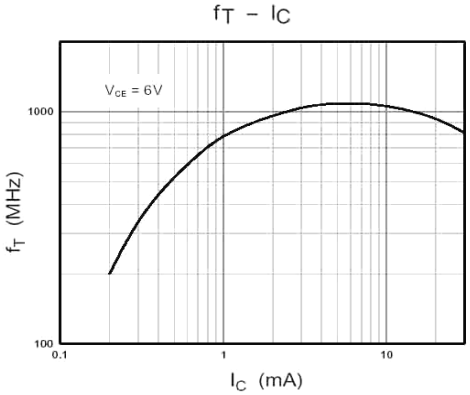
电参数曲线图 / Electrical Characteristic Curve





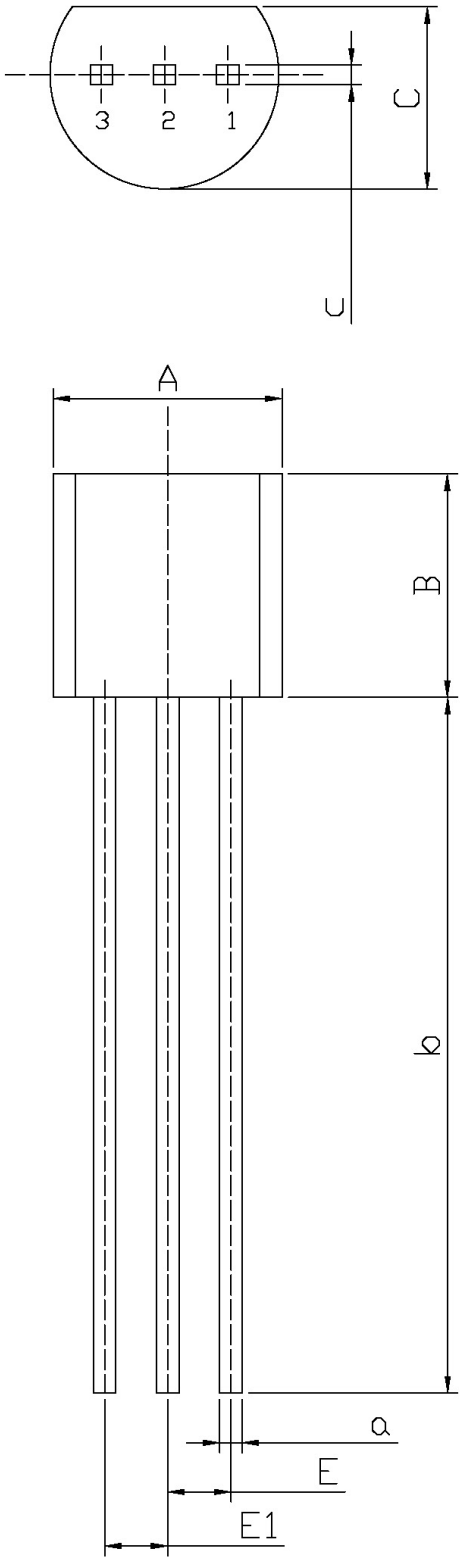






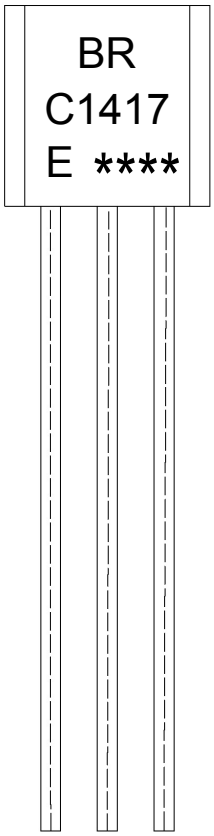
外形尺寸图 / Package Dimensions

TO-92 Unit: mm



Symbol	Dimensions In Millmeters	
	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



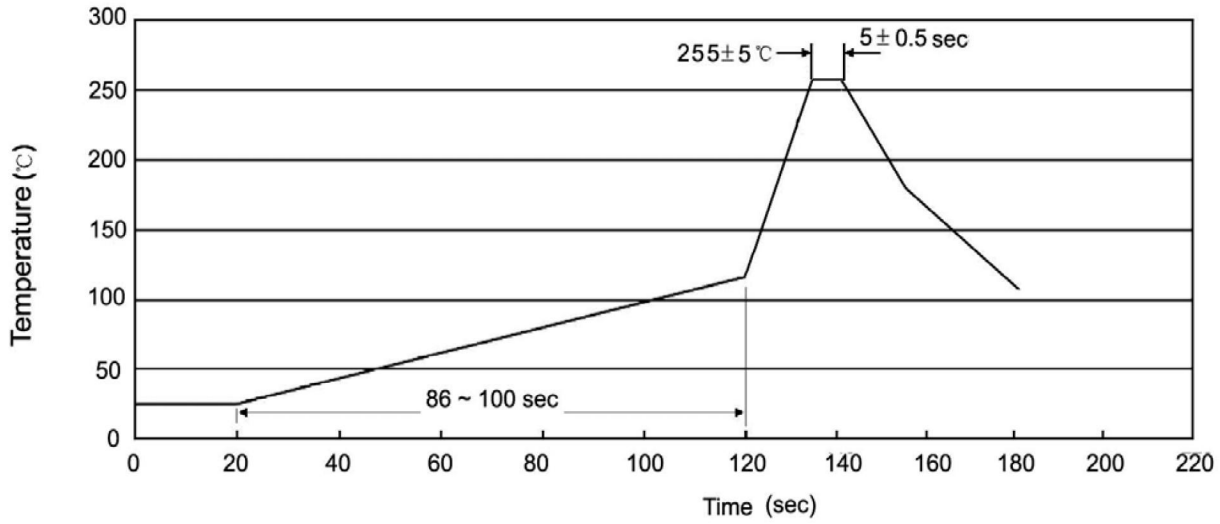
说明：

BR:	为公司代码
C1417：	为型号代码
E:	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.
C1417:	Product Type.
E:	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℃，时间 60～90sec;

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:25~150℃, Time:60~90sec.

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

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

温度：270±5℃　　时间：10±1 sec.　　Temp:270±5℃　　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