

### 描述 / Descriptions

SOT-23 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a SOT-23 Plastic Package.

### 特征 / Features

饱和压降低，电流大，无卤产品。

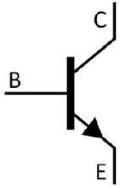
Low  $V_{CE(sat)}$ , high current, HF product.

### 用途 / Applications

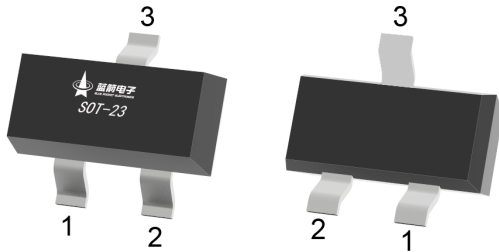
用于一般静音开关，液晶显示器的背景照明，线性开关电源。

General purpose switching and muting, LCD back-lighting, supply line switching circuits.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN 1 : Base

PIN 2 : Emitter

PIN 3 : Collector

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

$h_{FE}$ Range	>200
Marking	HU5

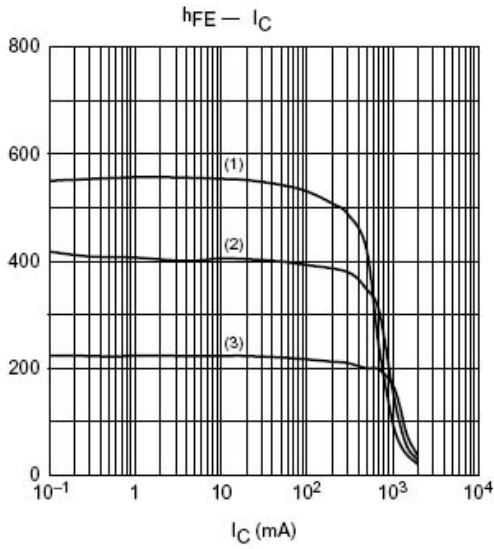
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V <sub>CB0</sub>	80	V
Collector to Emitter Voltage	V <sub>CEO</sub>	60	V
Emitter to Base Voltage	V <sub>EBO</sub>	5	V
Collector Current	I <sub>C</sub>	1	A
Peak Collector Current	I <sub>CM</sub>	2	A
Base Current	I <sub>B</sub>	0.3	A
Peak Base Current	I <sub>BM</sub>	1	A
Collector Power Dissipation	P <sub>C</sub>	400	mW
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C

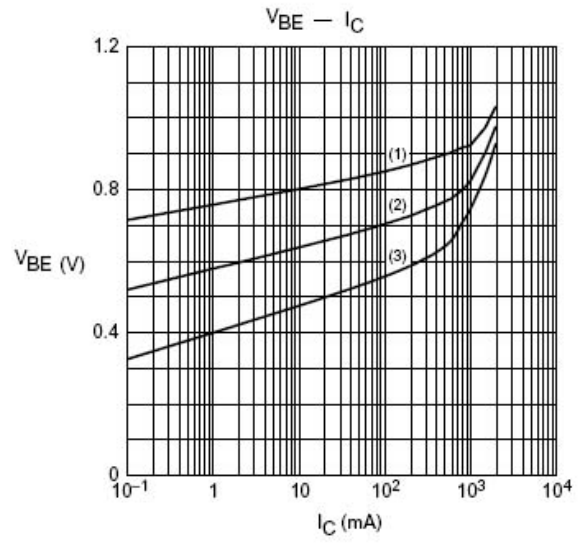
**电性能参数 / Electrical Characteristics(Ta=25°C)**

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 Cut-Off Current	I <sub>CBO</sub>	V <sub>CB</sub> =60V I <sub>E</sub> =0A			100	nA
		V <sub>CB</sub> =60V I <sub>E</sub> =0A T <sub>j</sub> =150°C			50	μA
Collector Cut-Off Current	I <sub>CES</sub>	V <sub>CE</sub> =60V V <sub>BE</sub> =0V			100	nA
Emitter Cut-Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =5.0V I <sub>C</sub> =0A			100	nA
DC Current Gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =500mA	200	350		
	h <sub>FE(2)</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =1.0mA	250	400		
	h <sub>FE(3)</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =1.0A	100	150		
Collector-Emitter Saturation Voltage	V <sub>CE(sat)(1)</sub>	I <sub>C</sub> =100mA I <sub>B</sub> =1.0mA		90	110	mV
	V <sub>CE(sat)(2)</sub>	I <sub>C</sub> =500mA I <sub>B</sub> =50mA		110	140	mV
	V <sub>CE(sat)(3)</sub>	I <sub>C</sub> =1.0A I <sub>B</sub> =100mA		200	250	mV
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1.0A I <sub>B</sub> =50mA		0.95	1.1	V
Base-Emitter Voltage	V <sub>BE</sub>	V <sub>CE</sub> =5.0V I <sub>C</sub> =1.0A		0.82	0.9	V
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =10V I <sub>C</sub> =50mA f=100MHz	150	220		MHz
Output Capacitance	C <sub>C</sub>	V <sub>CB</sub> =10V I <sub>E</sub> =0 f=1.0MHz		5.5	10	pF

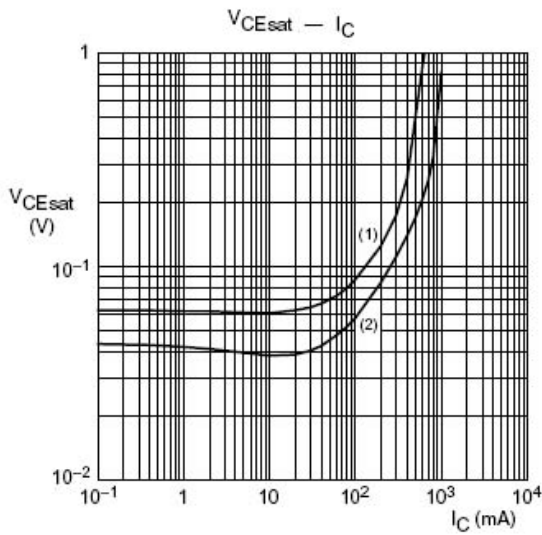
**电参数曲线图 / Electrical Characteristic Curve**



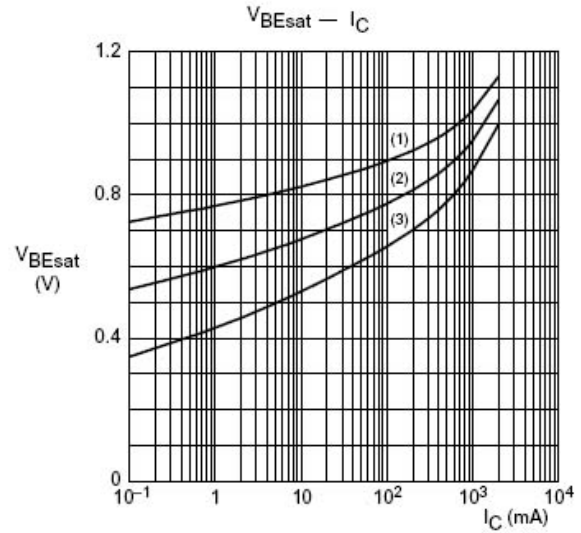
$V_{CE} = 5\text{ V.}$   
(1)  $T_{amb} = 100\text{ }^{\circ}\text{C.}$   
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C.}$   
(3)  $T_{amb} = -55\text{ }^{\circ}\text{C.}$



$V_{CE} = 5\text{ V.}$   
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C.}$   
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C.}$   
(3)  $T_{amb} = 100\text{ }^{\circ}\text{C.}$



$T_{amb} = 25\text{ }^{\circ}\text{C.}$   
(1)  $I_C/I_B = 100.$   
(2)  $I_C/I_B = 50.$

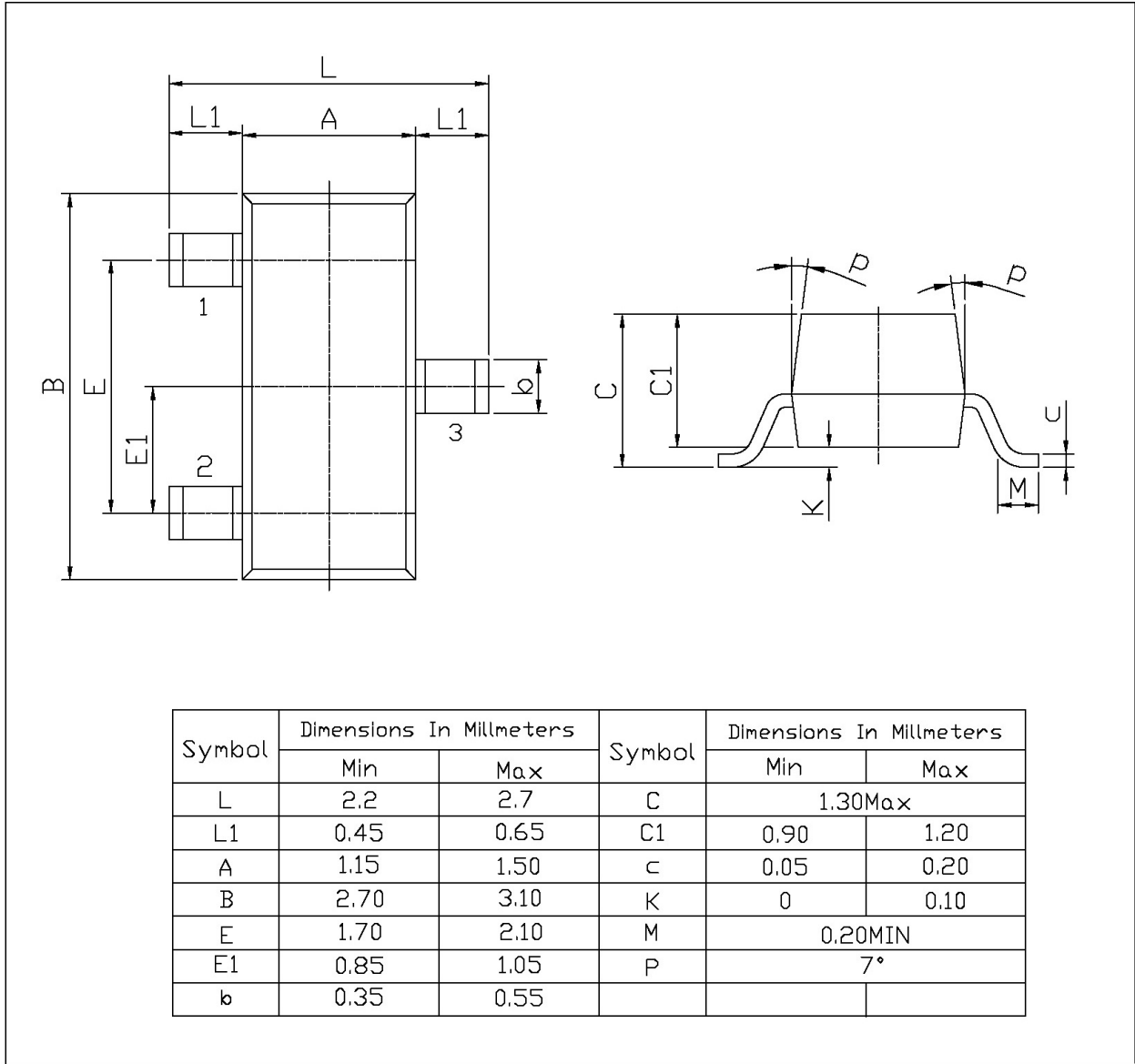


$I_C/I_B = 20.$   
(1)  $T_{amb} = -55\text{ }^{\circ}\text{C.}$   
(2)  $T_{amb} = 25\text{ }^{\circ}\text{C.}$   
(3)  $T_{amb} = 100\text{ }^{\circ}\text{C.}$

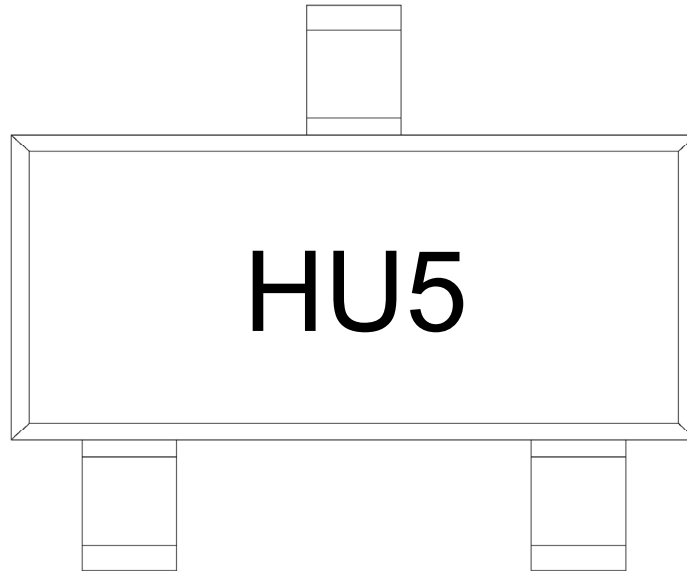
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

H： 为公司代码

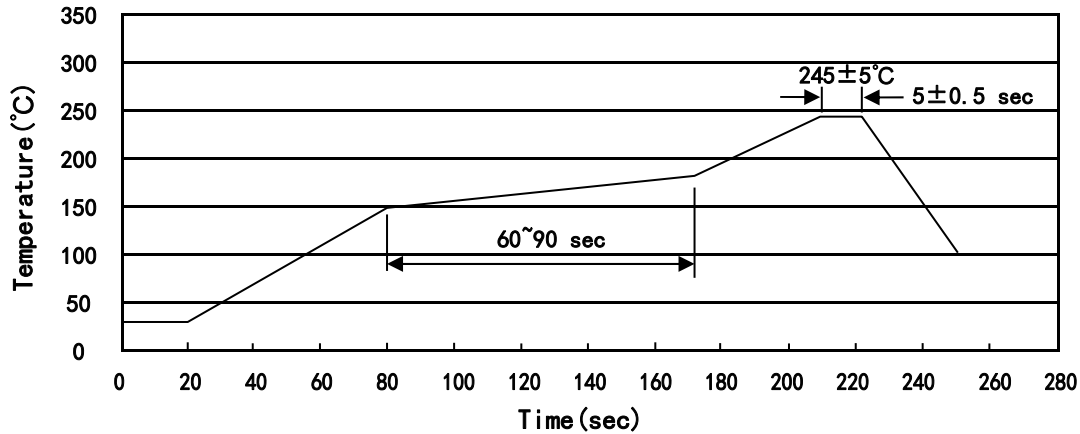
U5： 为型号代码

Note:

H： Company Code

U5： Product Type Code

**回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)**



说明：

- 1、预热温度 150 ~ 180°C，时间 60 ~ 90sec;
- 2、峰值温度 245±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:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±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：260±5°C      时间：10±1 sec.      Temp.:260±5°C      Time:10±1 sec

**包装规格 / Packaging SPEC.**

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

**使用说明 / Notices**