

### 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.

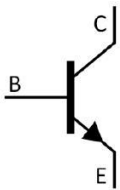
### 特征 / Features

EB 击穿电压高,反向放大高(典型值 150), 导通电阻低 ( $I_B=5\text{mA}$  时典型值为 1 欧姆)。  
High  $V_{EBO}$ , high reverse  $h_{FE}$  (typ. 150,  $V_{CE}=-2\text{V}, I_C=-2\text{mA}$ ), low on resistance ( $R_{on}=1\Omega, I_B=5\text{mA}$ ).

### 用途 / Applications

用于静音和开关电路。  
For muting and switching applications.

### 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

$h_{FE}$ Classifications Symbol	A	B
$h_{FE}$ Range	200~700	350~1200
Marking	HMA	HMB

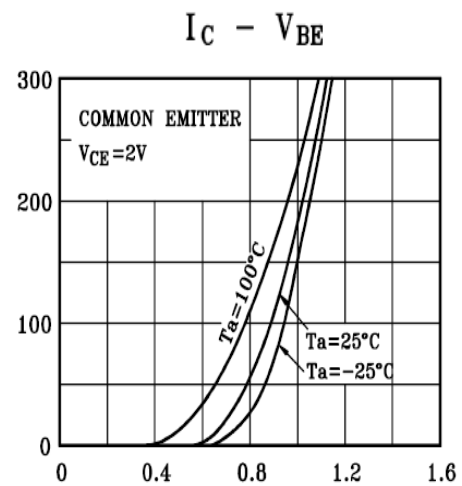
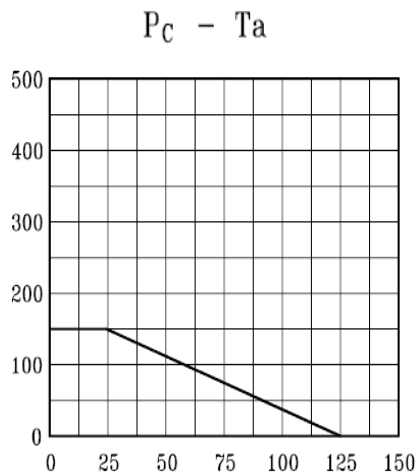
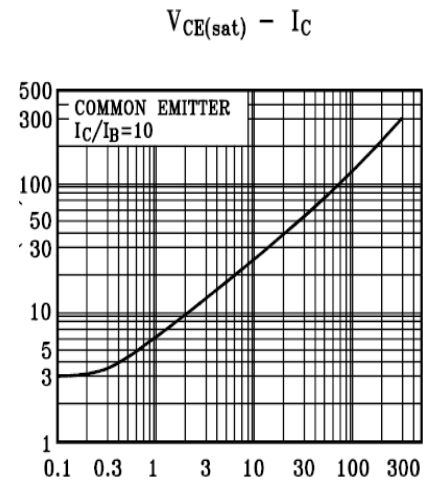
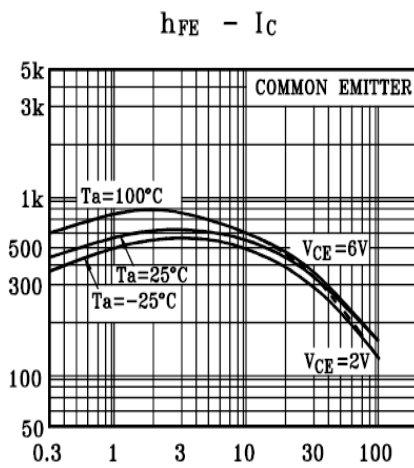
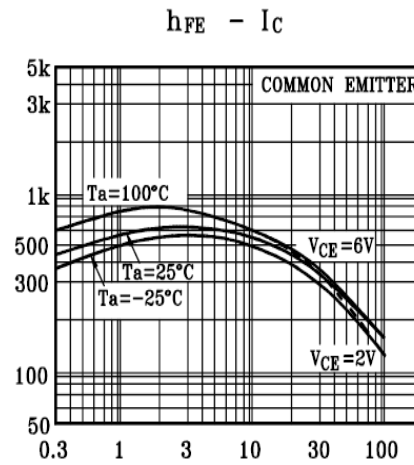
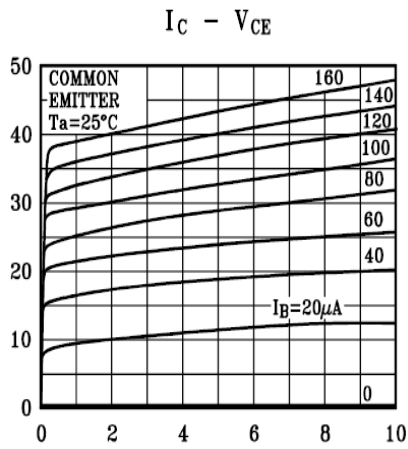
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	50	V
Collector to Emitter Voltage	$V_{CEO}$	20	V
Emitter to Base Voltage	$V_{EBO}$	25	V
Collector Current	$I_C$	300	mA
Base Current	$I_B$	60	mA
Collector Power Dissipation	$P_C$	150	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 Emitter Breakdown Voltage	$V_{CBO}$	$I_C=100\mu A$	50			V
Collector to Base Breakdown Voltage	$V_{CEO}$	$I_C=500\mu A$	20			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=100\mu A$	25			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=50V$ $I_E=0$			0.1	$\mu A$
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB}=25V$ $I_C=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=2.0V$ $I_C=4.0mA$	200		1200	
Base-Emitter Voltage	$V_{BE}$	$V_{CE}=2.0V$ $I_C=4.0mA$		0.61		V
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=30mA$ $I_B=3.0mA$		0.042	0.3	V
Transition Frequency	$f_T$	$V_{CE}=6.0V$ $I_C=4.0mA$		30		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V$ $I_E=0$ $f=1.0MHz$		4.8	7	pF
Turu-On Time	$T_{on}$			160		nS
Storage Time	$T_{stg}$			500		
Fall Time	$t_f$			130		

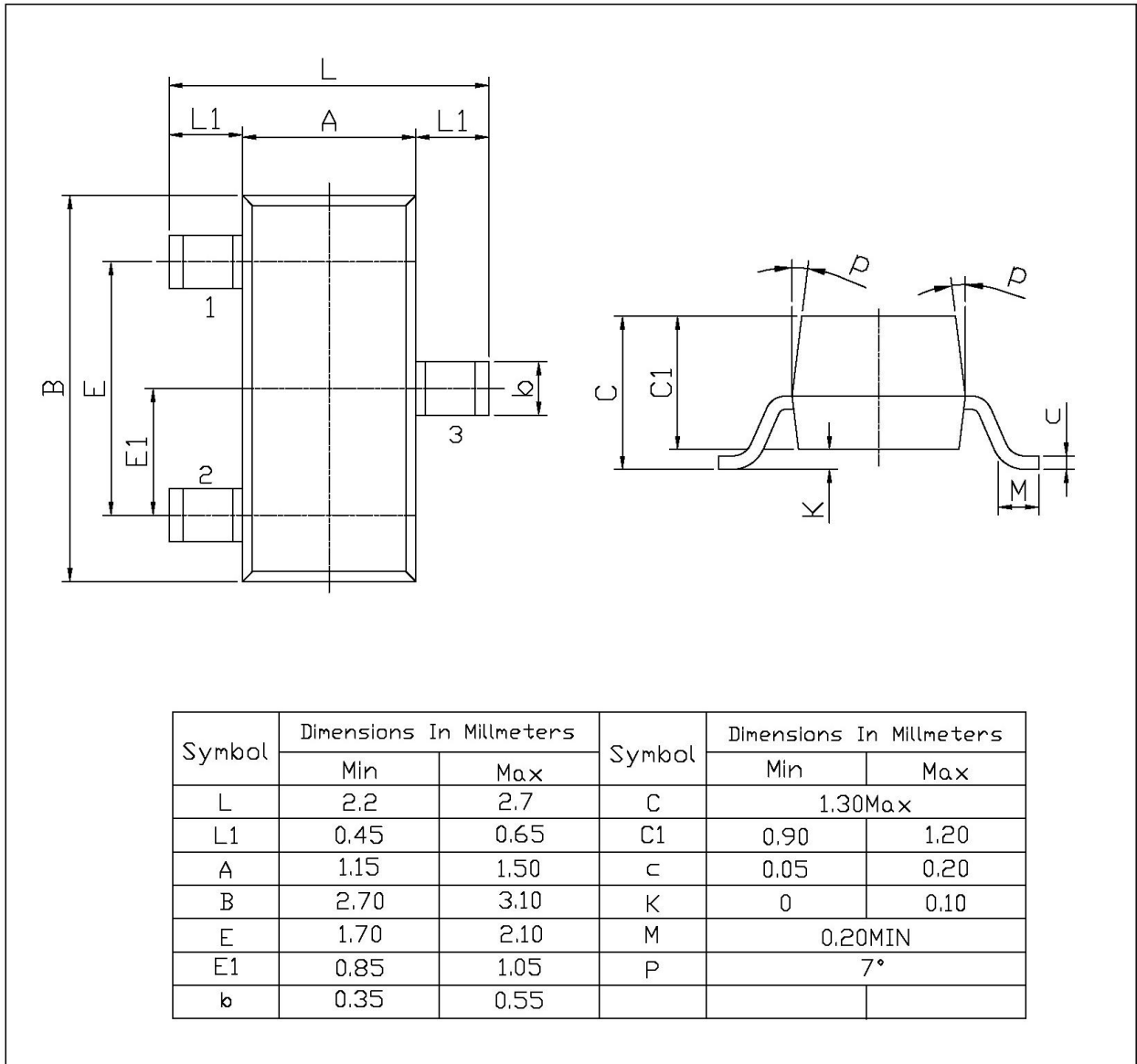
电参数曲线图 / Electrical Characteristic Curve



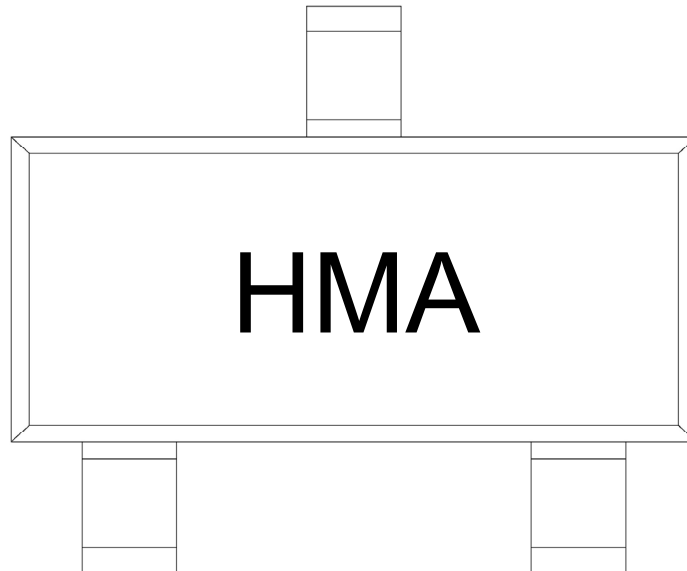
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

- H： 为公司代码
- M： 为型号代码
- A： 为  $h_{FE}$  档次代码

Note:

- H： Company Code
- M： Product Type
- A：  $h_{FE}$  Classifications Symbol

**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 25~150°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:25~150°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" x8	180×120×180	390×385×205

**使用说明 / Notices**