

### 描述 / Descriptions

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

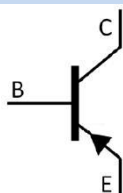
### 特征 / Features

h<sub>FE</sub> 高、特性好。  
High h<sub>FE</sub> and excellent h<sub>FE</sub> linearity.

### 用途 / Applications

用于音频功率放大推动级。  
Driver stage of AF power amplifier.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN1 : Base      PIN 2 : Emitter      PIN 3 : Collector

### 放大及印章代码 / h<sub>FE</sub> Classifications & Marking

h <sub>FE</sub> Classifications Symbol	R	Q	P	K
h <sub>FE</sub> Range	90~180	135~270	200~400	300~600
Marking	HDRR	HDRQ	HDRP	HDRK

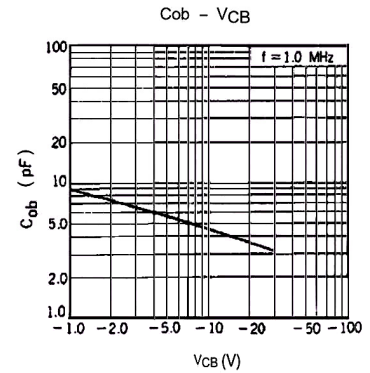
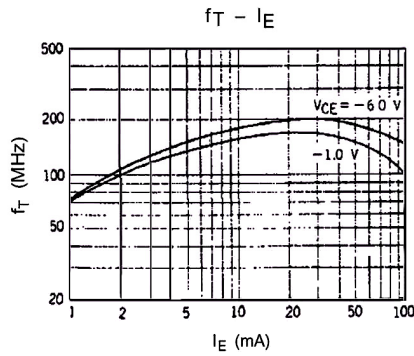
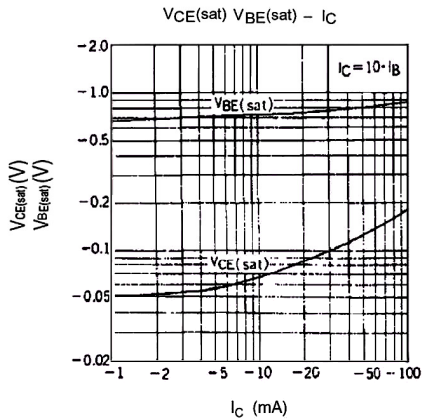
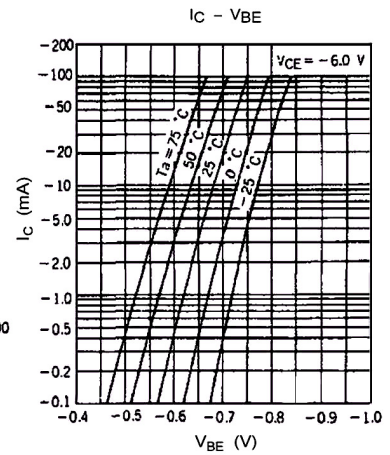
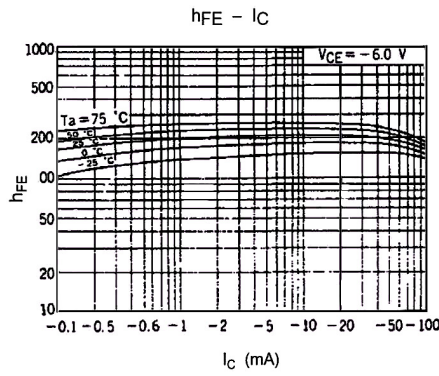
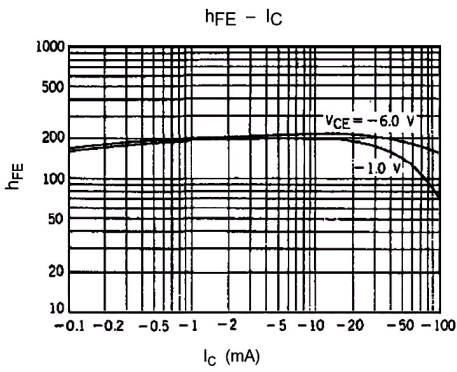
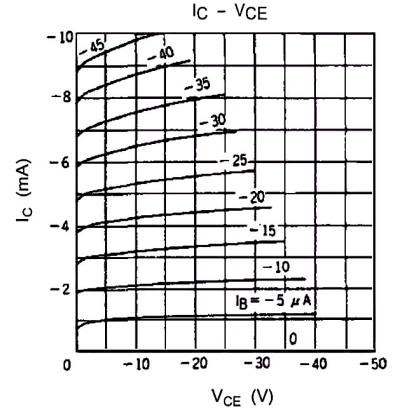
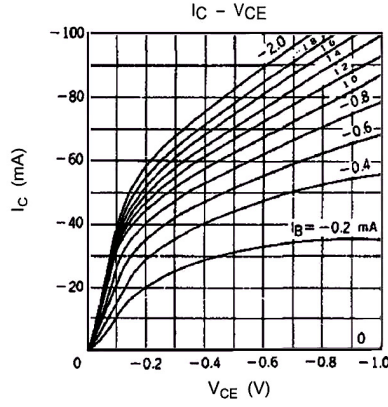
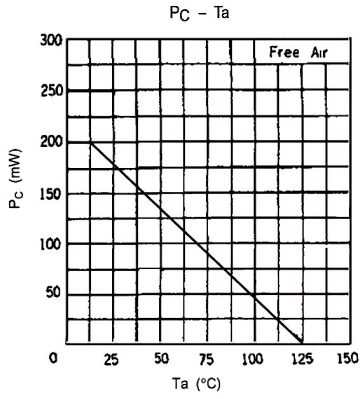
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	-60	V
Collector to Emitter Voltage	$V_{CEO}$	-50	V
Emitter to Base Voltage	$V_{EBO}$	-5.0	V
Collector Current	$I_C$	-150	mA
Collector Base	$I_B$	-20	mA
Collector Power Dissipation	$P_C$	200	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 Cut-Off Current	$I_{CBO}$	$V_{CB}=-60V$ $I_E=0$			-0.1	μA
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=-5.0V$ $I_C=0$			-0.1	μA
DC Current Gain	$h_{FE}$	$V_{CE}=-6.0V$ $I_C=-1.0mA$	90		600	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-100mA$ $I_B=-10mA$		-0.18	-0.3	V
Collector to Base Voltage	$V_{BE}$	$V_{CE}=-6.0V$ $I_C=-1.0mA$	-0.55	-0.62	-0.65	V
Transition Frequency	$f_T$	$V_{CE}=-6.0V$ $I_C=-10mA$	100	180		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=-10V$ $f=1.0MHz$		4.5	6.0	pF
Noise Figure	NF	$V_{CE}=-6.0V$ $I_C=-0.3mA$ $f=100Hz$ $R_g=10k\Omega$		6.0	20	dB

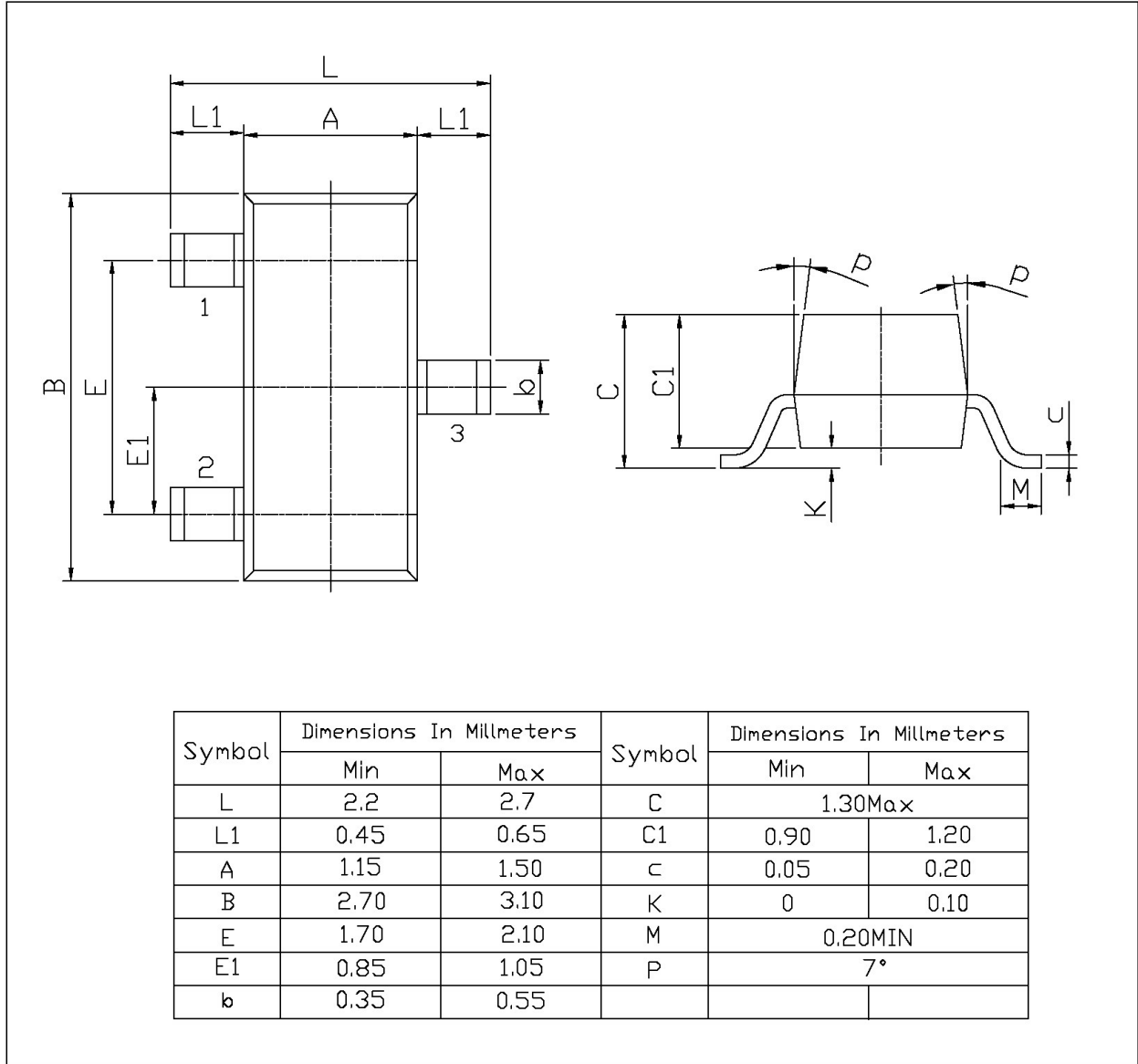
电参数曲线图 / Electrical Characteristic Curve



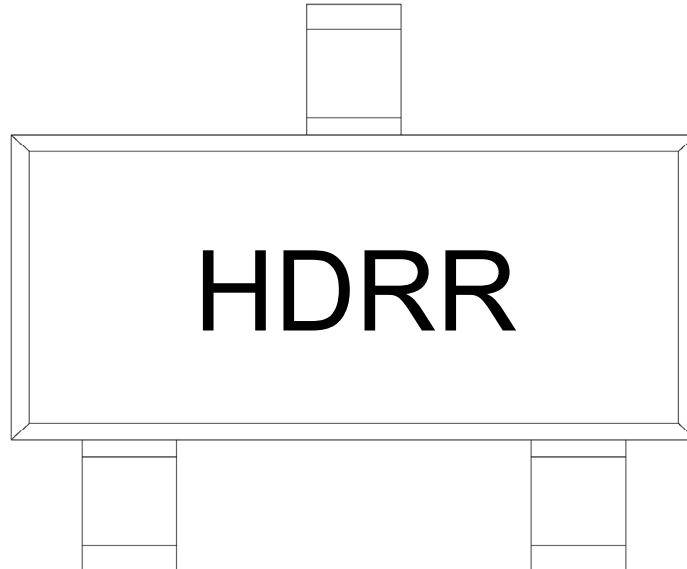
外形尺寸图 / Package Dimensions

SOT-23

单位: mm



印章说明 / Marking Instructions



说明：

H： 为公司代码

DR： 为型号代码

R： 为  $h_{FE}$  档次代码

Note:

H: Company Code.

DR: Product Type Code

R:  $h_{FE}$  Classifications Symbol 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 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**