

### 描述 / Descriptions

SOT-89 塑封封装 NPN 半导体三极管。Silicon NPN transistor in a SOT-89 Plastic Package.

### 特征 / Features

饱和压降低,典型的电流增益特性,可与 2SB1424 互补。无卤产品。

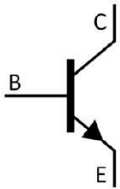
Low  $V_{CE(sat)}$ , excellent current gain characteristic, Complementary to 2SB1424. HF Product.

### 用途 / Applications

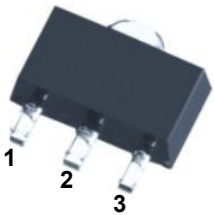
用于一般放大。

General purpose amplifier.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN 1 : Base      PIN 2 : Collector      PIN 3 : Emitter

### 印章代码 / Marking

$h_{FE}$ Classifications Symbol	Q	R	S	E
$h_{FE}$ Range	120~270	180~390	270~560	390~820
Marking	HC FQ*	HC FR*	HC FS*	HC FE*

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

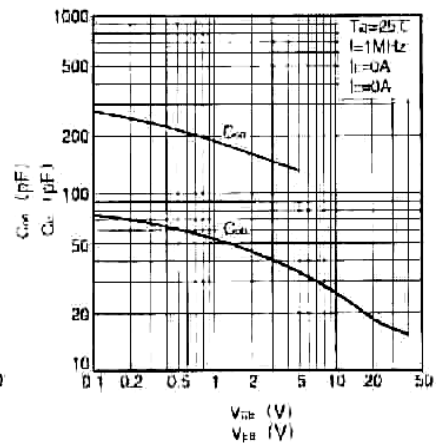
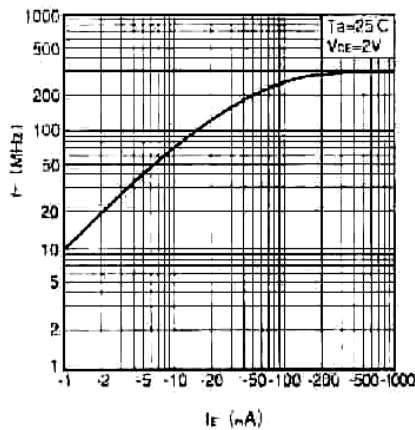
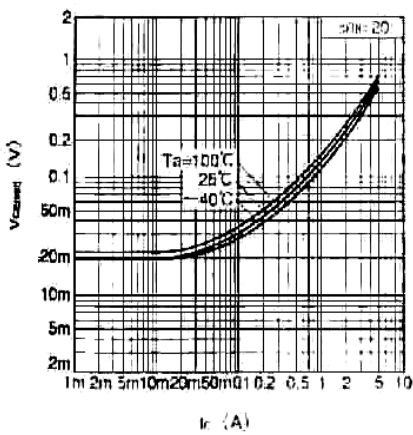
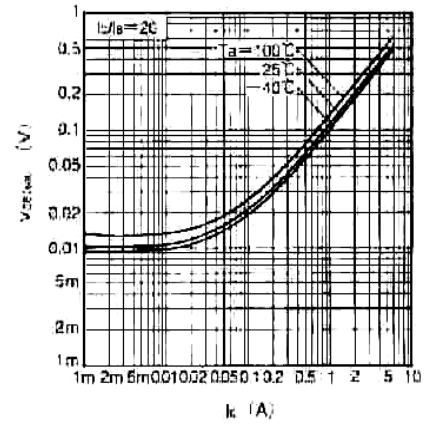
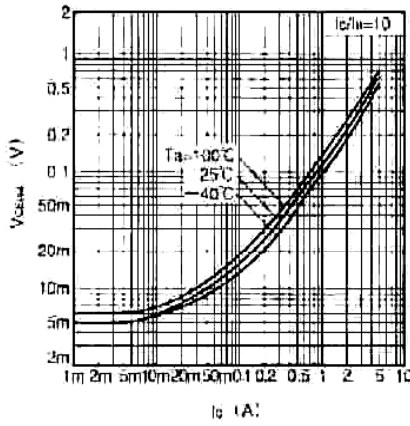
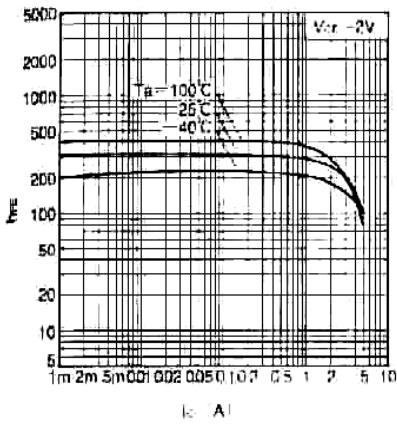
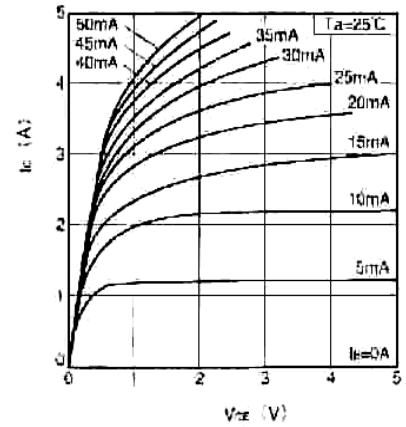
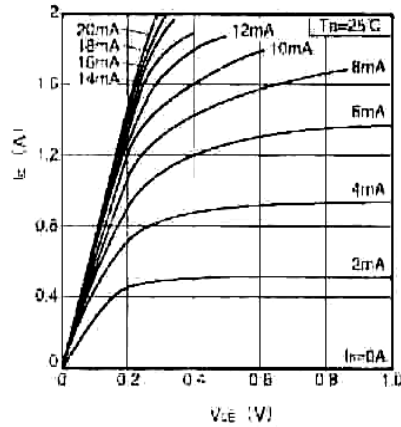
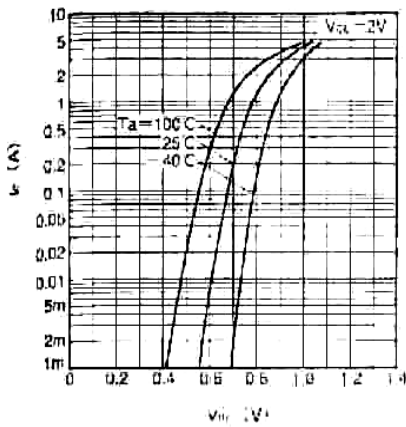
参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	$V_{CBO}$	40	V
Collector to Emitter Voltage	$V_{CEO}$	20	V
Emitter to Base Voltage	$V_{EBO}$	6.0	V
Collector Current-Continuous	$I_{C(DC)}$	3.0	A
Collector Base-Continuous(Pulse)*	$I_{C(Pulse)^*}$	5.0	A
Collector Power Dissipation	$P_C$	500	mW
Junction Temperature	$T_j$	150	°C
Storage Temperature Range	$T_{stg}$	-55~150	°C

\*:Single pulse  $P_w=10ms$

**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	$V_{CBO}$	$I_C=50\mu A$	40			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=1.0mA$	20			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=50\mu A$	6.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=30V$			0.1	$\mu A$
Emitter Base Cut-Off Current	$I_{EBO}$	$V_{EB}=5.0V$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=2.0V$ $I_C=100mA$	180		560	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2.0A$ $I_B=100mA$		0.2	0.5	V
Transition Frequency	$f_T$	$V_{CE}=2.0V$ $f=100MHz$ $I_C=0.5A$		290		MHz
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V$ $f=1.0MHz$ $I_E=0$		25		pF

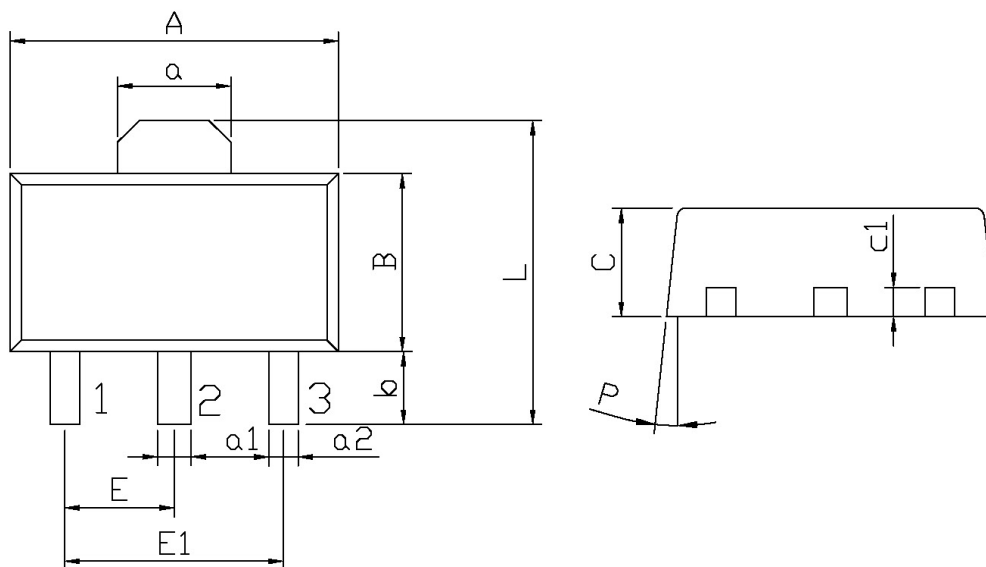
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

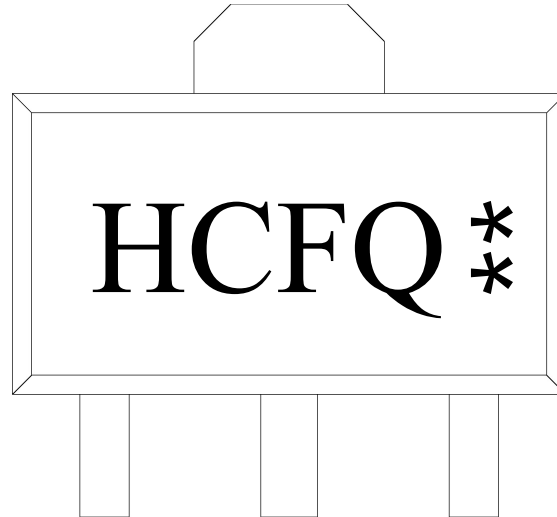
SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			

印章说明 / Marking Instructions



说明：

H： 为公司代码

CF： 为型号代码

Q： 为  $h_{FE}$  档次代码

\*\*： 为生产批号代码，随生产批号变化。

Note:

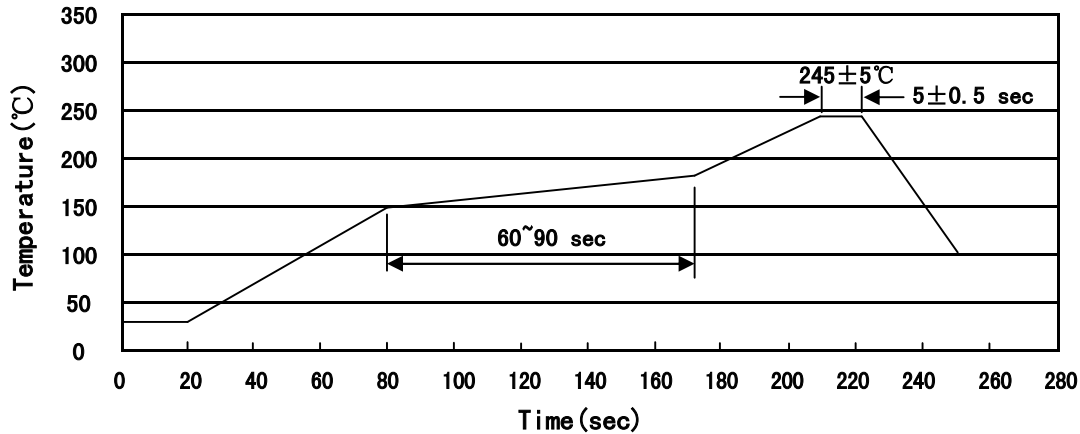
H: Company Code.

CF: Product Type.

Q :  $h_{FE}$  Classifications Symbol

\*\* : Lot No. Code, code change with Lot No.

**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-89	1,000	7	7,000	6	42000	7" ×12	180×120×180	390×385×205

**使用说明 / Notices**