

### 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

低噪声,高增益,小封装功耗大。

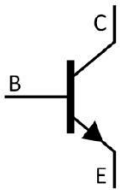
Low noise and high gain, large  $P_C$  in small package.

### 用途 / Applications

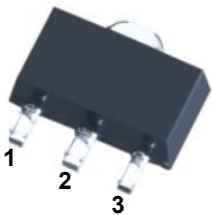
用于甚高频、超高频和有线电视频段的低噪声放大。

low noise amplifier at VHF, UHF and CATV band applications.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN1 : Base      PIN 2 : Collector      PIN 3 : Emitter

### 印章代码 / Marking

$h_{FE}$ Classifications Symbol	H	F	E	G
$h_{FE}$ Range	50~100	80~160	125~250	200~300
Marking	HRH * *	HRF * *	HRE * *	HRG * *

**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>CBO</sub>	20	V
Collector to Emitter Voltage	V <sub>CEO</sub>	12	V
Emitter to Base Voltage	V <sub>EBO</sub>	3.0	V
Collector Current - Continuous	I <sub>C</sub>	100	mA
Collector Power Dissipation	P <sub>C</sub>	350	mW
Collector Power Dissipation	*P <sub>C</sub>	1.2	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55~150	°C

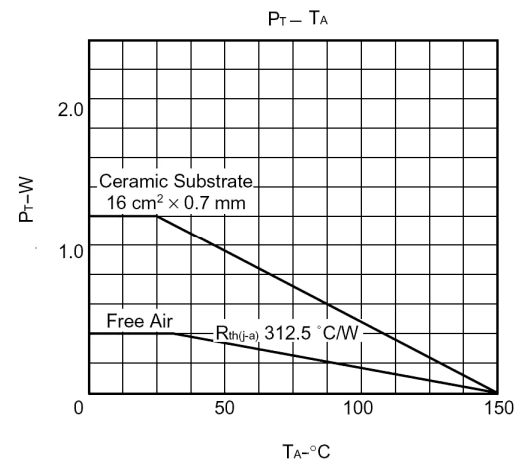
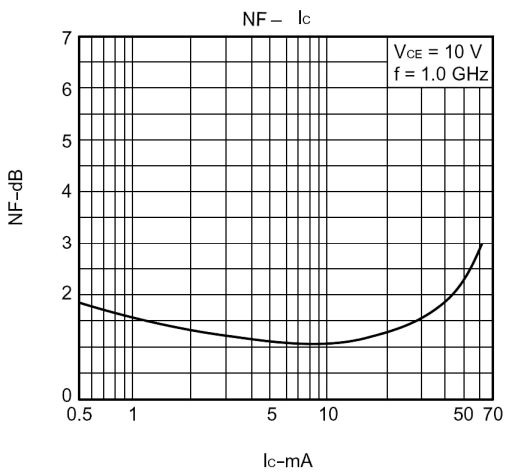
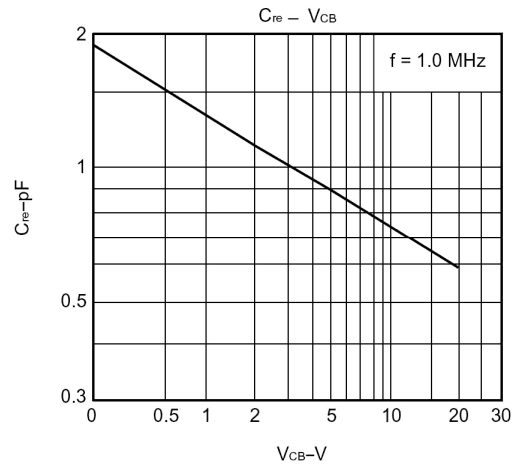
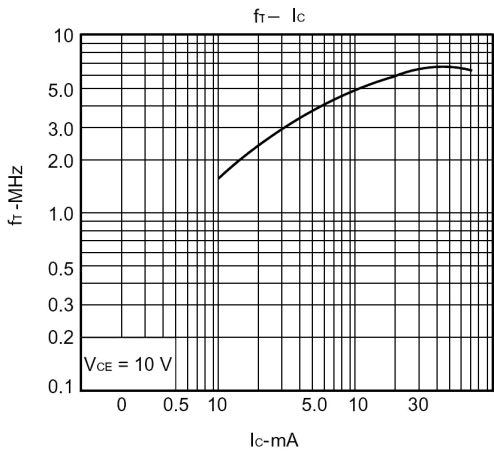
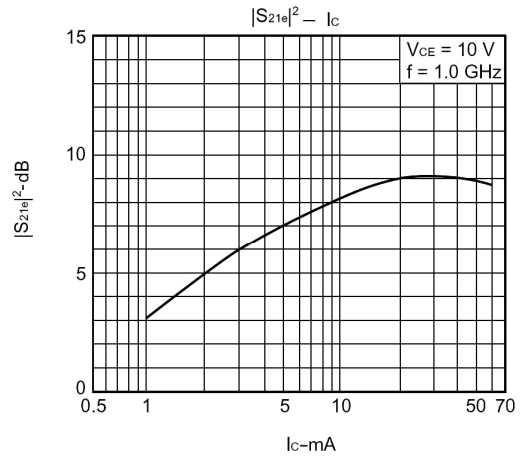
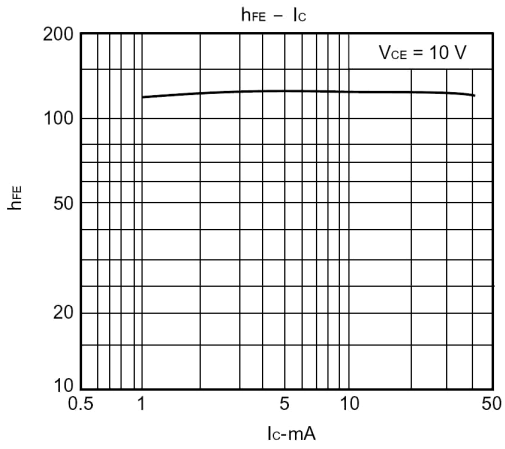
\*:mounted on 16cm<sup>2</sup>×7mm ceramic substrate.

\*:置于 16cm<sup>2</sup>×7mm 的陶瓷板上。

**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> =10V I <sub>E</sub> =0			1.0	μA
Emitter Base Cut-Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =1.0V I <sub>C</sub> =0			1.0	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =10V I <sub>C</sub> =20mA	50	120	300	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =10V I <sub>C</sub> =20mA		6.5		GHz
Feed-Back Capacitance	C <sub>re</sub>	V <sub>CB</sub> =10V f=1.0MHz I <sub>E</sub> =0		0.65	1.0	pF
Noise Figure	NF <sub>(1)</sub>	V <sub>CE</sub> =10V f=1.0GHz I <sub>C</sub> =7.0mA		1.1		dB
	NF <sub>(2)</sub>	V <sub>CE</sub> =10V f=1.0GHz I <sub>C</sub> =40mA		1.8	3.0	dB

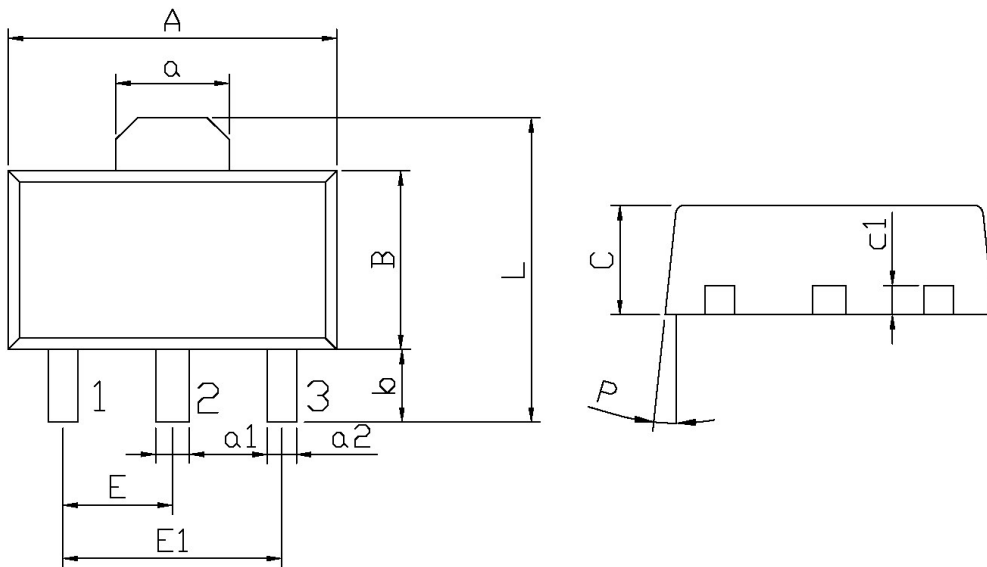
**电参数曲线图 / Electrical Characteristic Curve**



外形尺寸图 / Package Dimensions

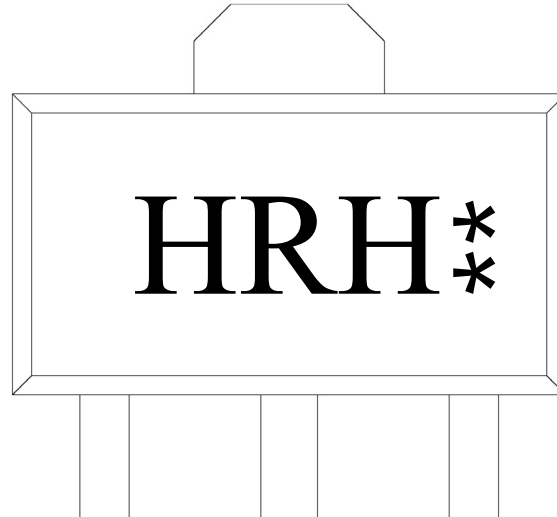
SOT-89

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

R： 为型号代码

H： 为档次代码

\*\*： 为生产批号代码，随生产批号变化。

Note:

H: Company Code.

R: Product Type.

H:  $h_{FE}$  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 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-89	1,000	7	7,000	8	56,000	7" x12	180×120×180	385×257×392

**使用说明 / Notices**