

描述 / Descriptions

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

特征 / Features

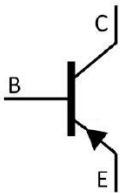
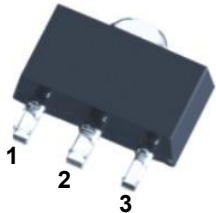
高 h_{FE} , 低 $V_{CE(sat)}$ 。

High DC Current Gain, Low Collector to Emitter Saturation Voltage.

用途 / Applications

用于普通放大及开关。

General purpose amplifier and switching.

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} Range	100~300
Marking	H2A *

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}	-40	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current - Continuous	I_C	-200	mA
Collector Power Dissipation	P_C	450	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

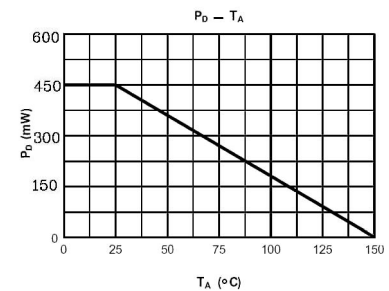
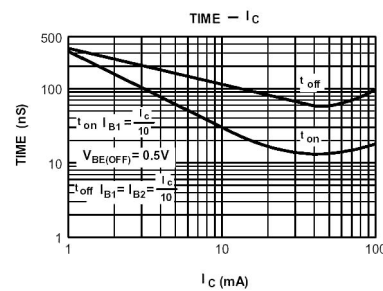
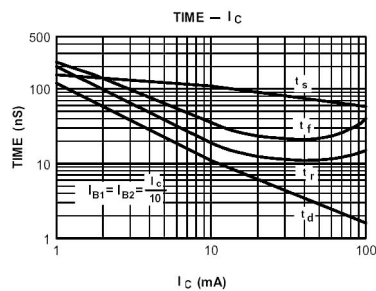
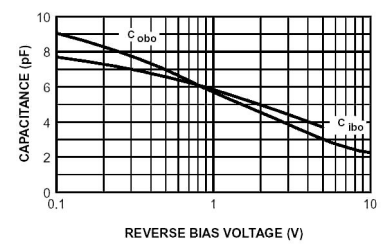
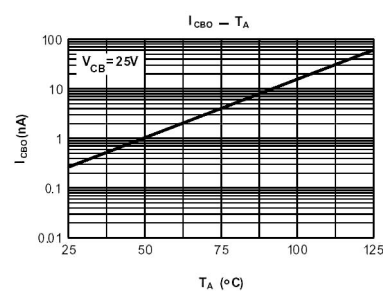
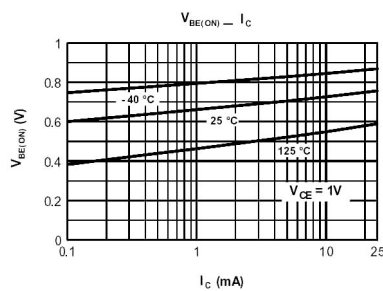
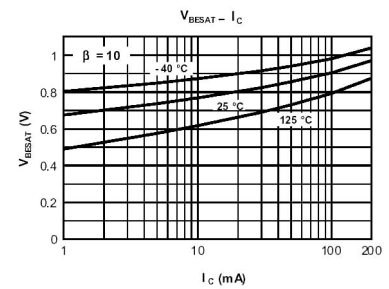
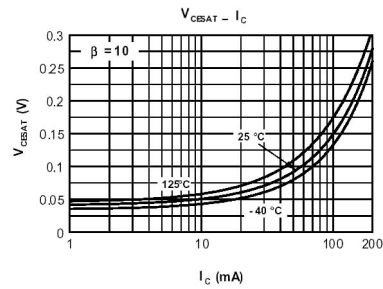
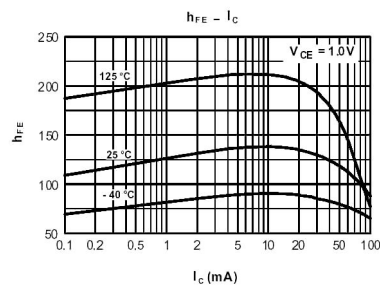
电性能参数 / Electrical Characteristics(Ta=25°C)

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 Base Breakdown Voltage	V_{CBO}	$I_C = -10mA$ $I_E = 0$	-40			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C = -1.0mA$ $I_B = 0$	-40			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E = -10\mu A$ $I_C = 0$	-5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -30V$ $I_E = 0$			-0.05	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB} = -3.0V$ $I_C = 0$			-0.05	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -1.0V$ $I_C = -10mA$	100		300	
	$h_{FE(2)}$	$V_{CE} = -1.0V$ $I_C = -100mA$	30			
	$h_{FE(3)}$	$V_{CE} = -1.0V$ $I_C = -50mA$	60			
	$h_{FE(4)}$	$V_{CE} = -1.0V$ $I_C = -1.0mA$	80			
	$h_{FE(5)}$	$V_{CE} = -1.0V$ $I_C = -0.1mA$	60			
Collector to Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C = -10mA$ $I_B = -1.0mA$			-0.25	V
	$V_{CE(sat)(2)}$	$I_C = -50mA$ $I_B = -5.0mA$			-0.4	V
Emitter to Base Saturation Voltage	$V_{BE(sat)(1)}$	$I_C = -10mA$ $I_B = -1.0mA$	-0.65		-0.85	V
	$V_{BE(sat)(2)}$	$I_C = -50mA$ $I_B = -5.0mA$			-0.95	V

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
Transition Frequency	f_T	$I_C = -10\text{mA}$ $V_{CE} = -20\text{V}$ $f = 100\text{MHz}$	250			MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -5.0\text{V}$ $f = 1.0\text{MHz}$			4.5	pF
Storage Time	t_{stg}	$V_{CC} = -3.0\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -I_{B2} = -1.0\text{mA}$			225	ns
Fall Time	t_f	$V_{CC} = -3.0\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -I_{B2} = -1.0\text{mA}$			75	ns
Delay Time	t_d	$V_{CC} = -3.0\text{V}$ $V_{BE} = -0.5\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -1.0\text{mA}$			35	ns
Rise Time	t_r	$V_{CC} = -3.0\text{V}$ $V_{BE} = -0.5\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -1.0\text{mA}$			35	ns
Input Capacitance	C_{ib}	$V_{EB} = -0.5\text{V}$ $f = 1.0\text{MHz}$			10	pF

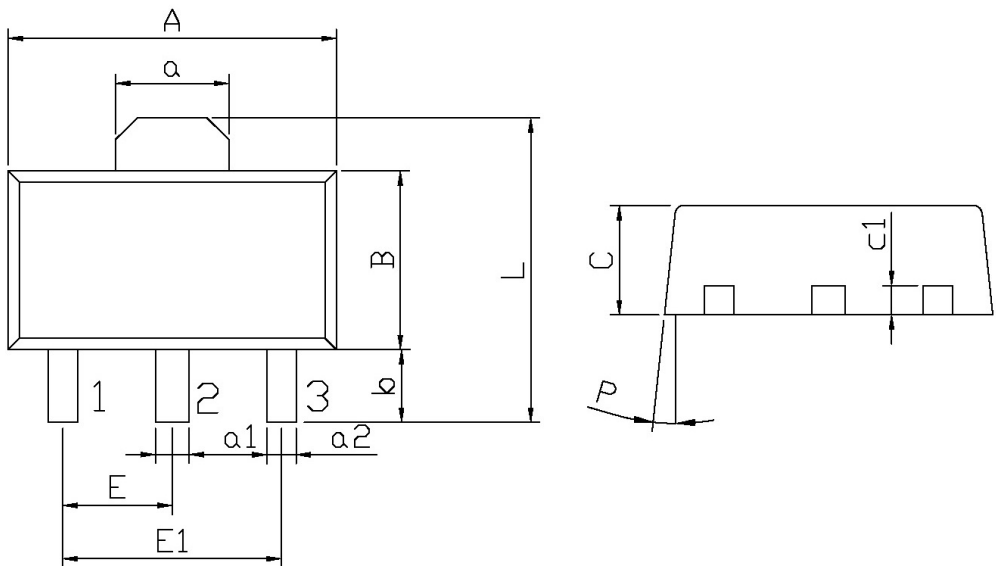
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

SOT-89

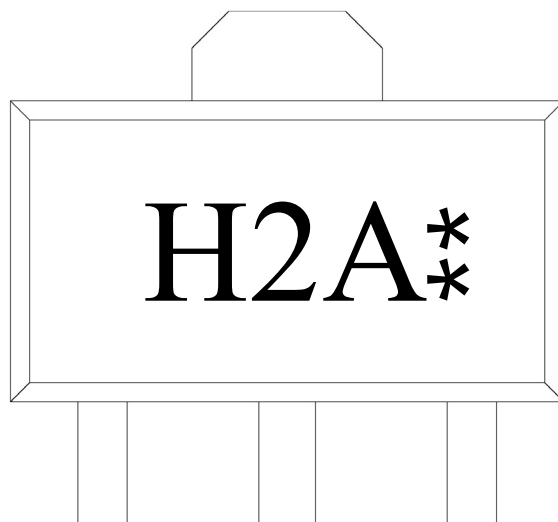
单位: mm



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

2A： 为型号代码

**： 为生产批号代码，随生产批号变化。

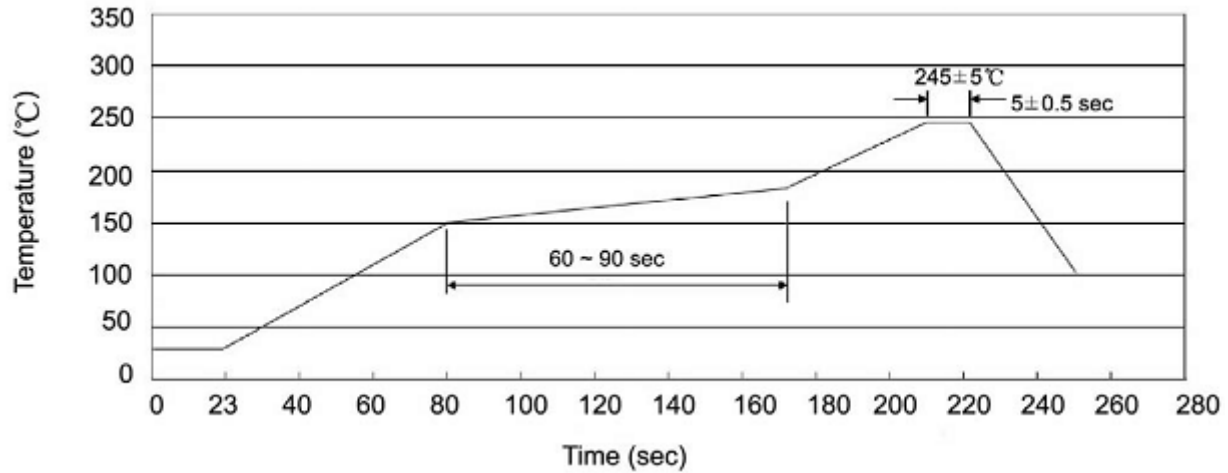
Note:

H: Company Code.

2A: Product Type.

**: 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 ³)		
	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" ×12	180×120×180	385×257×392

使用说明 / Notices