

/ Descriptions

SOT-89 PNP Silicon PNP transistor in a SOT-89 Plastic Package.

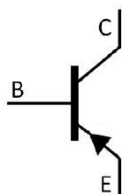
/ Features

Low $V_{CE(sat)}$, excellent DC current gain characteristics.

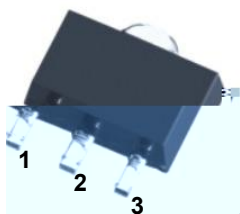
/ Applications

General purpose amplifier.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ Marking

h_{FE} Classifications Symbol	Q	R
h_{FE} Range	120 270	180 390
Marking	HAEQ	HAER

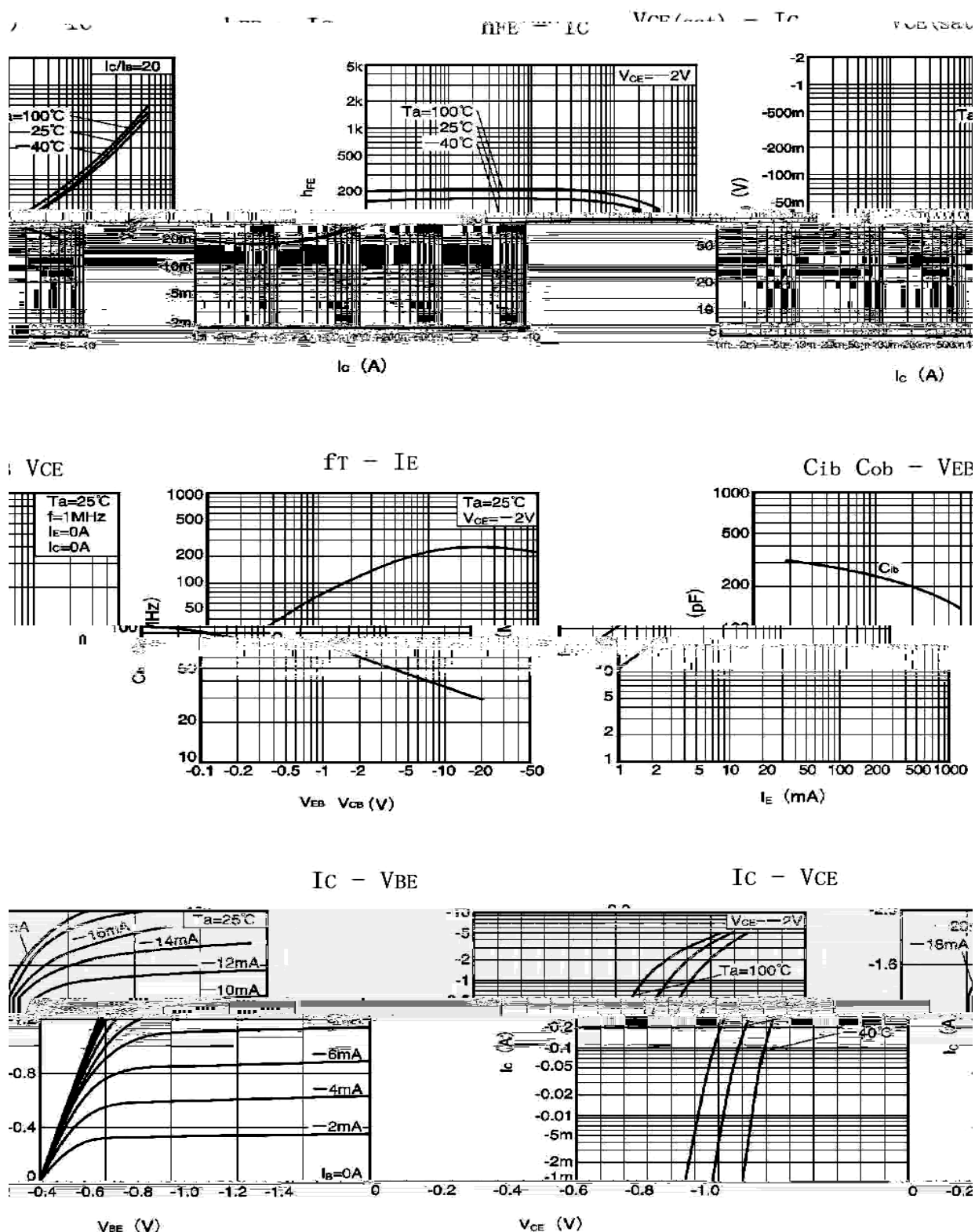
/ Absolute Maximum Ratings(Ta=25 –)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-20	V
Collector to Emitter Voltage	V_{CEO}	-20	V
Emitter to Base Voltage	V_{EBO}	-6.0	V
Collector Current-Continuous	I_C	-3.0	A
Collector Current -Continuous(Pulse)	I_{CP}	-5.0	A
Collector Power Dissipation	P_C	0.6	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 150	°C

/ Electrical Characteristics(Ta=25 –)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=-50\text{ A}$ $I_E=0$	-20			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=-1.0\text{mA}$ $I_B=0$	-20			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=-50\text{ A}$ $I_C=0$	-6.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=-20\text{V}$ $I_E=0$			-0.1	A
Emitter Base Cut-Off Current	I_{EBO}	$V_{EB}=-5.0\text{V}$ $I_C=0$			-0.1	A
DC Current Gain	h_{FE}	$V_{CE}=-2.0\text{V}$ $I_C=-0.1\text{A}$	120		390	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-2.0\text{A}$ $I_B=-0.1\text{A}$			-0.5	V
Transition Frequency	f_T	$V_{CE}=-2.0\text{V}$ $I_C=-0.5\text{A}$ $f=100\text{MHz}$		240		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}$ $I_E=0$ $f=1.0\text{MHz}$		35		pF

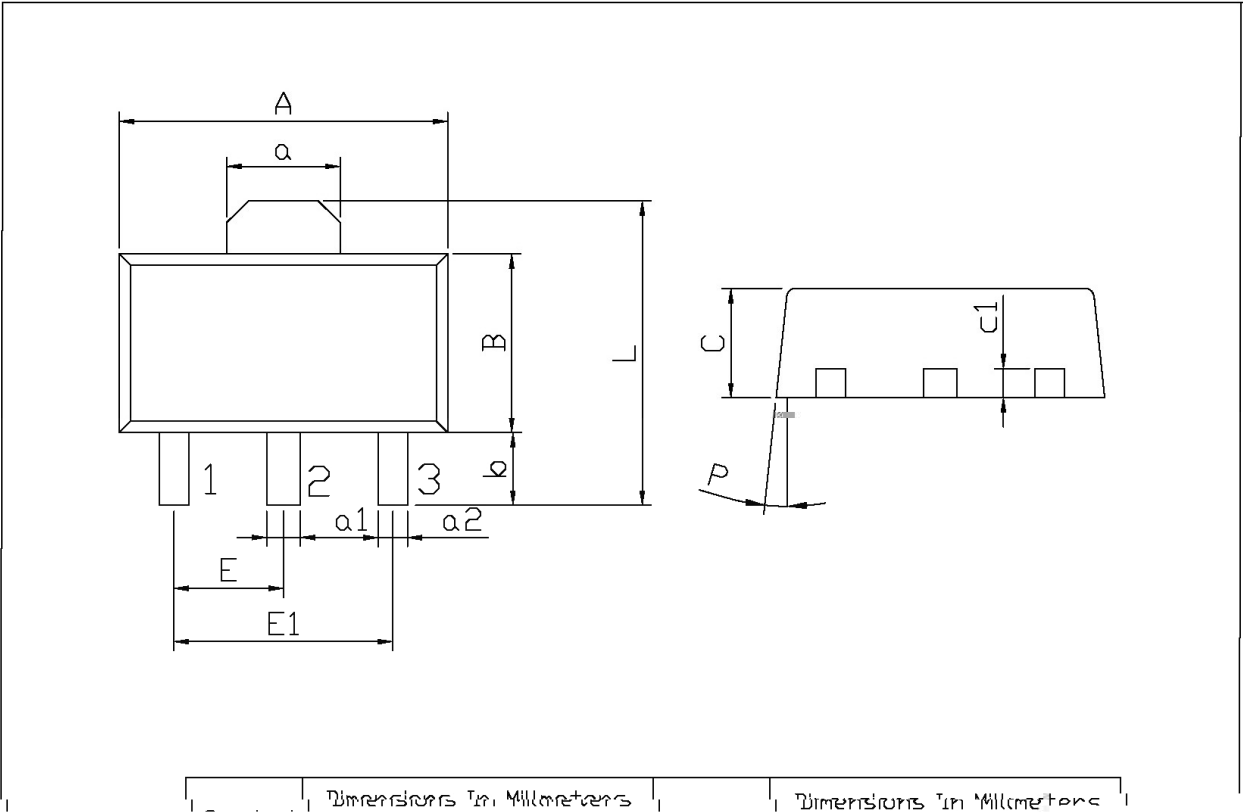
/ Electrical Characteristic Curve



/ Package Dimensions

SOT-89

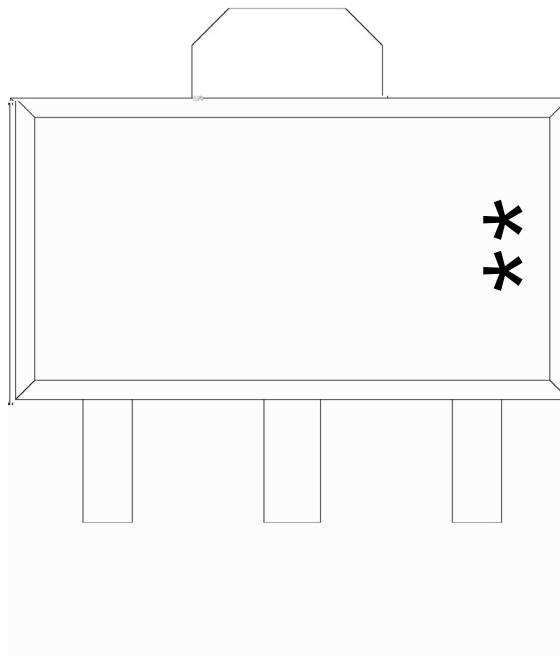
单位: mm



Dimensions in Millimeters

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			

/ **Marking Instructions**



H

AE

Q: h_{FE}

**

Note:

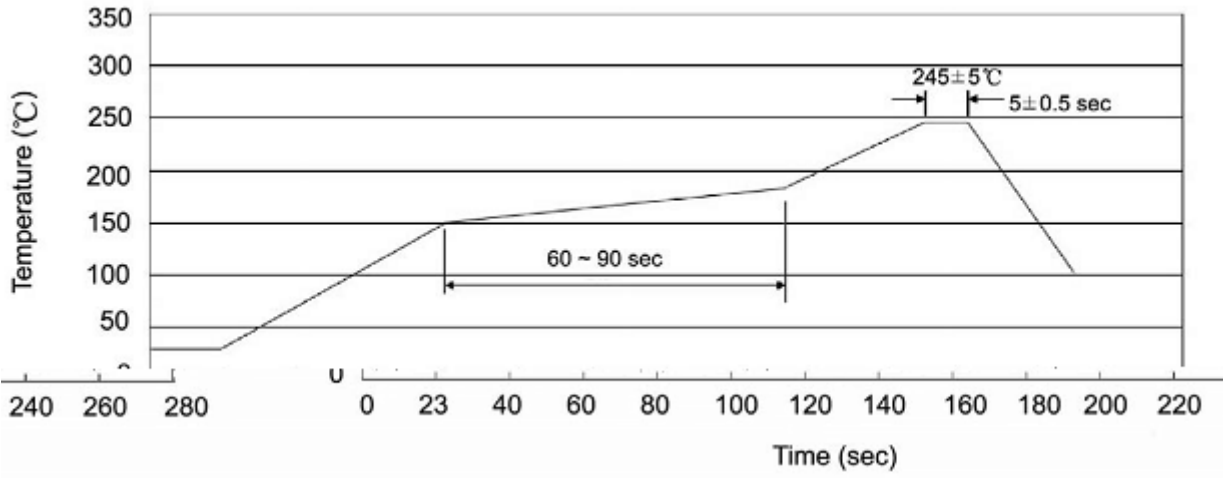
H: Company Code.

AE: Product Type.

Q: h_{FE} Classifications Symbol

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

() / Whp shudwxuh Suriloh i ru LU Uhior z Vroghulqj+Se0lueh,



Note:

- 1

25 150

60 90sec;

1.Preheating:25~150 , Time:60~90sec.
- 2

245±5

5±0.5sec;

2.Peak Temp.:245±5 , Duration:5±0.5sec.
- 3

2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5

10±1 sec.

Temp.:260±5℃

Time:10±1 sec

/ Packaging SPEC.

/ 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

/ Notices