˜Yت / Descriptions

VRW0;< ṂṂ Ŀ SQS ᴁṀ ɥ s ǁ ʖ Silicon PNP transistor in a SOT-89 Plastic Package.

◕ È / Features

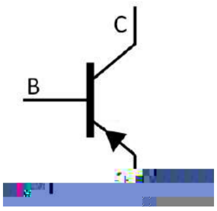
ت ⁼ ᴙ ᴗ Ḩ ɩ ǁ Ḇ ╙ ͽ ╙ ɰ ˋ ₌ ớ Ḅ

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

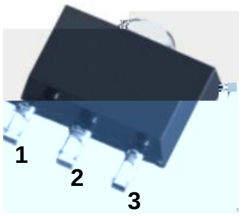
ᵿ ي / Applications

General purpose amplifier.

℩ق ῴ ₌ ع / Equivalent Circuit



ẫ ʎ ʊ̃ / Pinning



PIN1 χ Base PIN 2 χ Collector PIN 3 χ Emitter

ƚ ʜ ڐ / Marking

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

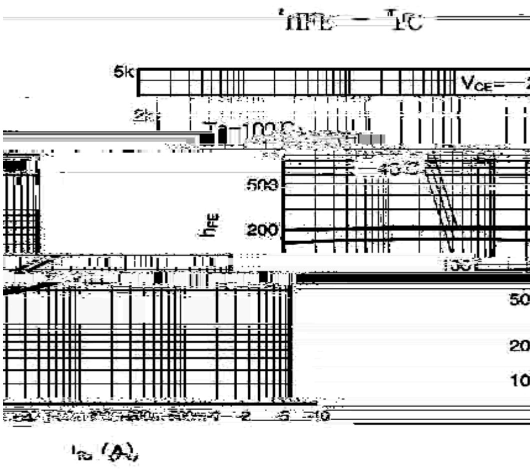
v ˝Ω Parameter	៸ ᴺ Symbol	˝Ω Ӫ Rating	ᴅ Ᵽ Unit
Collector to Base Voltage	V_{CBO}	-20	V
Collector to Emitter Voltage	V_{CEO}	-20	V
Emitter to Base Voltage	V_{EBO}	-6.0	V
Collector Current-Continuous	I_C	-3.0	A
Collector Current -Continuous(Pulse)	I_{CP}	-5.0	A
Collector Power Dissipation	P_C	0.6	W
Junction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

v ˝Ω Parameter	៸ ᴺ Symbol	╜ ؛˟ ʈ Test Conditions	ῳ ṇ Ӫ Min	Ɛ ʒ Ӫ Typ	ῳ ᶻ Ӫ Max	ᴅ Ᵽ Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=-50μA I_E=0	-20			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=-1.0mA I_B=0	-20			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=-50μA I_C=0	-6.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=-20V 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	k_{IH}	V_{CE}=-2.0V I_C=-0.1A	120		390	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=-2.0A I_B=-0.1A			-0.5	V
Transition Frequency	i_W	V_{CE}=-2.0V I_C=-0.5A f=100MHz		240		MHz

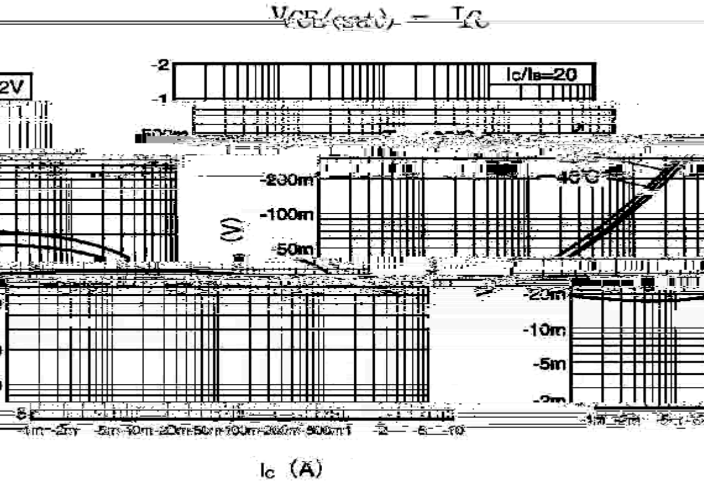
Collector

≠ Ǝ Ạ´E ꟽ ʄ / Electrical Characteristic Curve

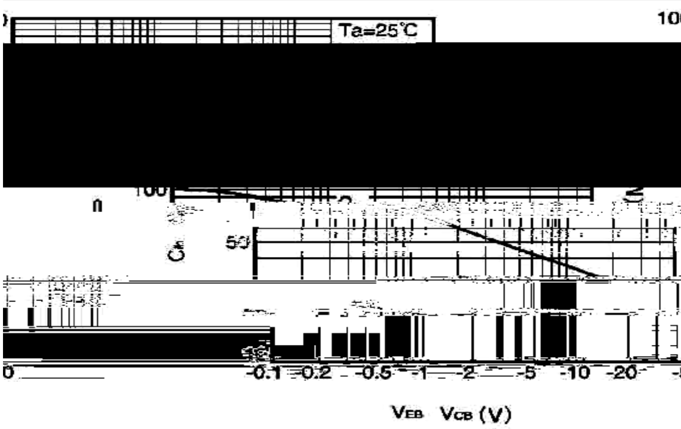
hFE — IC



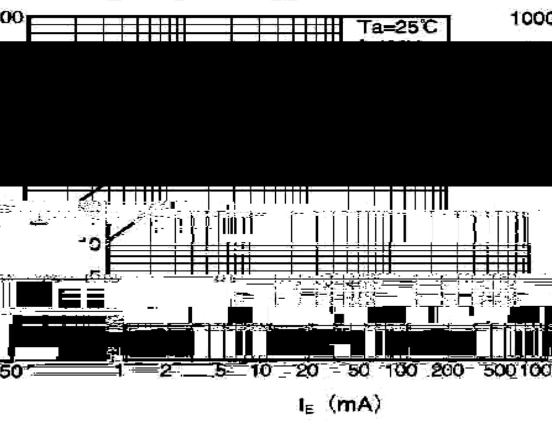
VCE(sat) — IC



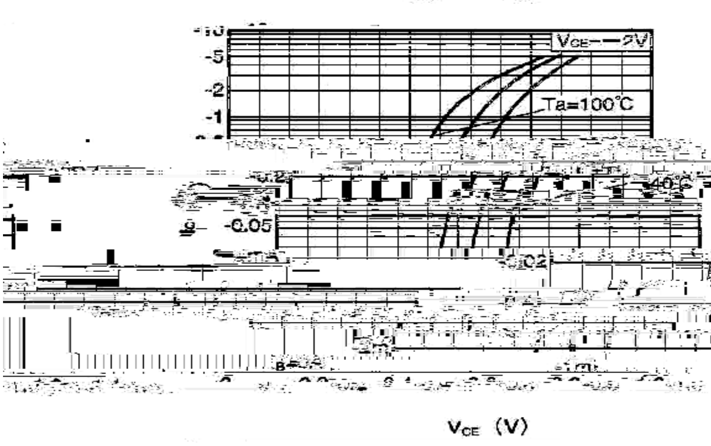
fT — IE



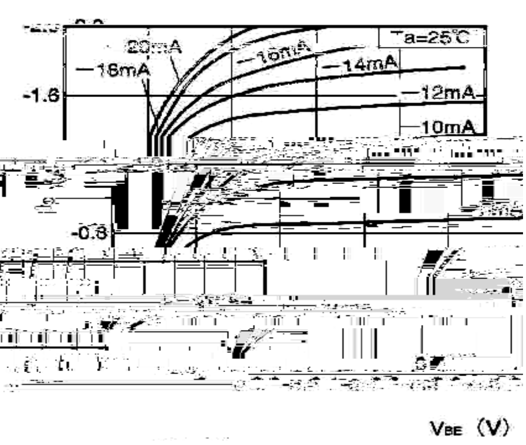
Cib, Cob — VEB, VCE



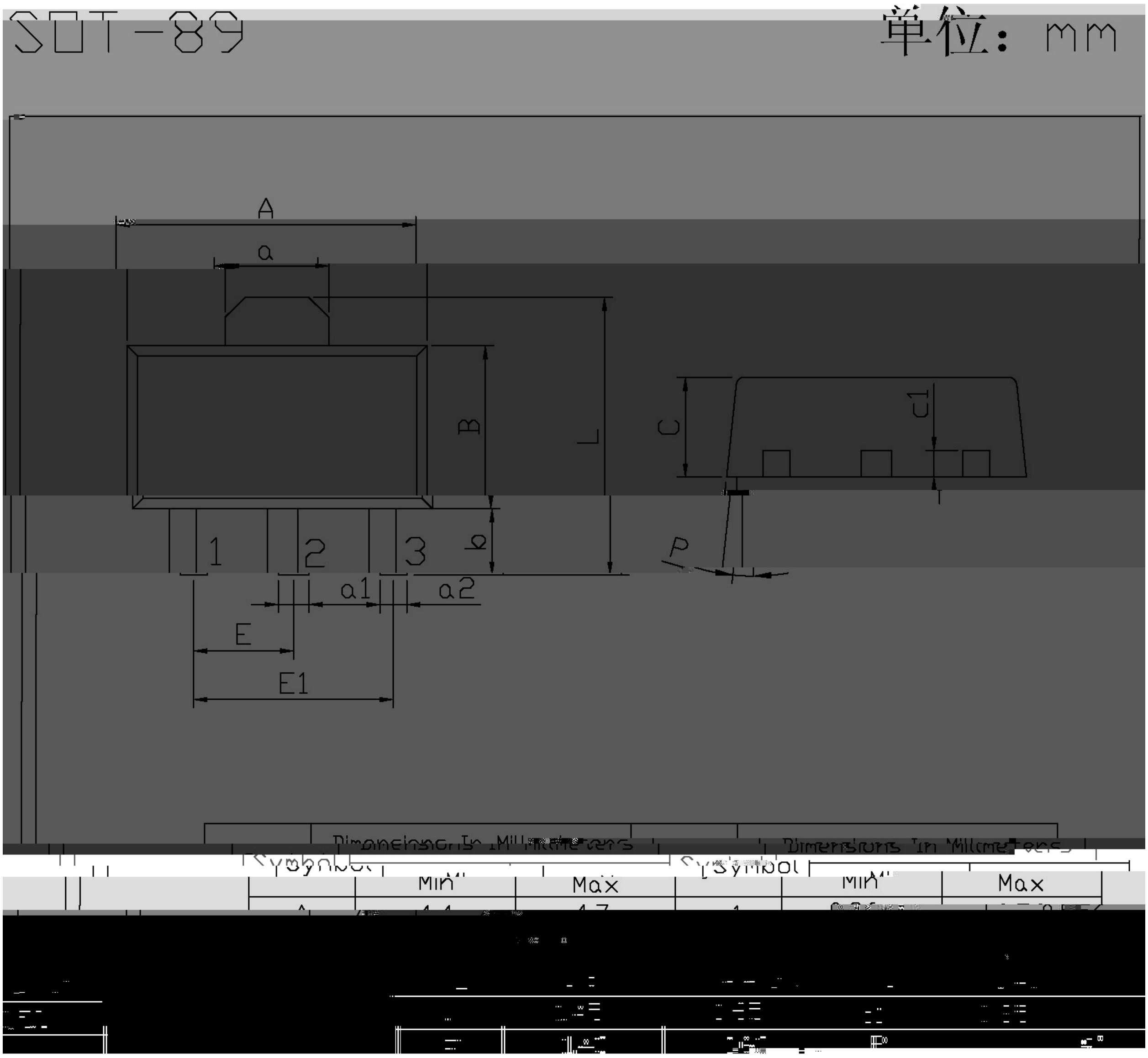
IC — VBE



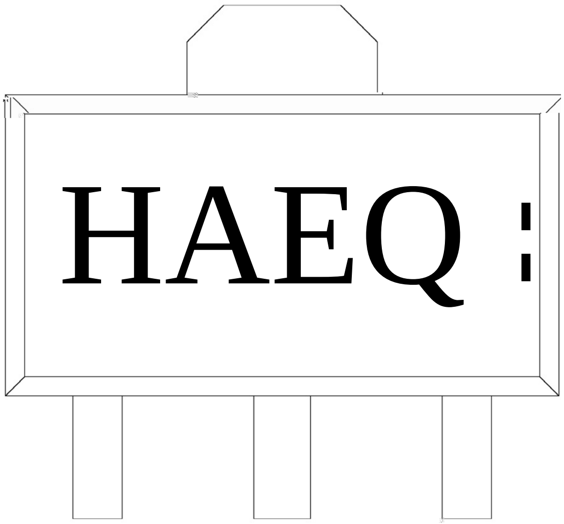
IC — VCE



ᵘ ẺÒḺ ʄ / Package Dimensions



ŧ˛ ˪ٷΏ / Marking Instructions



ب ˝ χ

H χ ӈӿ ʒ ᴎ Ⴚ

AE χ ӈӿ ʒ N Ⴚ

Q: ӈӿ h_{FE}˂ 6 Ⴚ

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Note:

H: Company Code.

AE: Product Type.

Q: h_{FE} Classifications Symbol

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

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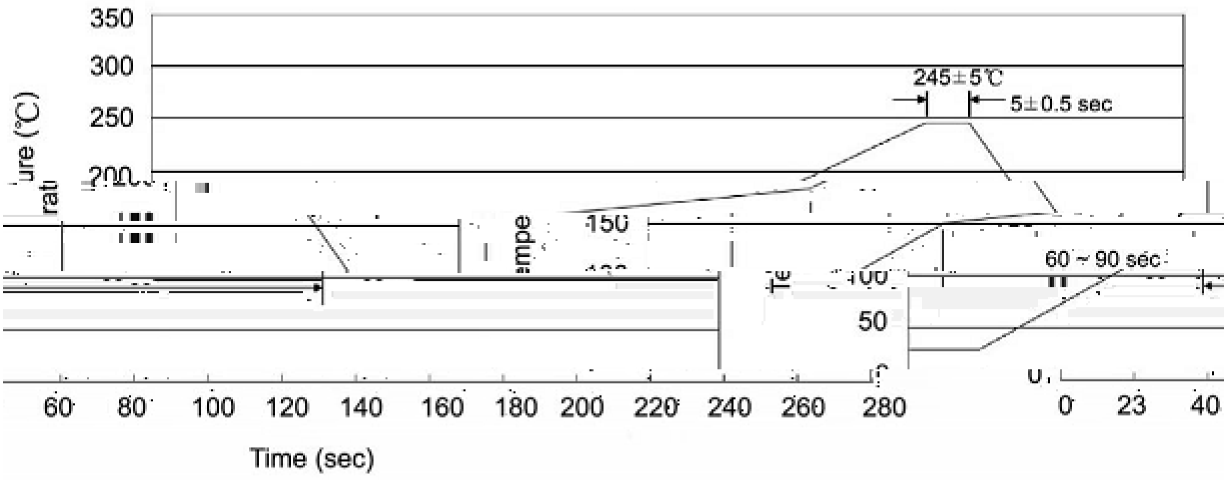

ب ˝ χ	Note:
1 ḯ ♬ □ ŷ 25 Ḱ 150 ɫ ι `H ڔ 60 Ḱ 90sec;	1.Preheating:25~150 ɫ , Time:60~90sec.
2 Š Ӫ □ ŷ 245 ° 5 ɫ ι `H ڔ `Y ᛌ ᵯ 5 ° 0.5sec;	2.Peak Temp.:245 ° 5 ɫ , Duration:5 ° 0.5sec.
3 ì ˙ Ɩ ˛ ↄ ഹ ŷ ᵯ 2 Ḱ 10 ɫ /sec.	3. Cooling Speed: 2~10 ɫ /sec.

˧ ü զ ˭ `Y Ţ / Resistance to Soldering Heat Test Conditions

□ ŷ χ 260 ° 5 ɫ `H ڔ χ 10 ° 1 sec. Temp.:260±5 Time:10±1 sec

ɒ ᄂ ᗕ— / Packaging SPEC.

ᴒ ` γ ᄂ / REEL

Package Type	Units					Dimension	(unit mm^3)	
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOT-89	1,000	7	7,000	8	56,000	7 ×12	180×120×180	385×257×392

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