

一、 描述 / Descriptions

VRW0;< 硅PNP晶体管，SOT-89塑料封装。

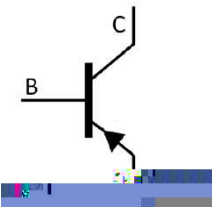
二、 特性 / Features

低 $V_{CE(sat)}$ ，优良的直流电流增益特性。

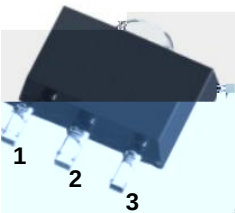
三、 应用 / Applications

通用放大器。

四、 等效电路 / Equivalent Circuit



五、 引脚 / Pinning



PIN1 基极 PIN 2 集电极 PIN 3 发射极

六、 标记 / Marking

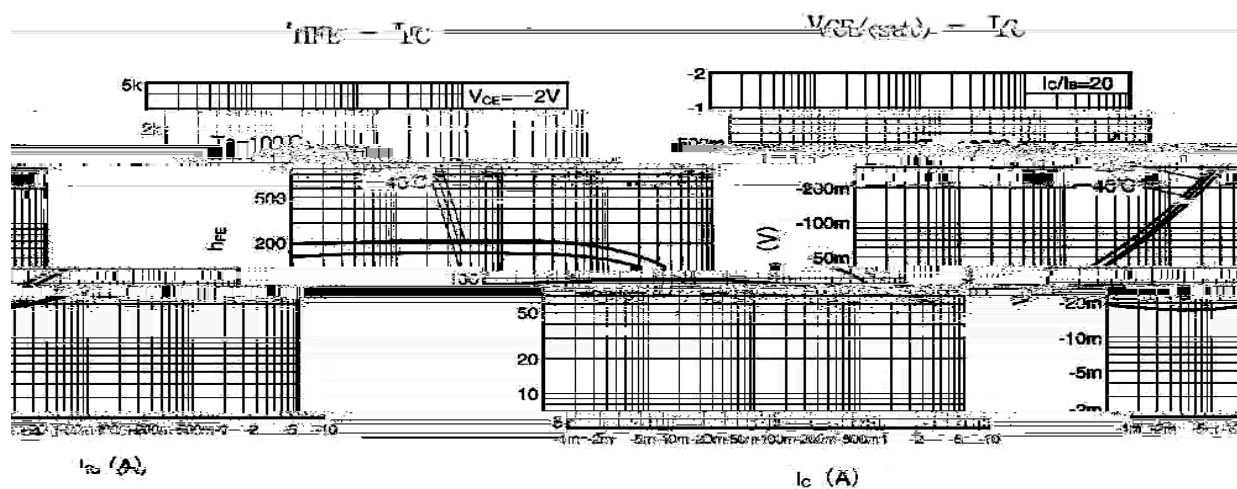
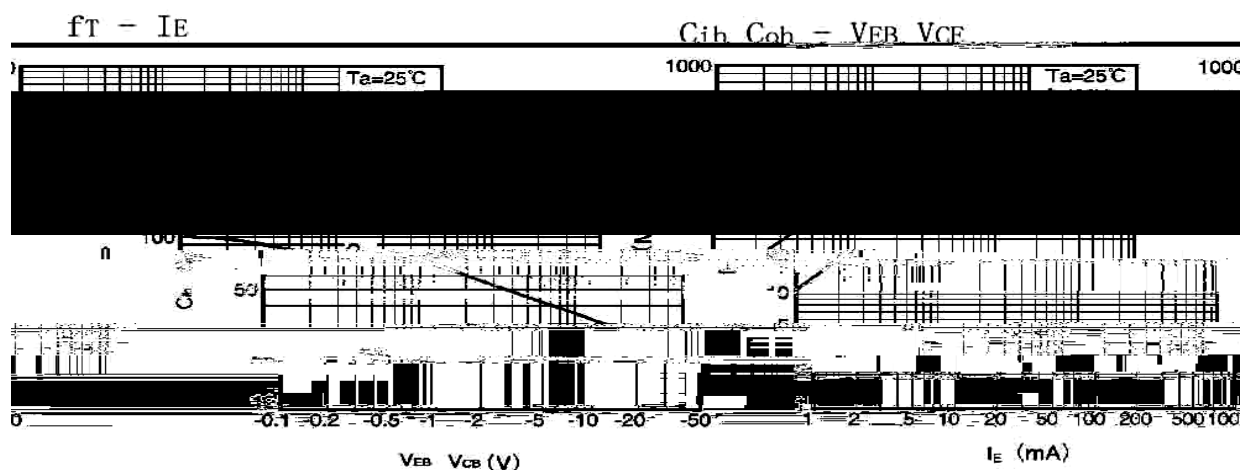
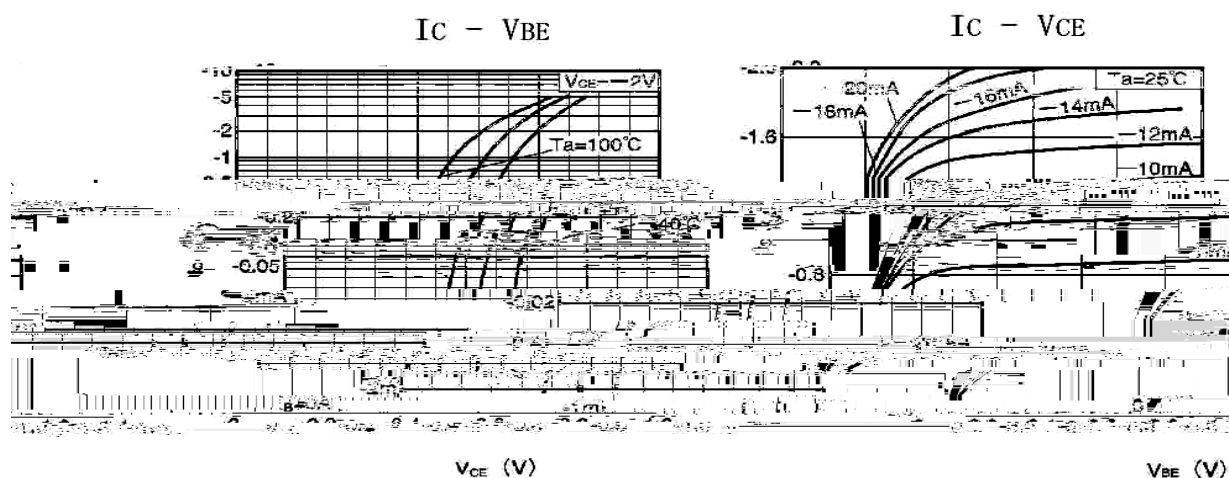
h_{FE} 分类 符号	Q	R
h_{FE} 范围	120 270	180 390
标记	HAEQ*	HAER*

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	
Storage Temperature Range	T_{stg}	-55 150	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C = -50\mu A$ $I_E = 0$	-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}	$I_E = -50\mu A$ $I_C = 0$	-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	f_w	$V_{CE} = -2.0V$ $I_C = -0.5A$ $f = 100MHz$		240		MHz

Collector

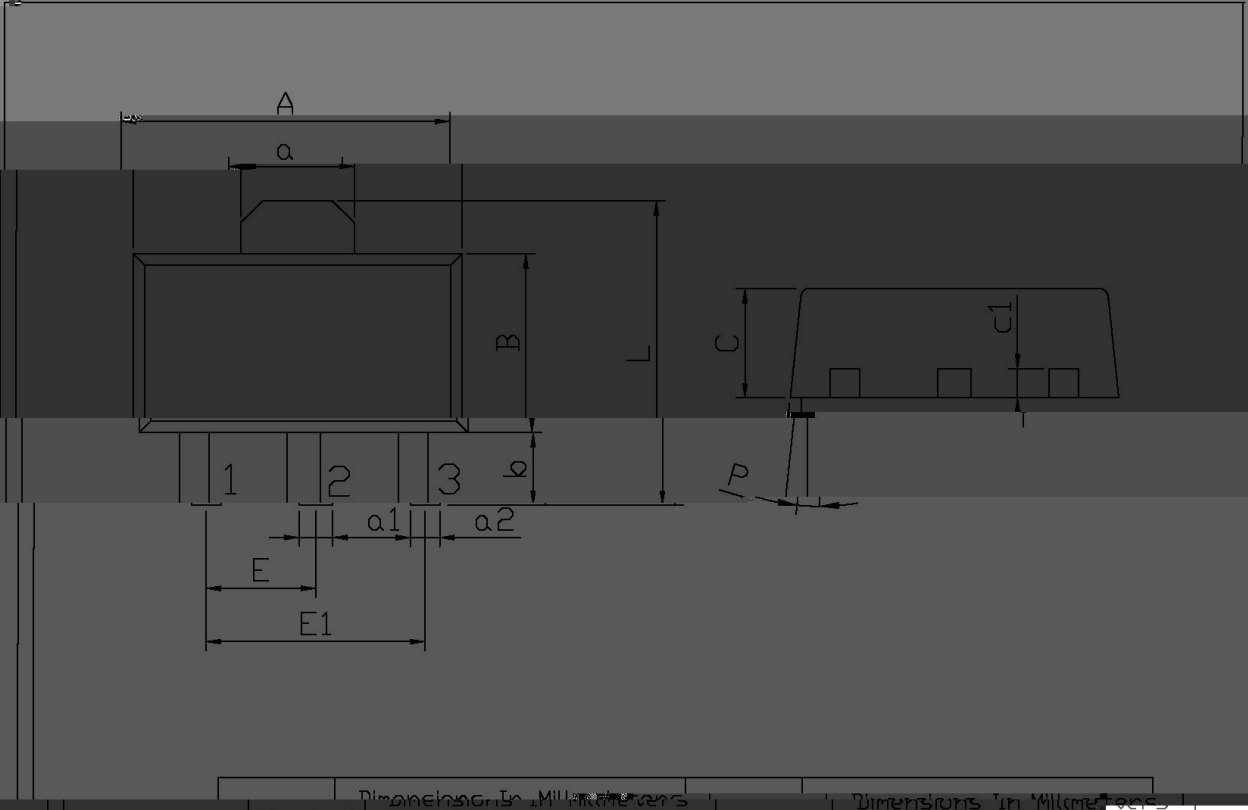
Electrical Characteristic Curve



⌘ È Ò Ì ð / Package Dimensions

SOT-89

单位: mm



Symbol		Dimension in Millimeters		Symbol		Dimension in Millimeters	
		Min	Max			Min	Max
A	1	4.4	4.7	C	1	0.3	0.5
a	2	1.4	1.7	D	1	0.3	0.5
B	3	1.4	1.7	E	1	0.3	0.5
L	4	1.4	1.7	E1	1	0.3	0.5
C	5	0.3	0.5	P	1	0.3	0.5
D	6	0.3	0.5	U	1	0.3	0.5
E	7	0.3	0.5	b	1	0.3	0.5
E1	8	0.3	0.5	a1	1	0.3	0.5
P	9	0.3	0.5	a2	1	0.3	0.5
U	10	0.3	0.5	b	1	0.3	0.5

4. L'Ω / Marking Instructions



ب"خ

HX HX 3 H₂O

AEχ ℔ 3^NΠ₀

Q: $h_{FE} \approx 60$

$$-\chi \quad \mathbb{H} \cdot f \, \check{\eta}^N \Gamma_D \quad \mathbb{I} \, \mathbb{E} \cdot f \, \check{\eta}^N \Psi \, \rho$$

Note:

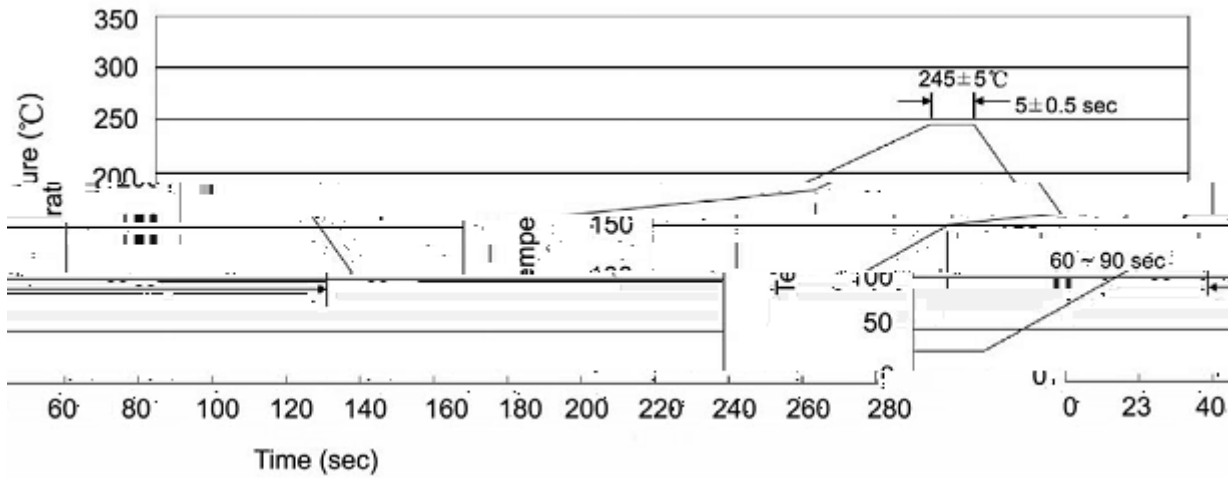
H: Company Code.

AE: Product Type.

Q: h_{FE} Classifications Symbol

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

Thermal Characteristics / Whp shudwxuh Suriloh i ru LU Uhior z Vroghulqj+Se0l uhh,



℃

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.

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.

Resistance to Soldering Heat Test Conditions

Temp.: 260±5 °C, Time: 10±1 sec.

Packaging SPEC.

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

Notices