

/ Descriptions

SOT-89 封装 NPN 半导体三极管 Silicon NPN transistor in a SOT-89 Plastic Package.

/ Features

低电流，低电压。

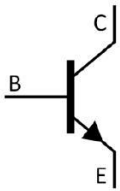
Low current, Low voltage.

/ Applications

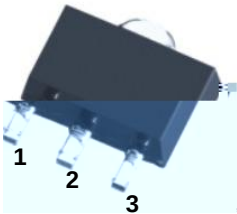
于普 放大及开关。

General purpose amplifier and switching.

/ Equivalent Circuit



/ Pinning



PIN1 : Base

PIN 2 : Collector

PIN 3 : Emitter

/ Marking

Marking	H1A ‡
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/ Absolute Maximum Ratings(Ta=25)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current - Continuous	I_C	200	mA
Collector Power Dissipation	P_C	200	mW
Collector Power Dissipation*	$*P_C$	350	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

*在 7×5×0.6mm 板上 陶

*When mounted on a 7×5×0.6mm ceramic board

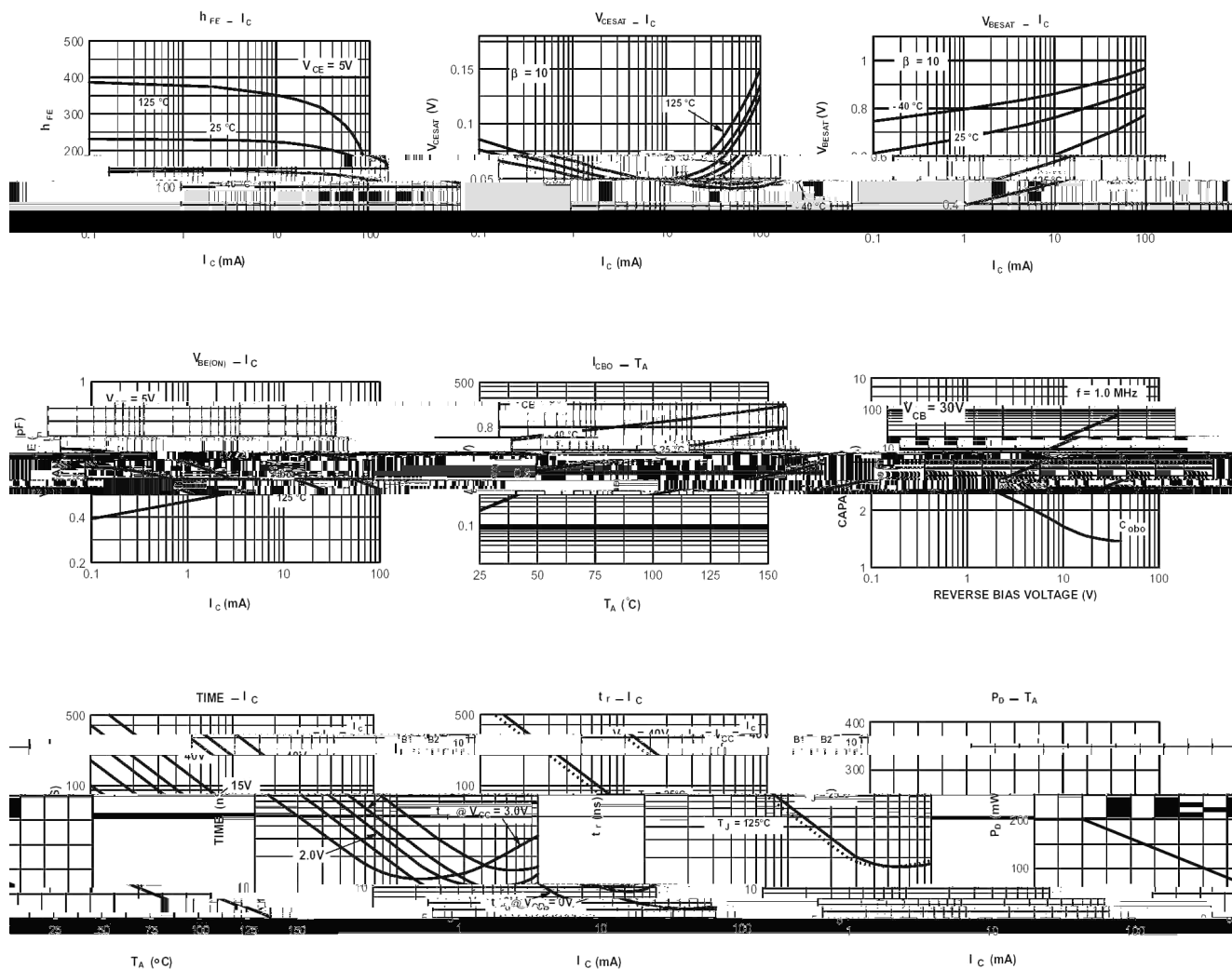
/ Electrical Characteristics(Ta=25)

参数 Parameter	符号 Symbol	条件 测 试 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=10\mu A$ $I_E=0$	60			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	40			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=10\mu A$ $I_C=0$	6.0			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			
	$h_{FE(4)}$	$V_{CE}=1.0V$ $I_C=1mA$	70			
	$h_{FE(5)}$	$V_{CE}=1.0V$ $I_C=0.1mA$	40			
Collector to Emitter Saturation Voltage	$V_{CE(sat) (1)}$	$I_C=10mA$ $I_B=1.0mA$			0.2	V
	$V_{CE(sat) (2)}$	$I_C=50mA$ $I_B=5.0mA$			0.3	V
Emitter to Base Saturation Voltage	$V_{BE(sat) (1)}$	$I_C=10mA$ $I_B=1.0mA$	0.65		0.85	V

/ Electrical Characteristics(Ta=25)

参数 Parameter	符号 Symbol	条件 测 试 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Emitter to Base Saturation Voltage	$V_{BE(sat)} (2)$	$I_C=50mA$ $I_B=5.0mA$			0.95	V
Transition Frequency	f_T	$I_C=10mA$ $V_{CE}=20V$ $f=100MHz$	300			MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=5.0V$ $f=1.0MHz$			4.0	pF
Storage Time	t_{stg}	$V_{CC}=3.0V$ $I_C=10mA$ $I_{B1}=-I_{B2}=1.0mA$			200	ns
Fall Time	t_f	$V_{CC}=3.0V$ $I_C=10mA$ $I_{B1}=-I_{B2}=1.0mA$			50	ns
Delay Time	t_d	$V_{CC}=3.0V$ $V_{BE}=0.5V$ $I_C=10mA$ $I_{B1}=1.0mA$			35	ns
Rise Time	t_r	$V_{CC}=3.0V$ $V_{BE}=0.5V$ $I_C=10mA$ $I_{B1}=1.0mA$			35	ns
Input Capacitance	C_{ib}	$V_{EB}=0.5V$ $f=1.0MHz$			8.0	pF

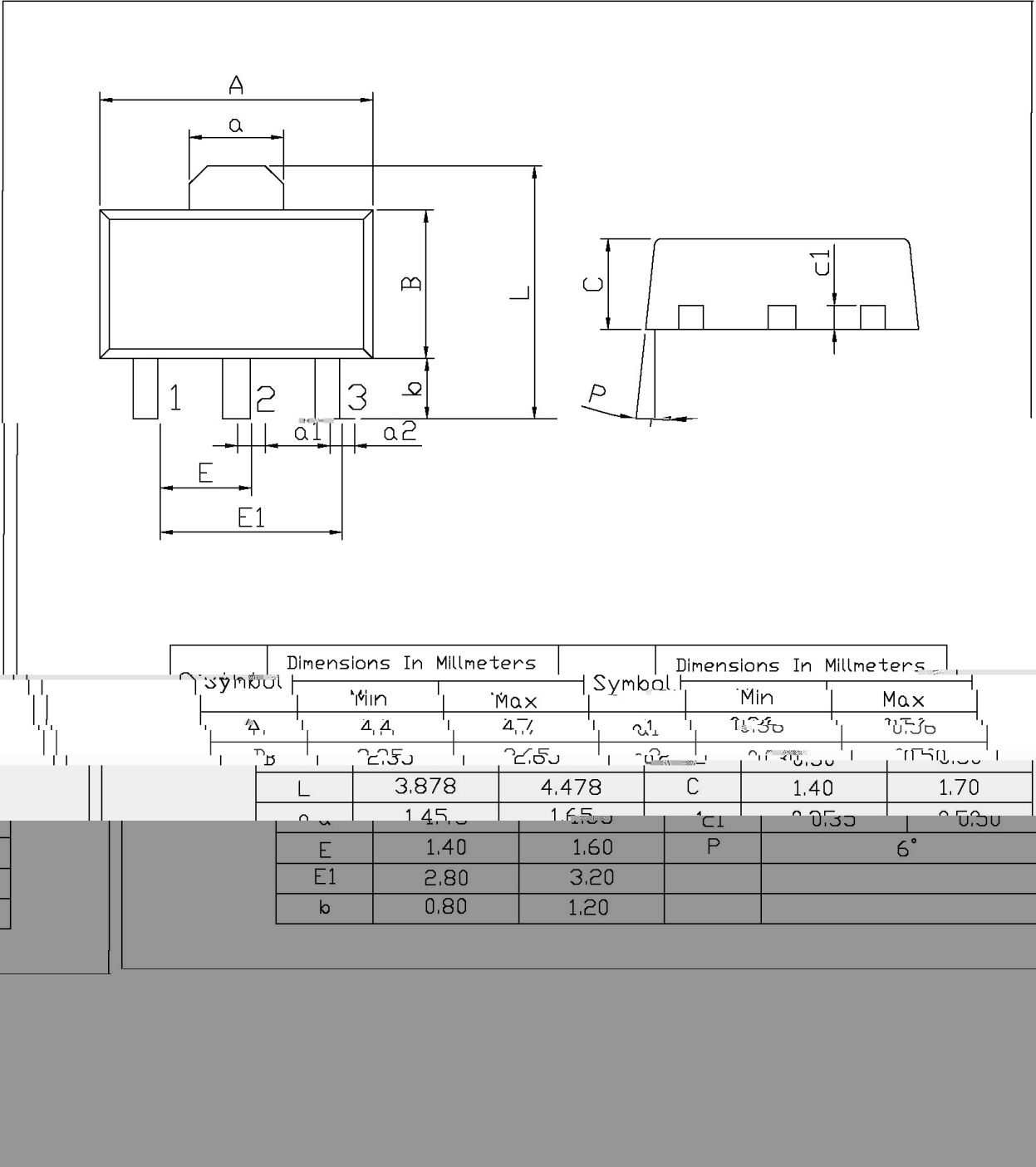
/ Electrical Characteristic Curve



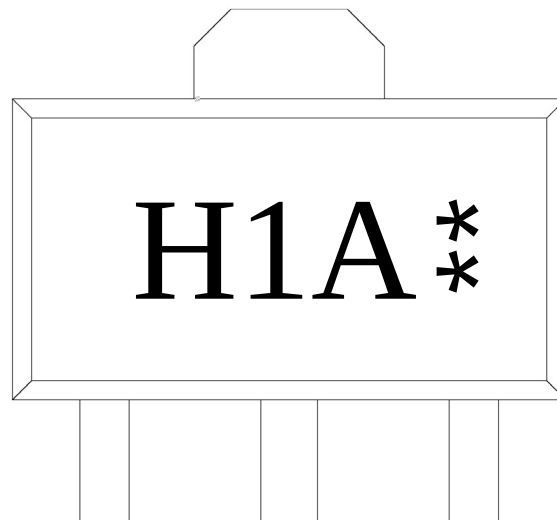
/ Package Dimensions

SOT-89

单位: mm



/ Marking Instructions



明： 说

H： 为公司代码

1A： 为型号代码

**： 为 产批号代码，随 产批号变化 。

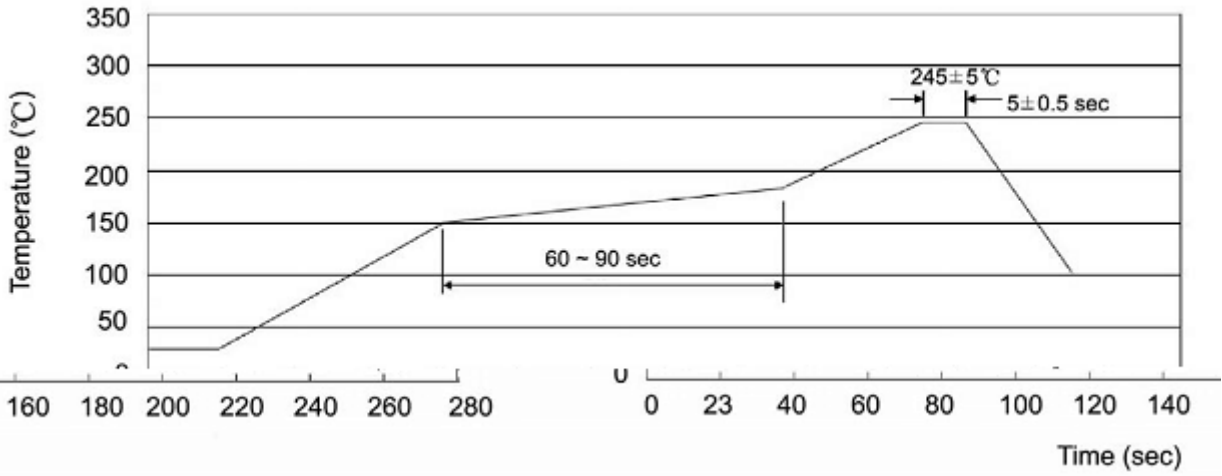
Note:

H: Company Code.

1A: Product Type.

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

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Note:

1. 预热温度 25~150°C , 时 60~90sec;
2. 峰值温度 245±5°C , 时 持续为 5±0.5sec;
3. 、 燥制程冷却 速为 2~10°C/sec.
- 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

温度：260±5°C 时：10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

卷 包装 / REEL 盘

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