

MMBTA42T

Rev.G Dec.-2025

描述 / Descriptions

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

特征 / Features

耐压高,饱和压降低,集电极输出电容低,与 MMBTA92T 互补,无卤产品。

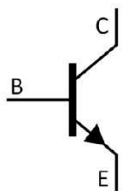
High voltage, Low saturation voltage, low collector capacitance output, complementary pair with MMBTA92T, Halogen-free Product.

用途 / Applications

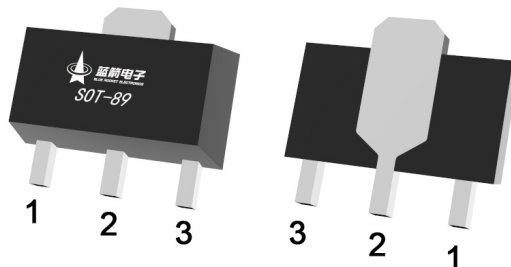
高电压控制电路。

High voltage control circuit.

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

Marking	H1D*
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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}	300	V
Collector to Emitter Voltage	V _{CEO}	300	V
Emitter to Base Voltage	V _{EBO}	6.0	V
Collector Current - Continuous	I _C	500	mA
Peak collector current	I _{CM}	1	A
Collector Power Dissipation*	*P _C	350	mW
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

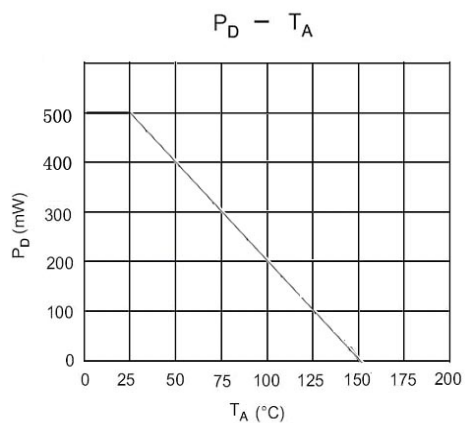
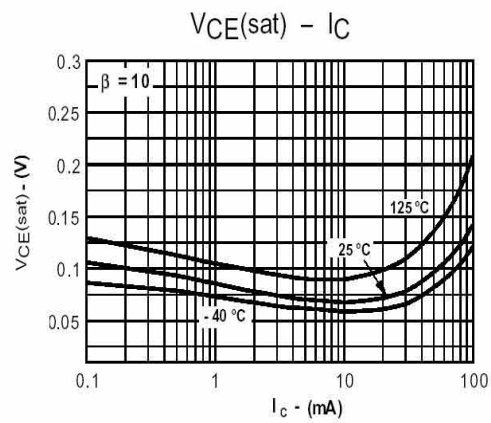
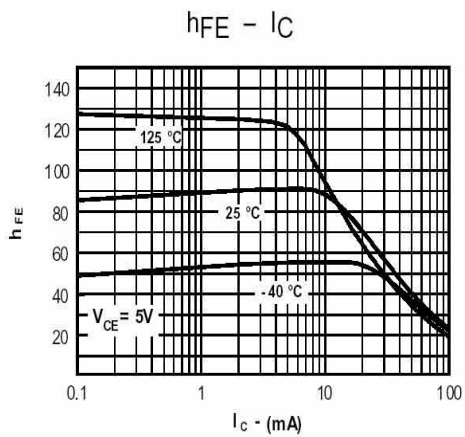
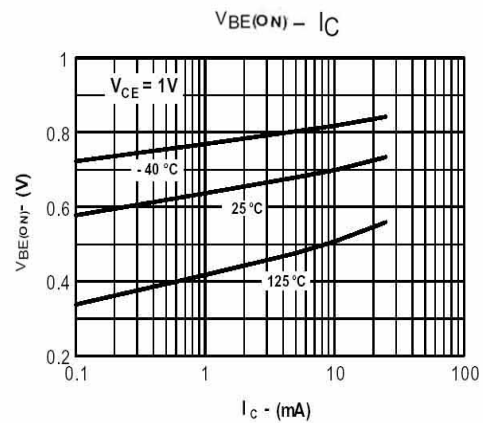
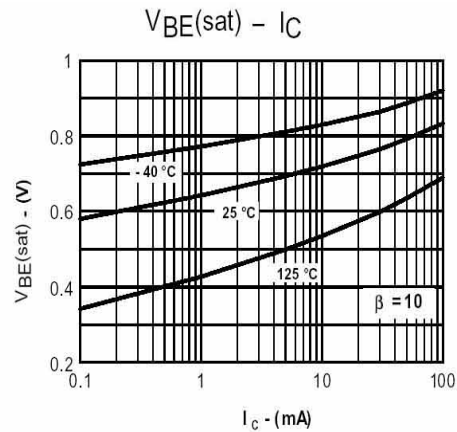
*:将器件置于 4.0*4.0*0.15mm³ 的 FR-4 PCB 板上。*:Device mounted on FR-4 PCB 4.0*4.0*0.15mm³
电性能参数 / Electrical Characteristics(Ta=25°C)

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 =100μA I _E =0	300			V
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =1.0mA* I _B =0	300			V
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =100μA I _C =0	6.0			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =200V I _E =0			0.1	μA
Emitter Base Cut-Off Current	I _{EBO}	V _{BE} =6.0V I _C =0			0.1	μA
DC Current Gain	h _{FE(1)}	V _{CE} =10V I _C =10mA	40			
	h _{FE(2)}	V _{CE} =10V I _C =30mA*	40			
	h _{FE(3)}	V _{CE} =10V I _C =1.0mA	25			
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C =20mA I _B =2.0mA			0.5	V
Emitter to Base Saturation Voltage	V _{BE(sat)}	I _C =20mA I _B =2.0mA			0.9	V
Current-Gain—Bandwidth Product	f _T	V _{CE} =20V I _C =10mA f=100MHz	50			MHz
Collector-Base Capacitance	C _{ob}	V _{CB} =20V I _E =0 f=1.0MHz			3.0	pF

*脉冲测试：脉宽≤300μs，占空比≤2.0%。

*pulse test: pulse width≤300μs,duty cycle≤2.0%

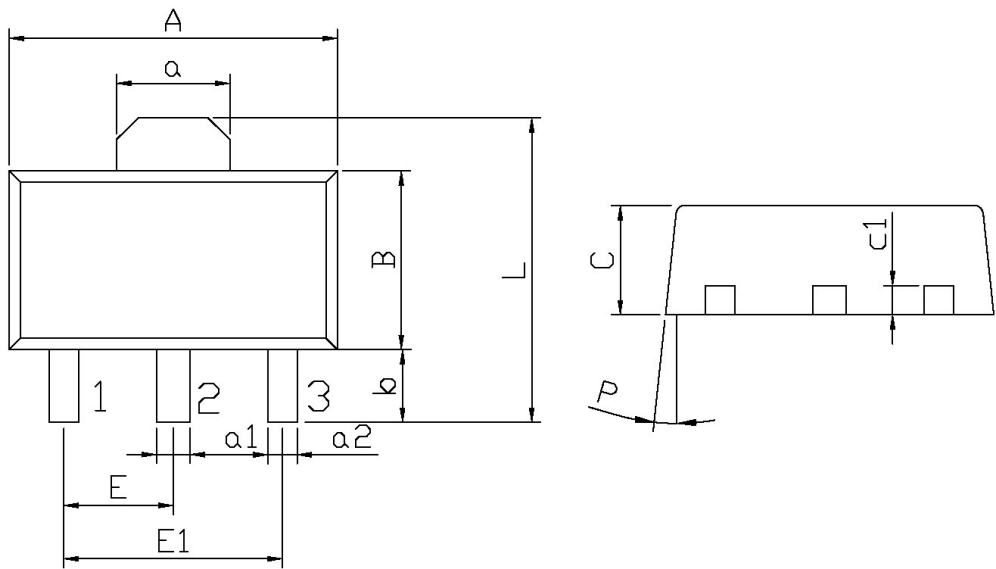
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

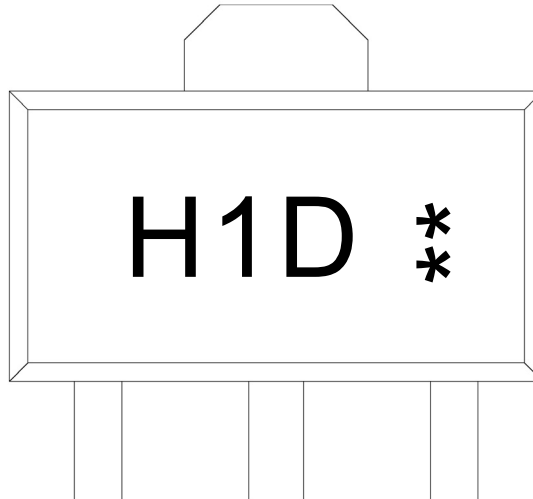
SOT-89

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

1D： 为型号代码

**： 为生产批号代码，随生产批号变化

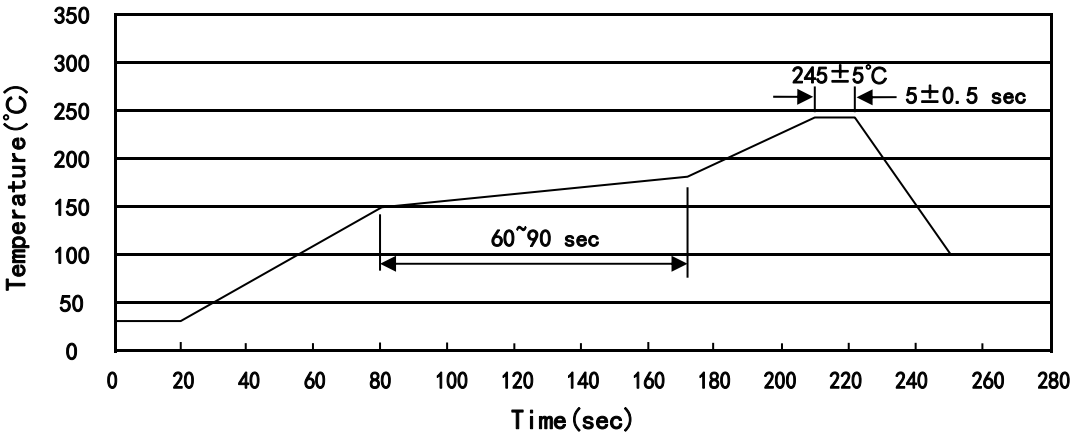
Note:

H: Company Code

1D: 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 150 ~ 180℃，时间 60 ~ 90sec;
- 2、峰值温度 245±5℃，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10℃/sec.

Note:

- 1.Preheating:150~180℃, Time:60~90sec.
- 2.Peak Temp.:245±5℃, Duration:5±0.5sec.
- 3. Cooling Speed: 2~10℃/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ 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	6	42,000	7" ×12	180×120×180	390×385×205

使用说明 / Notices