

MMBT3906W

Rev.F Dec.-2024

/ Descriptions

SOT-323 PNP Silicon PNP transistor in a SOT-323 Plastic Package.

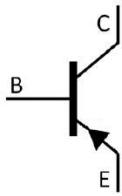
/ Features

Low current, Low voltage, HF Product.

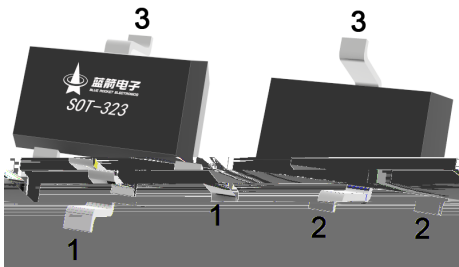
/ Applications

General purpose amplifier and switching.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Emitter PIN 3 Collector

/ h_{FE} Classifications & Marking

Marking	H2A
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/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V _{CBO}	-40	V
Collector to Emitter Voltage	V _{CEO}	-40	V
Emitter to Base Voltage	V _{EBO}	-5.0	V
Collector Current - Continuous	I _C	-200	mA
Collector Power Dissipation	P _C	200	mW
Junction Temperature	T _j	150	
Storage Temperature Range	T _{stg}	-55 150	

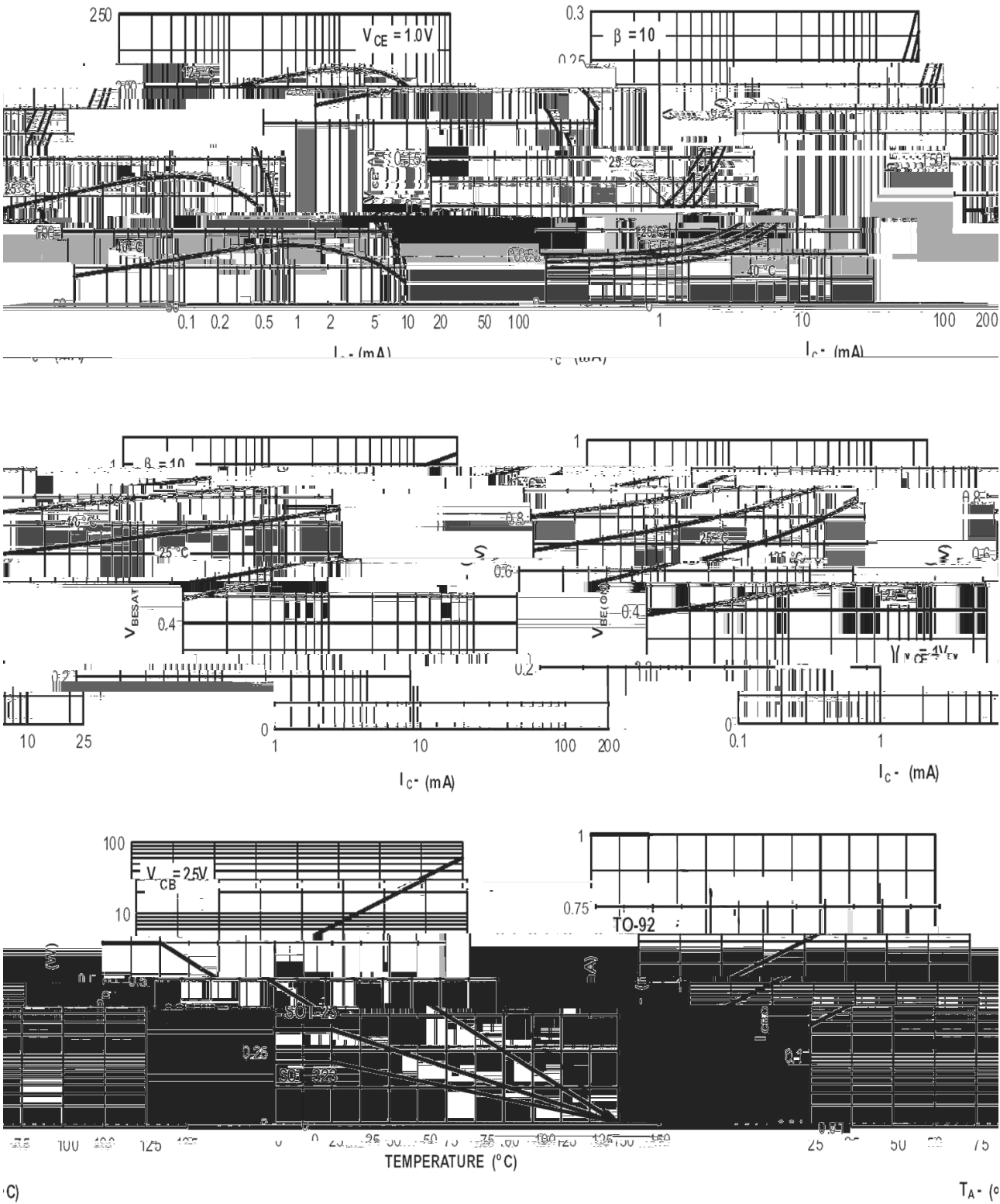
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V _{CBO}	I _C =-10μA I _E =0	-40			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 =-10μA I _C =0	-5.0			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =-30V I _E =0			-0.05	μA
Emitter to Base 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 =-1.0mA	80			
	h _{FE(5)}	V _{CE} =-1.0V I _C =-0.1mA	60			
Collector to Emitter Saturation Voltage	V _{CE(sat) (1)}	I _C =-10mA I _B =-1.0mA			-0.25	V
	V _{CE(sat) (2)}	I _C =-50mA I _B =-5.0mA			-0.4	V
Base to Emitter Saturation Voltage	V _{BE(sat) (1)}	I _C =-10mA I _B =-1.0mA	-0.65		-0.85	V
	V _{BE(sat) (2)}	I _C =-50mA I _B =-5.0mA			-0.95	V

/ Electrical Characteristics(Ta=25)

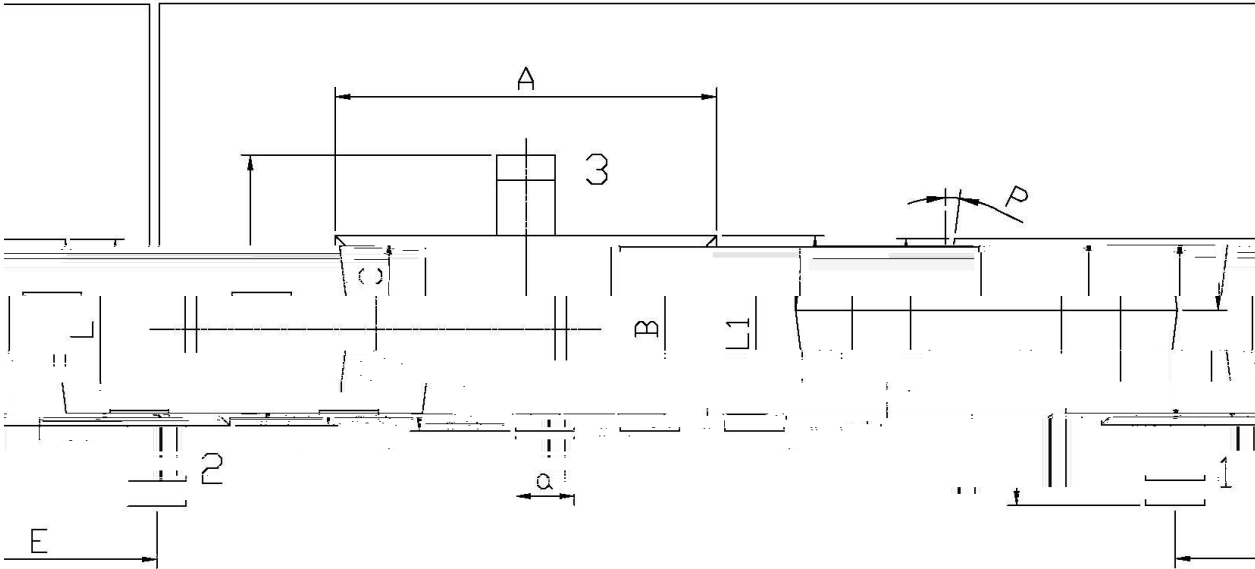
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Transition Frequency	f_T	$I_C = -10\text{mA}$ $V_{CE} = -20\text{V}$ $f = 100\text{MHz}$	250			MHz
Collector output capacitance	C_{ob}	$V_{CB} = -5.0\text{V}$ $f = 1.0\text{MHz}$			4.5	pF
Storage Time	t_{stg}	$V_{CC} = -3.0\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -I_{B2} = -1.0\text{mA}$			225	ns
Fall Time	t_f	$V_{CC} = -3.0\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -I_{B2} = -1.0\text{mA}$			75	ns
Delay Time	t_d	$V_{CC} = -3.0\text{V}$ $V_{BE} = -0.5\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -1.0\text{mA}$			35	ns
Rise Time	t_r	$V_{CC} = -3.0\text{V}$ $V_{BE} = -0.5\text{V}$ $I_C = -10\text{mA}$ $I_{B1} = -1.0\text{mA}$			35	ns
Input Capacitance	C_{ib}	$V_{EB} = -0.5\text{V}$ $f = 1.0\text{MHz}$			10	pF

/ Electrical Characteristic Curve



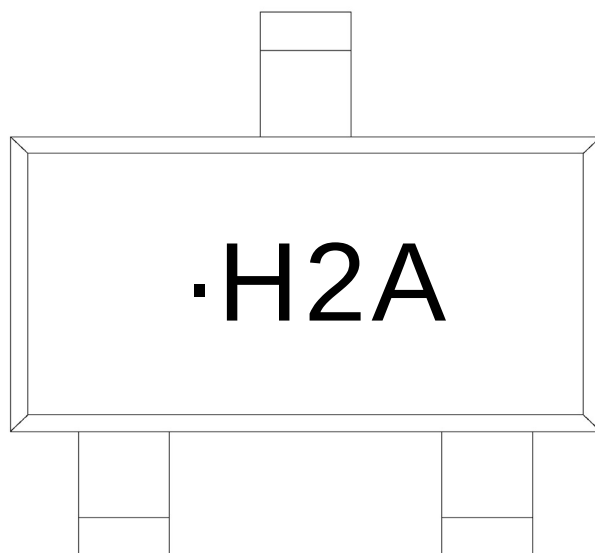
/ Package Dimensions

SOT-323 单位: mm



		Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min	Max			Min	Max		
		1.95	2.35	C		0.30	0.50	A	
		2.00	2.2	L1		0.85	1.15	L	
		1.20	1.40	a		0.20	0.40	E	
3		1.15	1.35	P		7°		I	

/ Marking Instructions



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H

2A

Note:

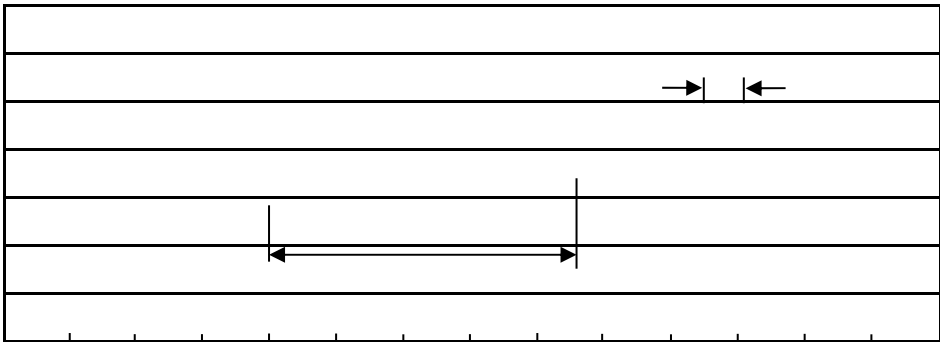
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Identify

H: Company Code

2A: Product Type Code

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1

150 180

60 90sec;

1.Preheating:150~180 , 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	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-323	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices