/ Revised record

E	2016-3				
F	2022-8-18	2	VCE(sat) (2) 0.12 VCESAT-IC		

/ Descriptions

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

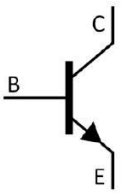
/ Features

Low current, Low voltage,HF Product.

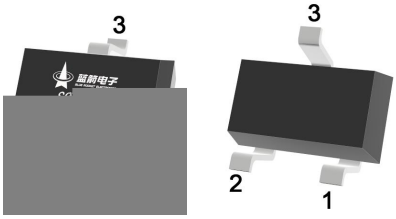
/ Applications

General purpose amplifier and switching.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Emitter PIN 3 Collector

/ h_{FE} Classifications & Marking

Marking	• H1A

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	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	℃

* 7×5×0.6mm

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

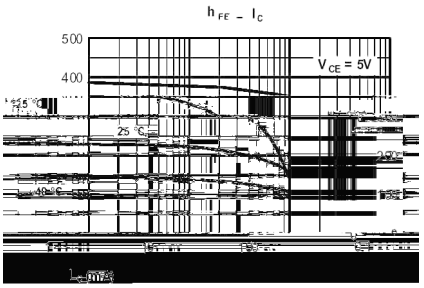
/ Electrical Characteristics(Ta=25)

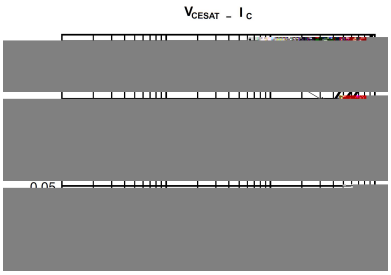
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	I_C=10μA I_E=0	60			V
Collector to Emitter Breakdown Voltage	V_{CEO}	I_C=1.0mA I_B=0	40			V
Emitter to Base Breakdown Voltage	V_{EBO}	I_E=10μA I_C=0	6.0			V
Collector Cut-Off Current	I_{CBO}	V_{CB}=30V I_E=0			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=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		0.12	0.3	V

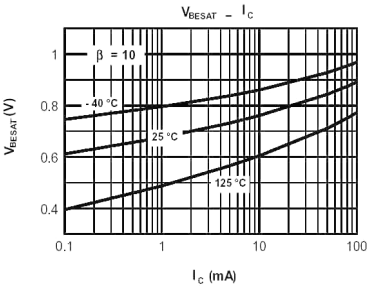
/ Electrical Characteristics(Ta=25)

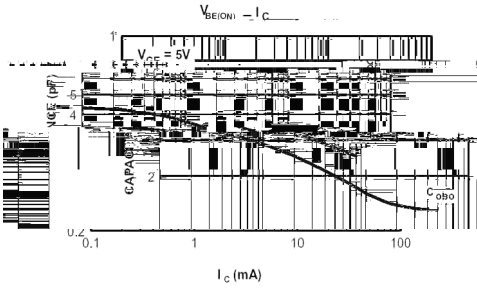
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Base to Emitter Saturation Voltage	$V_{BE(sat)\ (1)}$	I_C=10mA I_B=1.0mA	0.65		0.85	V
	$V_{BE(sat)\ (2)}$	I_C=50mA I_B=5.0mA			0.95	V
Transition Frequency	f_T	I_C=10mA V_{CE}=20V f=100MHz	300			MHz
Collector output capacitance	C_{ob}	V_{CB}=5.0V f=1.0MHz			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

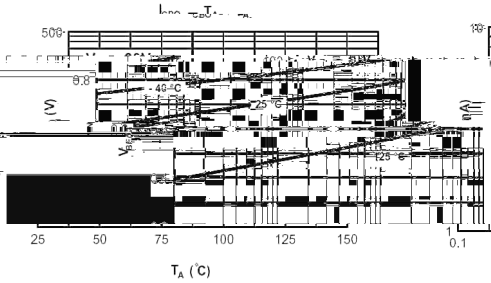
/ Electrical Characteristic Curve

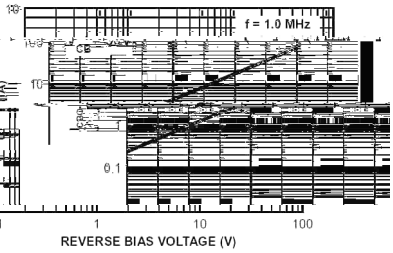


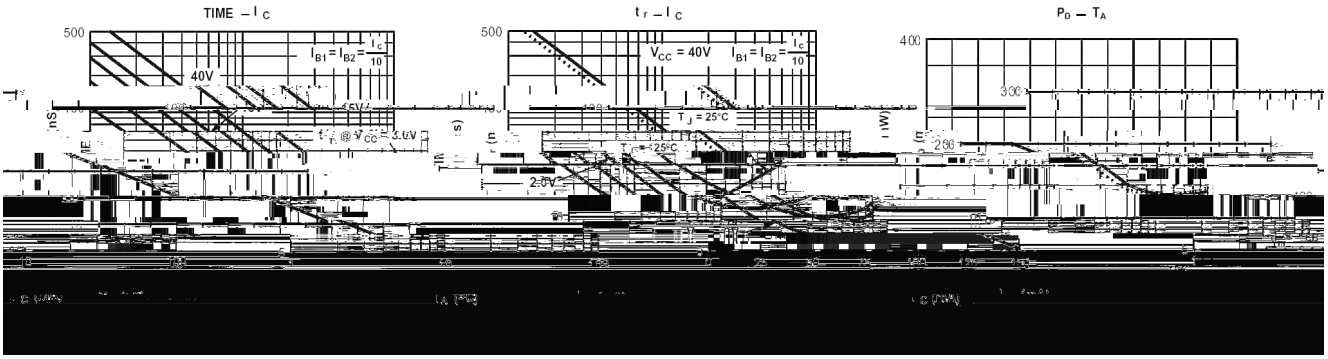




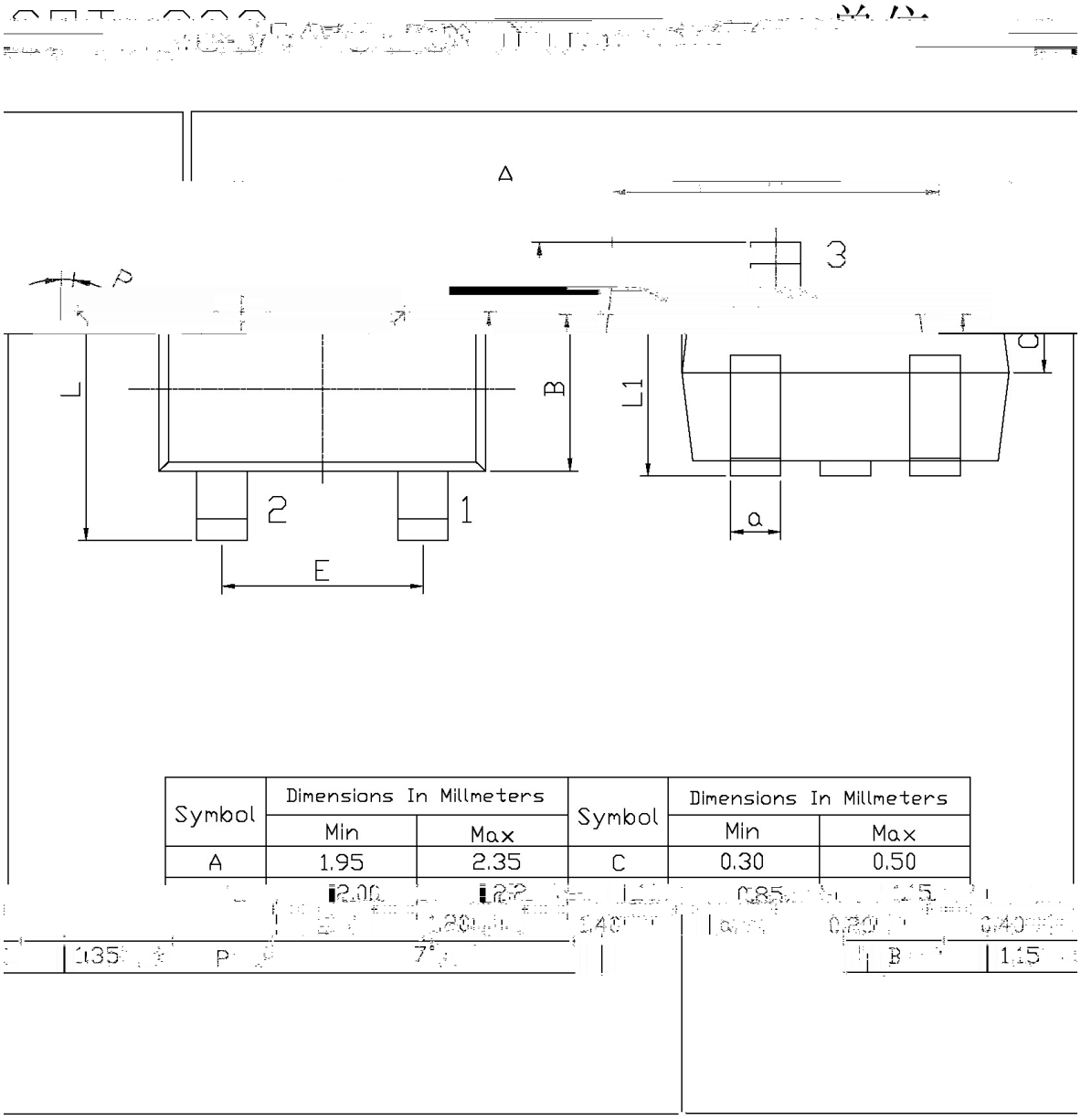






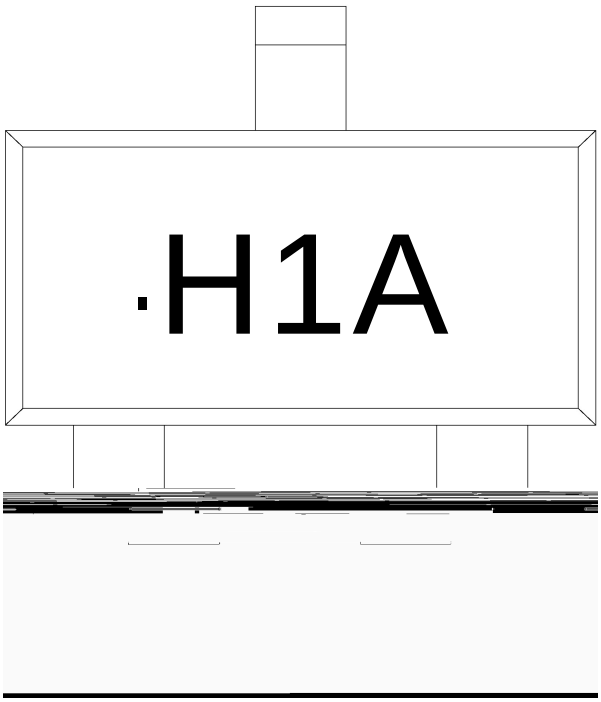


/ Package Dimensions



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
A	1.95	2.35	C	0.30	0.50

/ Marking Instructions



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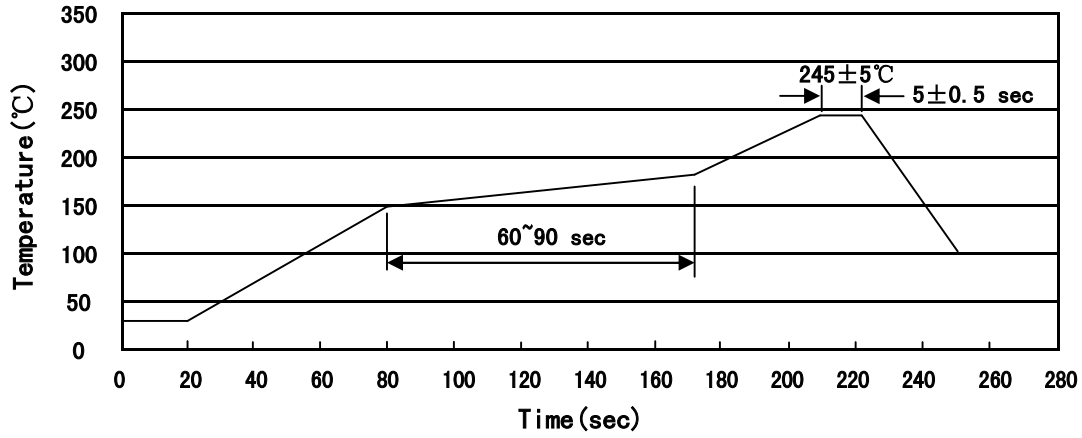
H

1A

Note:

·	Identify
H:	Company Code
1A:	Product Type

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



Note:

1		150	180		60	90sec;
2		245±5				5±0.5sec;
3				2	10	/sec.

1.Preheating:150~180 , Time:60~90sec.
2.Peak Temp.:245±5 , Duration:5±0.5sec.
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 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-323	3,000	10	30,000	6	180,000	7″ ×8	180×120×180	390×385×205

/ Notices