



HI-SINCERITY
MICROELECTRONICS CORP.

Spec. No. : HA200601
Issued Date : 2006.12.01
Revised Date : 2006.12.28
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HLB123SA

NPN EPITAXIAL PLANAR TRANSISTOR

Description

- High Voltage, High Speed Power Switch
- Switch Regulators
- PWM Inverters and Motor Controls
- Solenoid and Relay Drivers
- Deflection Circuits



TO-92

Absolute Maximum Ratings

- Maximum Temperatures
Storage Temperature -50 ~ +150 °C
Junction Temperature 150 °C Maximum
- Maximum Power Dissipation
Total Power Dissipation (T_C=25°C) 20 W
- Maximum Voltages and Currents (T_C=25°C)
V_{CBO} Collector to Emitter Voltage 700 V
V_{CEO} Collector to Emitter Voltage 400 V
V_{EBO} Emitter to Base Voltage 9 V
I_C Collector Current Continuous 1.2 A
I_B Base Current Continuous 0.3A

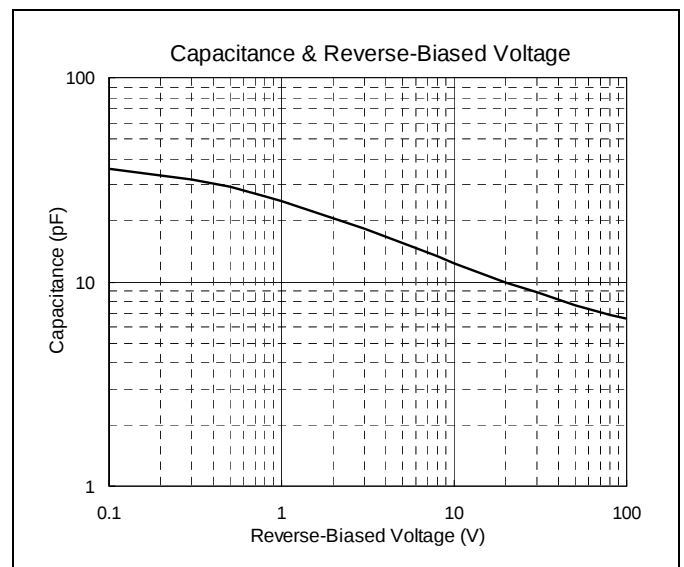
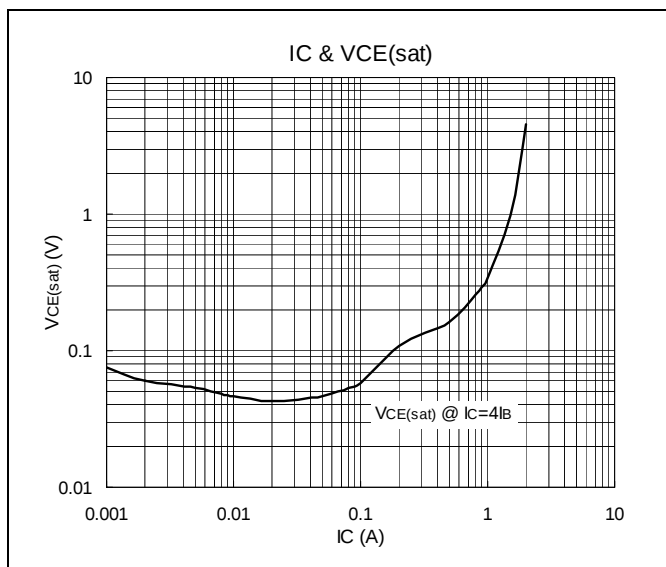
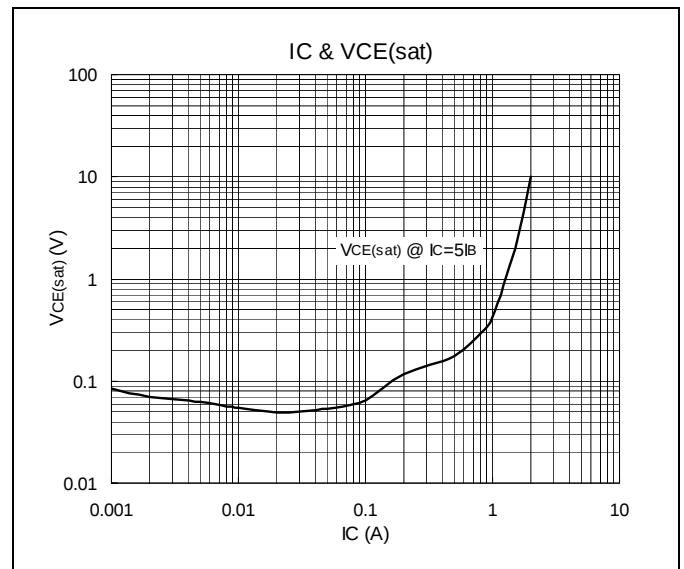
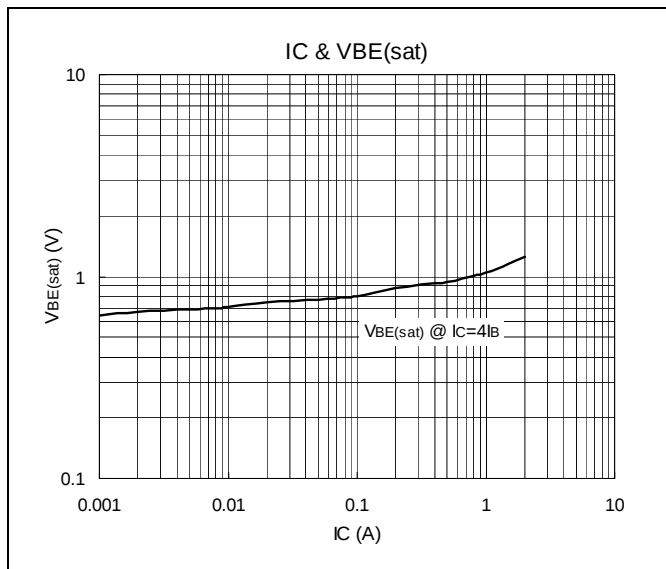
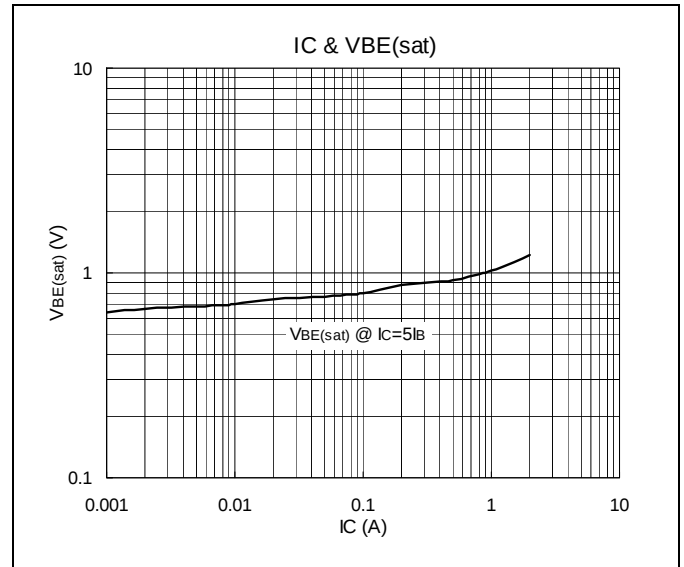
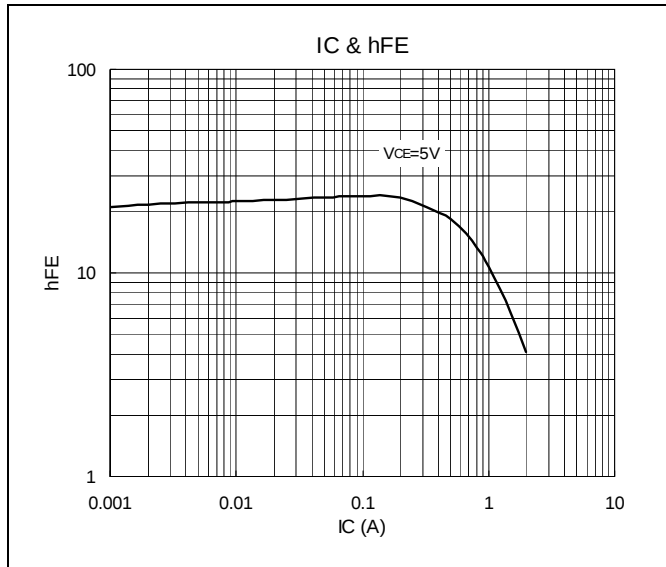
Electrical Characteristics (T_C=25°C)

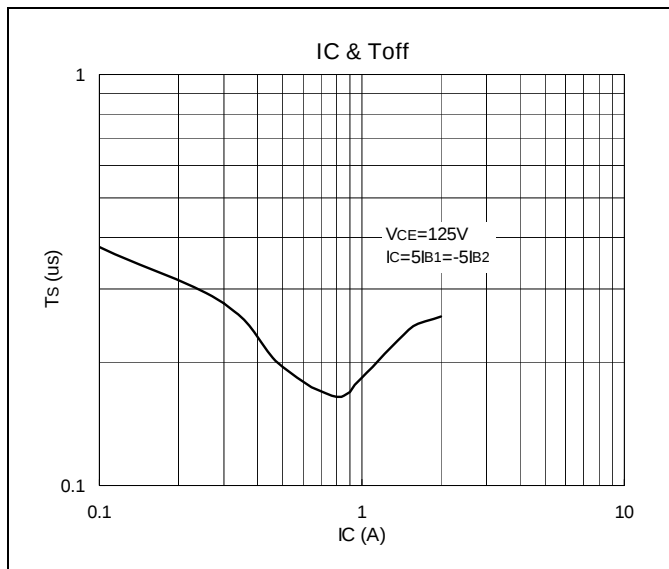
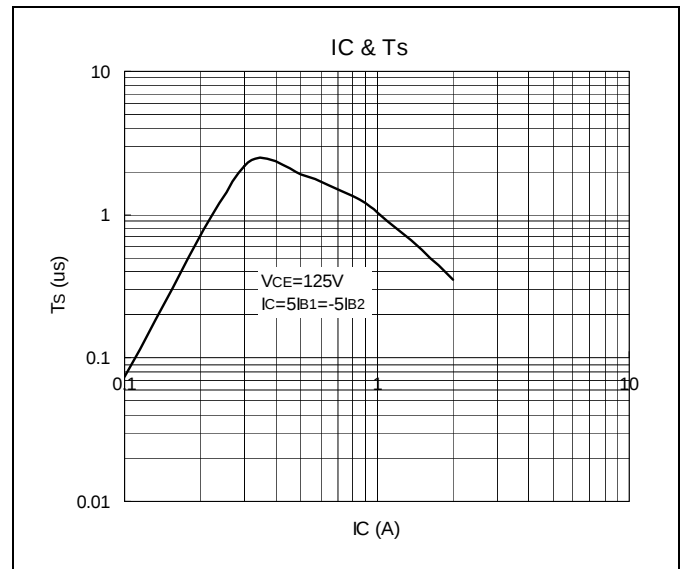
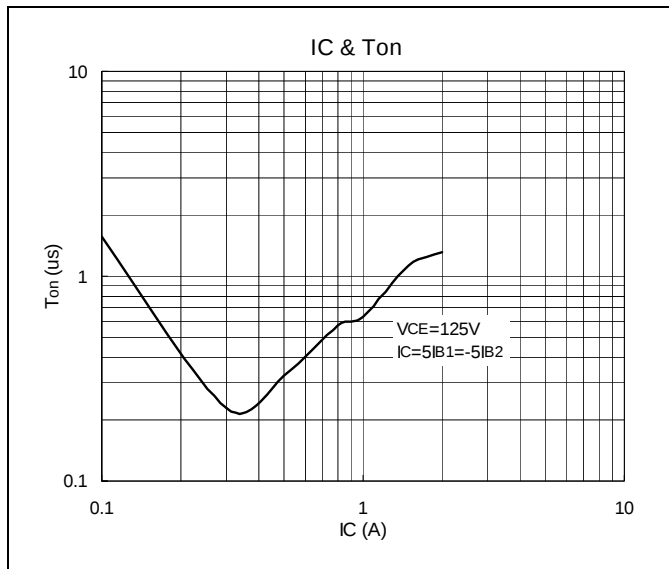
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	700	-	-	V	I _B =1mA
BV _{CEO}	400	-	-	V	I _C =10mA
I _{EBO}	-	-	1	mA	V _{EB} =9V
I _{CEX}	-	-	1	mA	V _{CE} =700V, V _{BE(off)} =1.5V
*V _{CE(sat)1}	-	-	500	mV	I _C =0.5A, I _B =0.1A
*V _{CE(sat)2}	-	-	1	V	I _C =1A, I _B =0.25A
*V _{CE(sat)3}	-	-	3	V	I _C =1.5A, I _B =0.5A
*V _{BE(sat)}	-	-	1	V	I _C =0.5A, I _B =0.1A
*V _{BE(sat)}	-	-	1.2	V	I _C =1A, I _B =0.25A
*h _{FE1}	8	-	40		I _C =0.3A, V _{CE} =5V
*h _{FE2}	5	-	25		I _C =1A, V _{CE} =5V

*Pulse Test: Pulse Width ≤380us, Duty Cycle≤2%



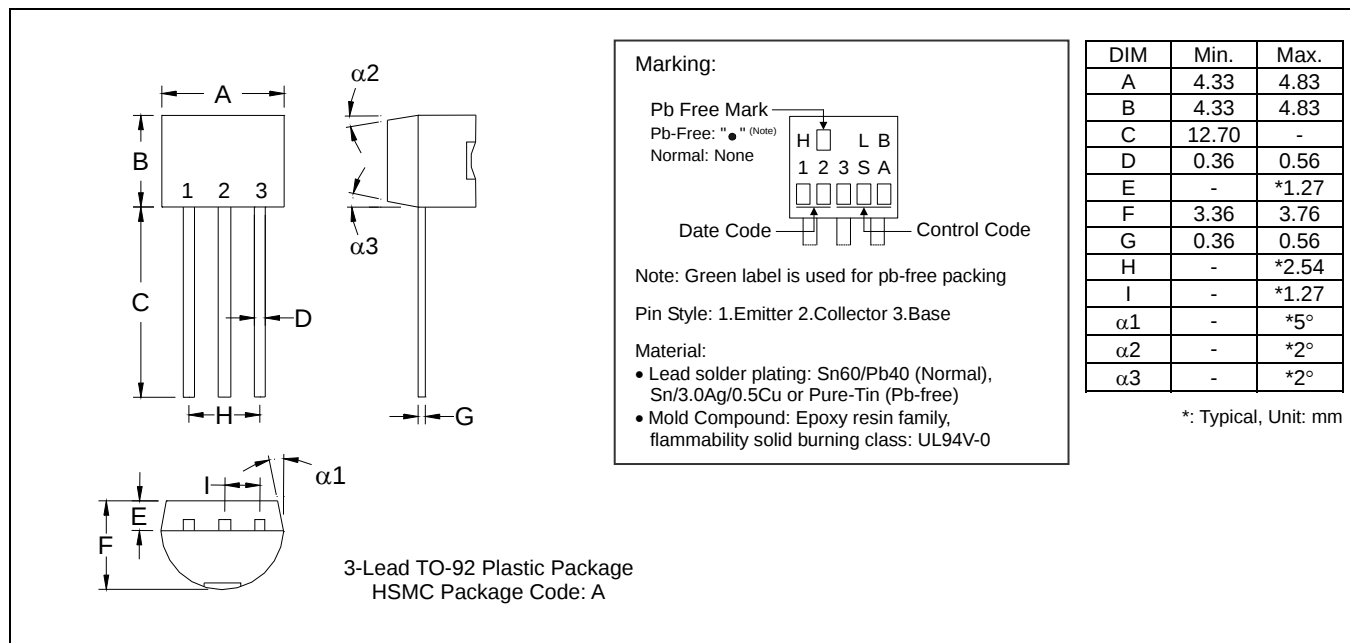
Characteristics Curve



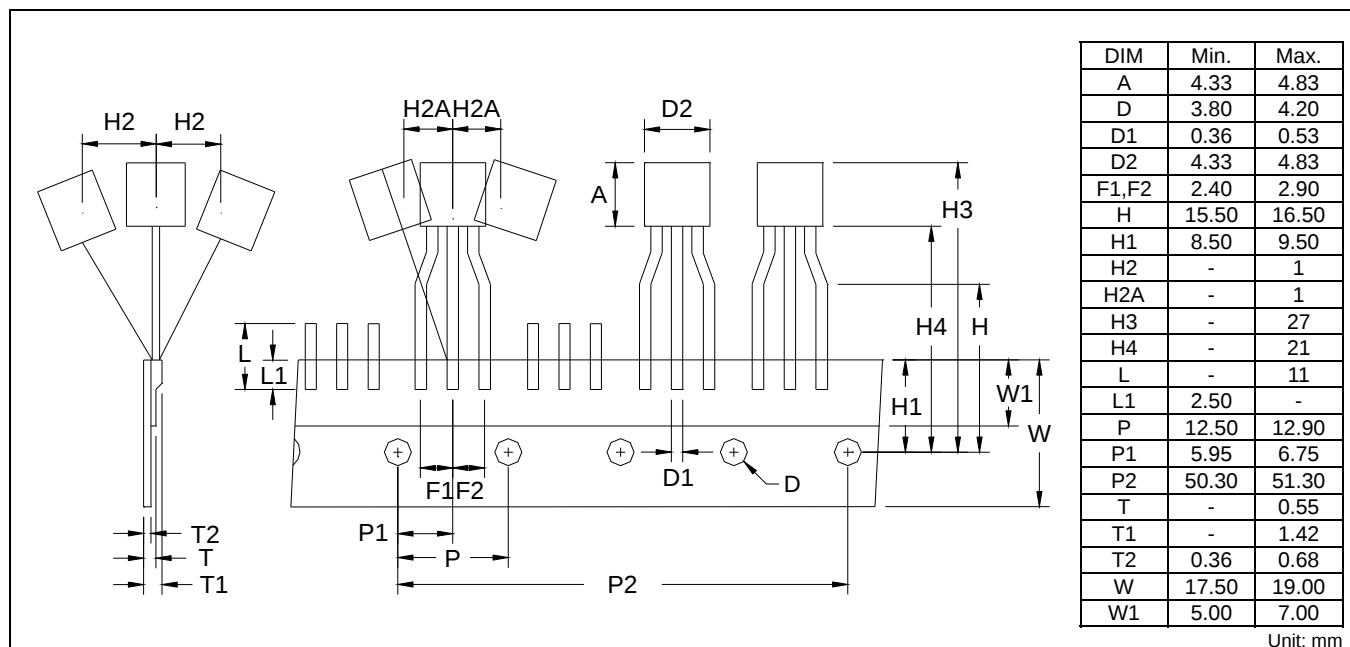




TO-92 Dimension



TO-92 Taping Dimension



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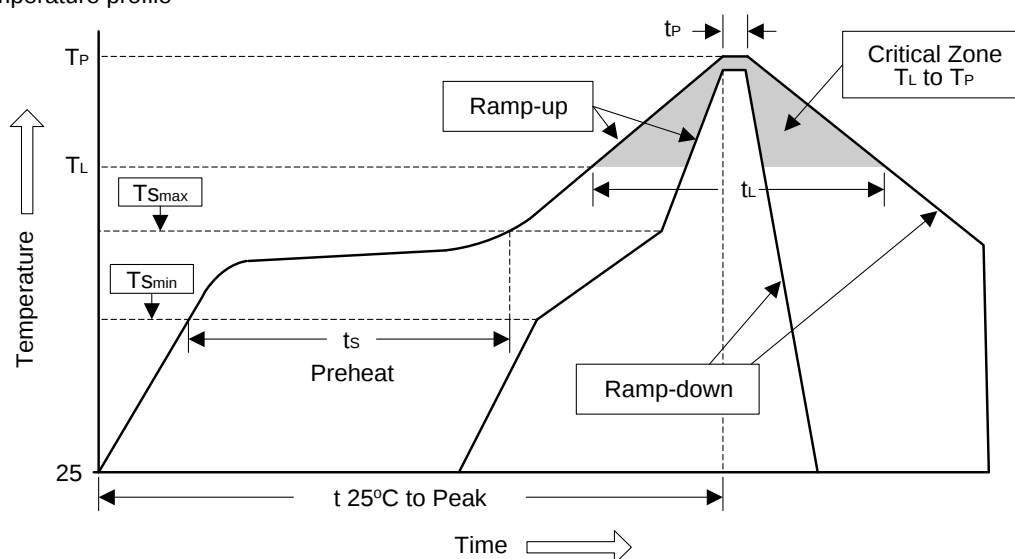
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Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices

Figure 1: Temperature profile



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	<3°C/sec	<3°C/sec
Preheat		
- Temperature Min (T_{Smin})	100°C	150°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (min to max) (t_s)	60~120 sec	60~180 sec
T_{Smax} to T_L		
- Ramp-up Rate	<3°C/sec	<3°C/sec
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60~150 sec	60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_P)	10~30 sec	20~40 sec
Ramp-down Rate	<6°C/sec	<6°C/sec
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	10sec ±1sec
Pb-Free devices.	260°C ±5°C	10sec ±1sec