



HLB125E

NPN EPITAXIAL PLANAR TRANSISTOR

Description

The HLB125E is designed for lighting applications and low switch-mode power supplies. And it is high voltage capability and high switching speeds.

Features

- High Speed Switching
- Low Saturation Voltage
- High Reliability

Absolute Maximum Ratings

- Maximum Temperatures
Storage Temperature -55 ~ +150 °C
Junction Temperature +150 °C
- Maximum Power Dissipation
Total Power Dissipation ($T_c=25^{\circ}\text{C}$) 40 W
- Maximum Voltages and Currents ($T_A=25^{\circ}\text{C}$)
 V_{CBO} Collector to Base Voltage 600 V
 V_{CEO} Collector to Emitter Voltage 400 V
 V_{EBO} Emitter to Base Voltage 9 V
 I_C Collector Current (DC) 5 A
 I_C Collector Current (Pulse)..... 8 A
 I_B Base Current (DC)..... 2 A
 I_B Base Current (Pulse)..... 4 A

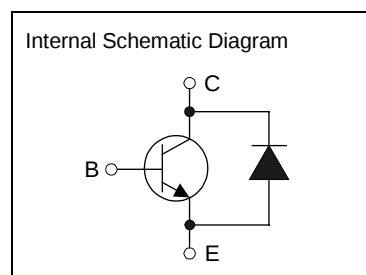
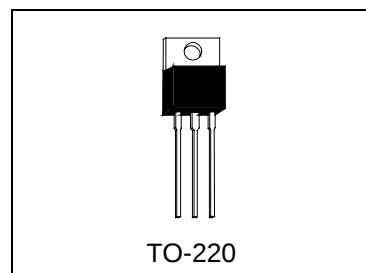
Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	600	-	-	V	$I_C=1\text{mA}$, $I_E=0$
BV_{CEO}	400	-	-	V	$I_C=10\text{mA}$, $I_B=0$
BV_{EBO}	9	-	-	V	$I_E=10\text{mA}$, $I_C=0$
I_{CES}	-	-	100	UA	$V_{CE}=700\text{V}$
I_{CEO}	-	-	100	uA	$V_{CE}=400\text{V}$
* $V_{CE(sat)1}$	-	-	0.5	V	$I_C=1\text{A}$, $I_B=0.2\text{A}$
* $V_{CE(sat)2}$	-	-	0.7	V	$I_C=2\text{A}$, $I_B=0.4\text{A}$
* $V_{CE(sat)3}$	-	-	1.1	V	$I_C=3\text{A}$, $I_B=0.75\text{A}$
* $V_{BE(sat)1}$	-	-	1.1	V	$I_C=1\text{A}$, $I_B=0.2\text{A}$
* $V_{BE(sat)2}$	-	-	1.2	V	$I_C=2\text{A}$, $I_B=0.4\text{A}$
* h_{FE1}	8	-	35		$I_C=2\text{A}$, $V_{CE}=5\text{V}$
* h_{FE2}	10	-	-		$I_C=10\text{mA}$, $V_{CE}=5\text{V}$

*Pulse Test: Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$

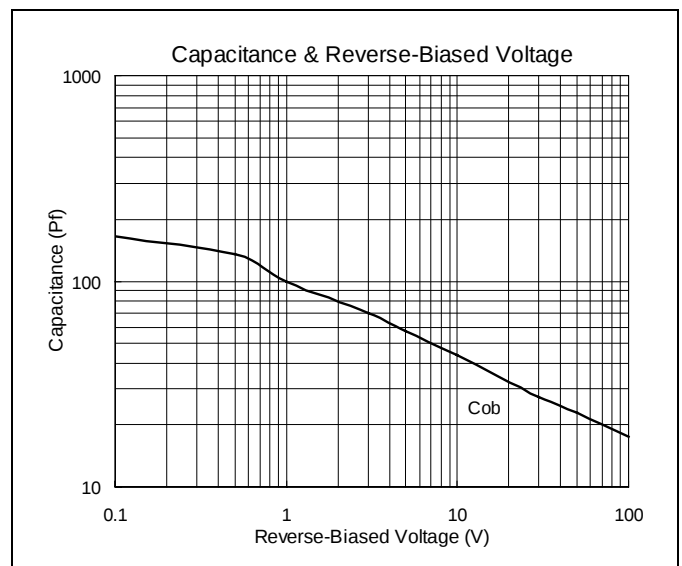
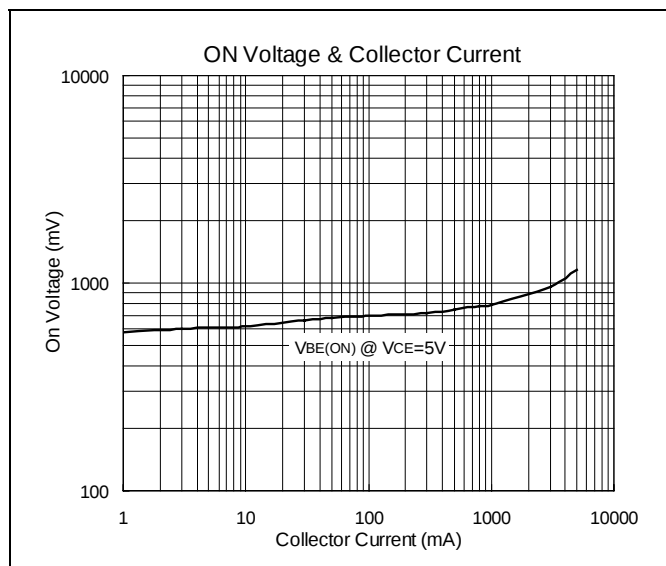
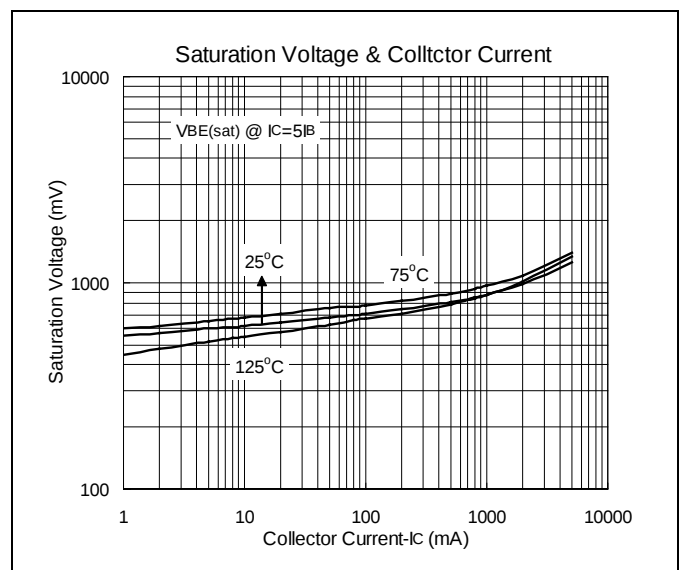
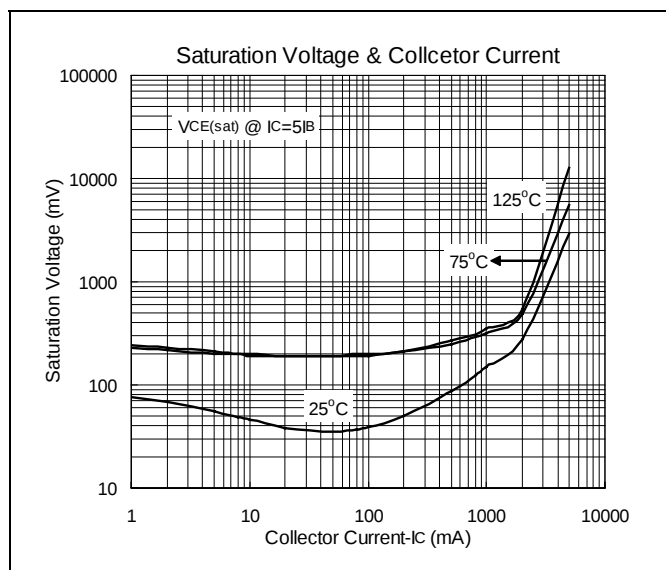
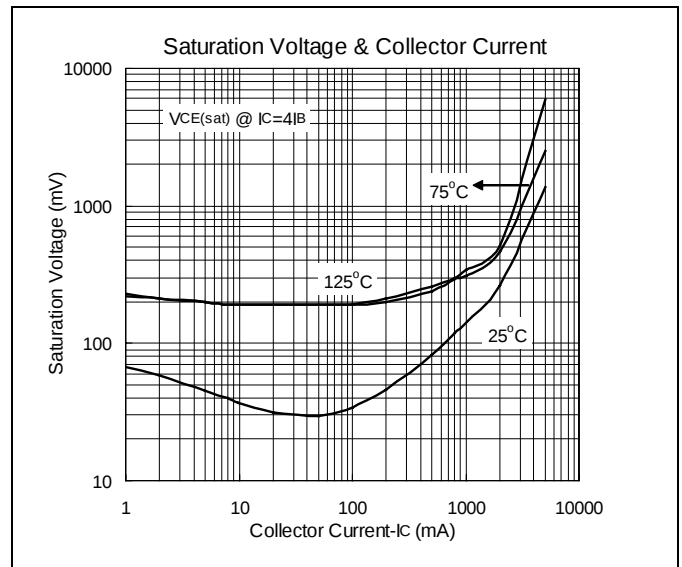
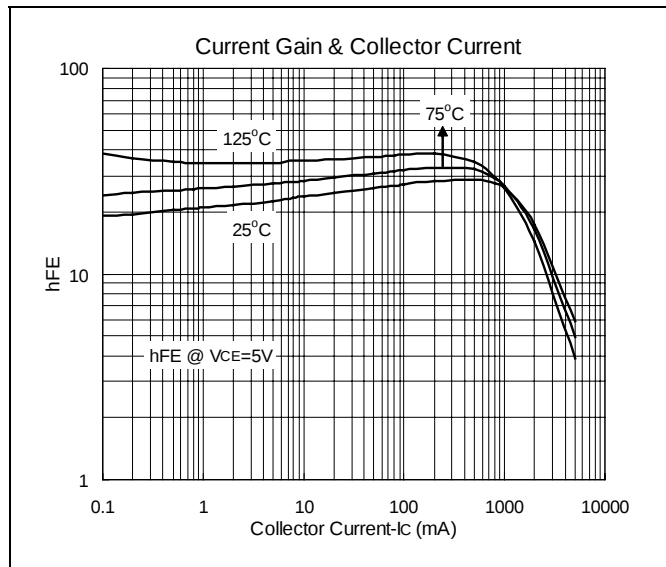
Classification Of h_{FE1}

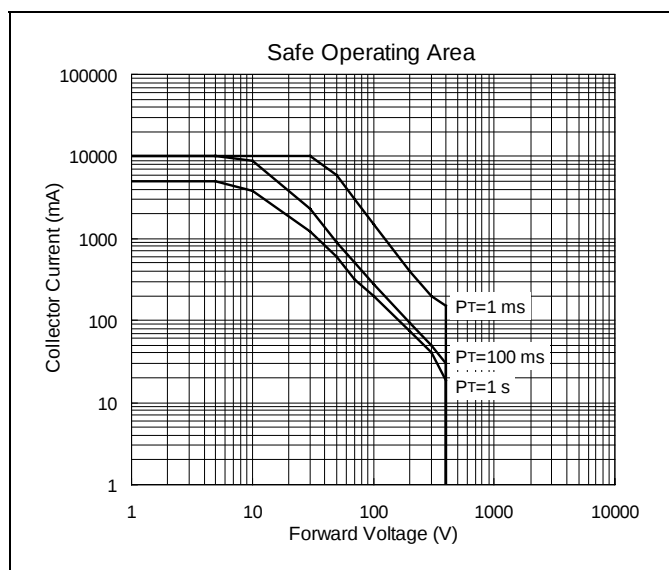
Rank	B1	B2	B3	B4	B5
h_{FE1}	8-17	15-21	19-25	23-31	29-35





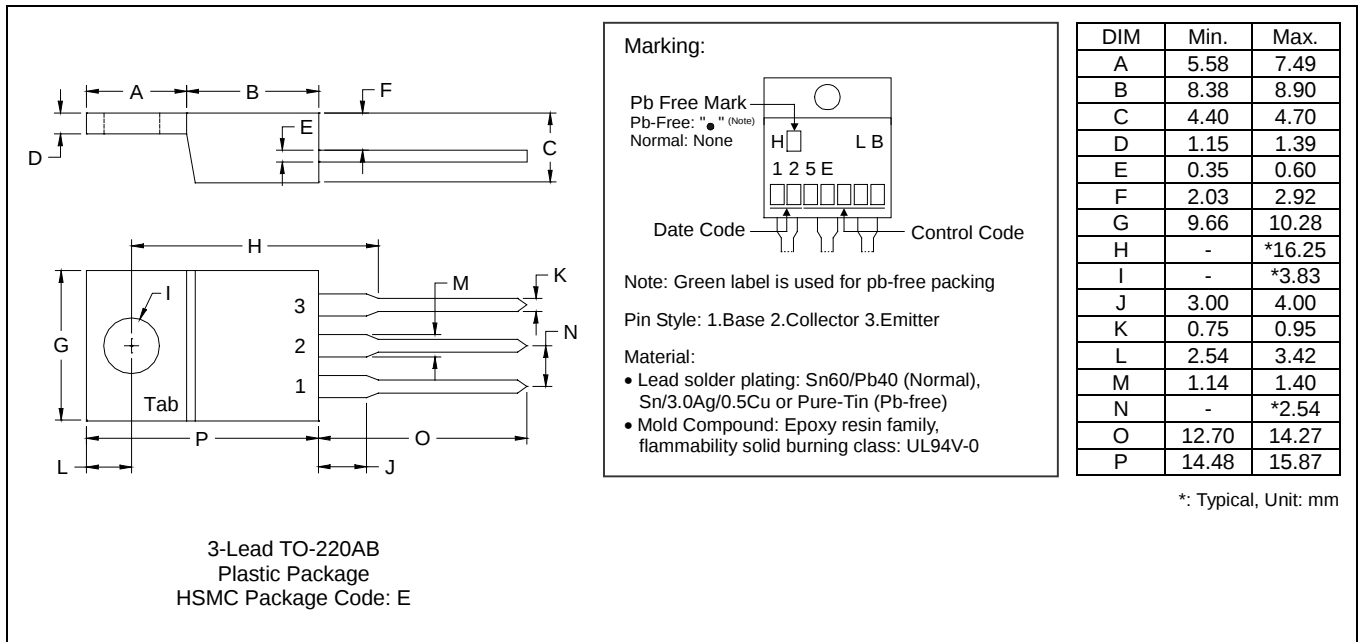
Characteristics Curve







TO-220AB Dimension



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Head Office And Factory:

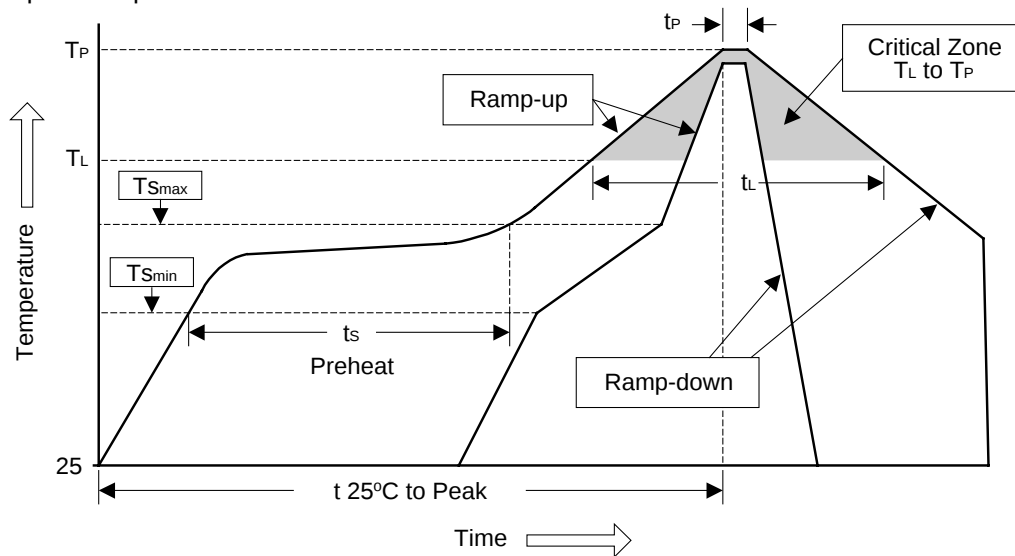
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Soldering Methods for HSMC's Products

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	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec