



HLB121D

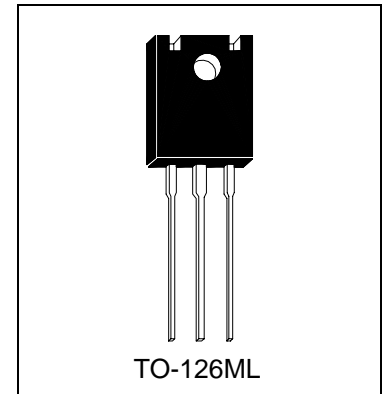
NPN Triple Diffused Planar Type High Voltage Transistor

Description

The HLB121D is a medium power transistor designed for use in switching applications.

Features

- High breakdown voltage
- Low collector saturation voltage
- Fast switching speed



Absolute Maximum Ratings (T_A=25°C)

- Maximum Temperatures
 - Storage Temperature -55 ~ +150 °C
 - Junction Temperature +150 °C
- Maximum Power Dissipation
 - Total Power Dissipation (T_C=25°C) 10 W
- Maximum Voltages and Currents
 - BV_{CBO} Collector to Base Voltage 600 V
 - BV_{CEO} Collector to Emitter Voltage 400 V
 - BV_{EBO} Emitter to Base Voltage 6 V
 - I_C Collector Current (DC) 300 mA
 - I_C Collector Current (Pulse) 600 mA
 - I_B Base Current (DC) 40 mA
 - I_B Base Current (Pulse) 100 mA

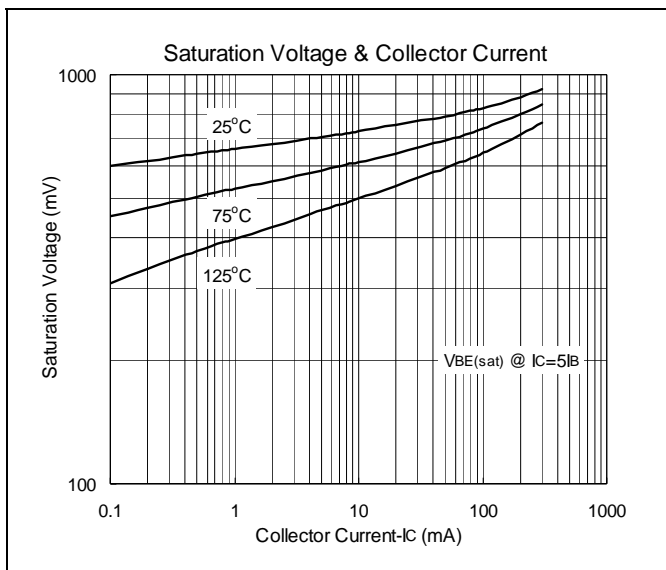
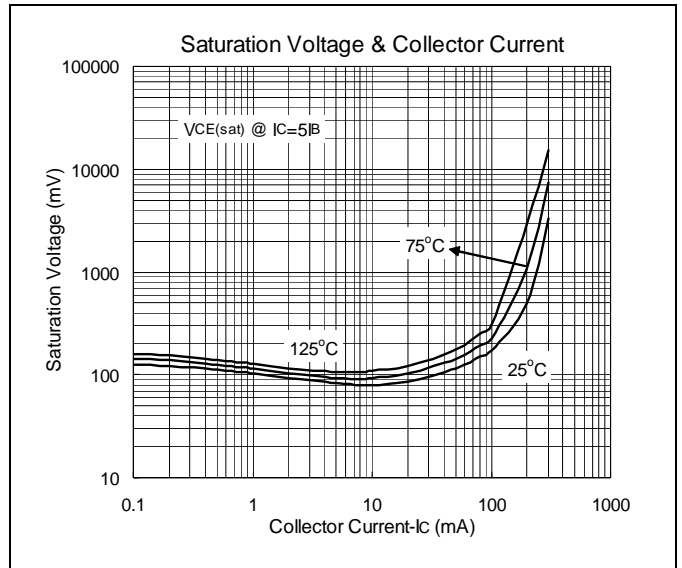
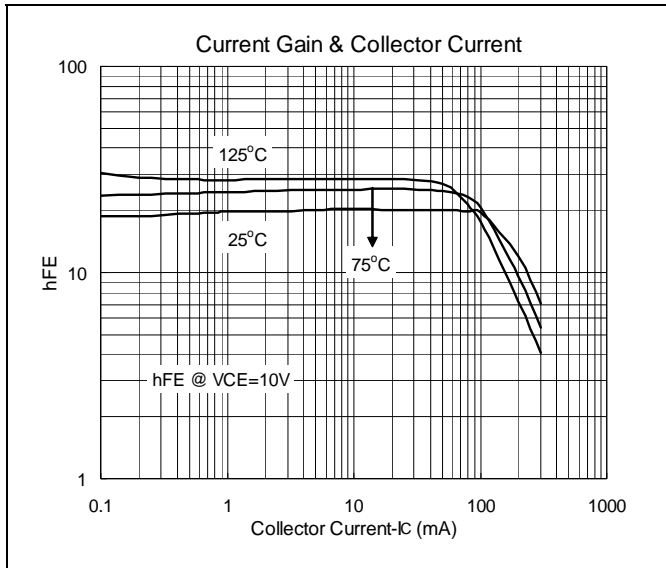
Electrical Characteristics (T_A=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CBO}	600	-	-	V	I _C =100uA
BV _{CEO}	400	-	-	V	I _C =10mA
BV _{EBO}	6	-	-	V	I _E =10uA
I _{CBO}	-	-	10	uA	V _{CB} =550V
I _{CEO}	-	-	10	uA	V _{CB} =400V
I _{EBO}	-	-	10	uA	V _{EB} =6V
*V _{CE(sat)1}	-	-	400	mV	I _C =50mA, I _B =10mA
*V _{CE(sat)2}	-	-	750	mV	I _C =100mA, I _B =20mA
*V _{BE(sat)}	-	-	1	V	I _C =50mA, I _B =10mA
*h _{FE1}	8	-	-		V _{CE} =10V, I _C =10mA
*h _{FE2}	10	-	36		V _{CE} =10V, I _C =50mA

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



Characteristics Curve





TO-126ML Dimension

Marking:

Pb Free Mark
 Pb-Free: "●" (Note)
 Normal: None

Date Code: 1 2 1 D
 Control Code: L B

Note: Green label is used for pb-free packing
 Pin Style: 1.Emitter 2.Collector 3.Base

Material:

- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

3-Lead TO-126ML
 Plastic Package
 HSMC Package Code: D

DIM	Min.	Max.
A	7.74	8.24
B	10.87	11.37
C	0.88	1.12
D	1.28	1.52
E	3.50	3.75
F	2.61	3.37
G	13	-
H	1.18	1.42
I	2.88	3.12
J	0.68	0.84
K	-	2.30
L	3.44	3.70
M	1.88	2.14
N	0.50	0.51

*: Typical, Unit: mm

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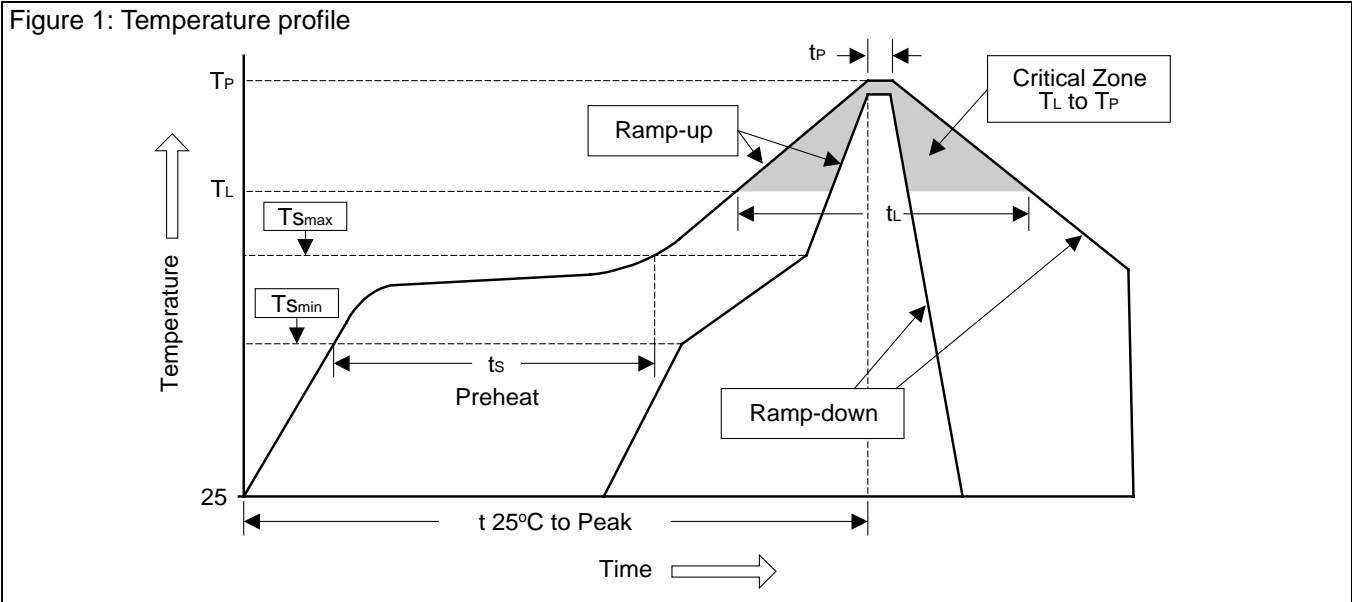
Head Office And Factory:

- **Head Office** (Hi-Sincerity Microelectronics Corp.): 10F., No. 61, Sec. 2, Chung-Shan N. Rd. Taipei Taiwan R.O.C.
 Tel: 886-2-25212056 Fax: 886-2-25632712, 25368454
- **Factory 1:** No. 38, Kuang Fu S. Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C
 Tel: 886-3-5983621~5 Fax: 886-3-5982931



Soldering Methods for HSMC's Products

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



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	$<3^{\circ}\text{C}/\text{sec}$	$<3^{\circ}\text{C}/\text{sec}$
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	$<3^{\circ}\text{C}/\text{sec}$	$<3^{\circ}\text{C}/\text{sec}$
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	$<6^{\circ}\text{C}/\text{sec}$	$<6^{\circ}\text{C}/\text{sec}$
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