



# HLB123D

NPN EPITAXIAL PLANAR TRANSISTOR

## Description

The HLB123D is designed for high voltage. High speed switching inductive circuits and amplifier applications.

## Features

- High Speed Switching
- Low Saturation Voltage
- High Reliability

## Absolute Maximum Ratings (Ta=25°C)

- Maximum Temperatures
  - Storage Temperature ..... -50 ~ +150 °C
  - Junction Temperature ..... +150 °C Maximum
- Maximum Power Dissipation
  - Total Power Dissipation (Tc=25°C) ..... 30 W
- Maximum Voltages and Currents
  - BVCBO Collector to Base Voltage ..... 600 V
  - BVCEO Collector to Emitter Voltage ..... 400 V
  - BVEBO Emitter to Base Voltage ..... 8 V
  - IC Collector Current (DC) ..... 1 A
  - IC Collector Current (Pulse) ..... 2 A

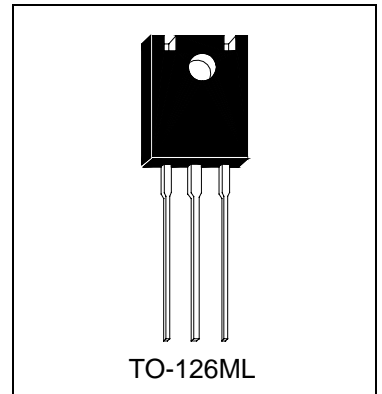
## Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BVCBO	600	-	-	V	IC=1mA, IE=0
BVCEO	400	-	-	V	IC=10mA, IB=0
BVEBO	8	-	-	V	IE=1mA, IC=0
ICBO	-	-	10	uA	VCB=600V, IE=0
IEBO	-	-	10	uA	VBE=9V, IC=0
*VCE(sat)1	-	-	0.8	V	IC=0.1A, IB=10mA
*VCE(sat)2	-	-	0.9	V	IC=0.3A, IB=30mA
*VBE(sat)1	-	-	1.2	V	IC=0.1A, IB=10mA
*VBE(sat)2	-	-	1.8	V	IC=0.3A, IB=30Ma
*hFE1	10	-	50		IC=0.3A, VCE=5V
*hFE2	10	-	-		IC=0.5A, VCE=5V
*hFE3	6	-	-		IC=1A, VCE=5V
Ton	-	0.4	1.1	uS	VCC=100V, IC=1A, IB1=IB2=0.2A
Tstg	-	2.4	4	uS	VCC=100V, IC=1A, IB1=IB2=0.2A
Toff	-	0.3	0.7	uS	VCC=100V, IC=1A, IB1=IB2=0.2A

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

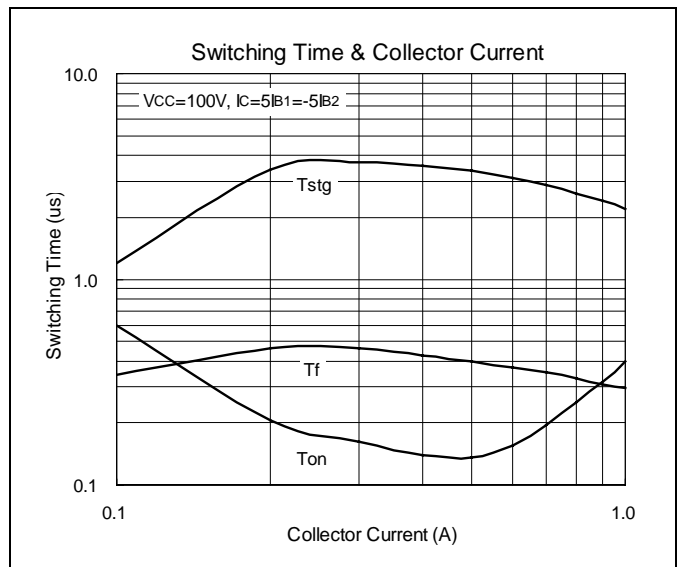
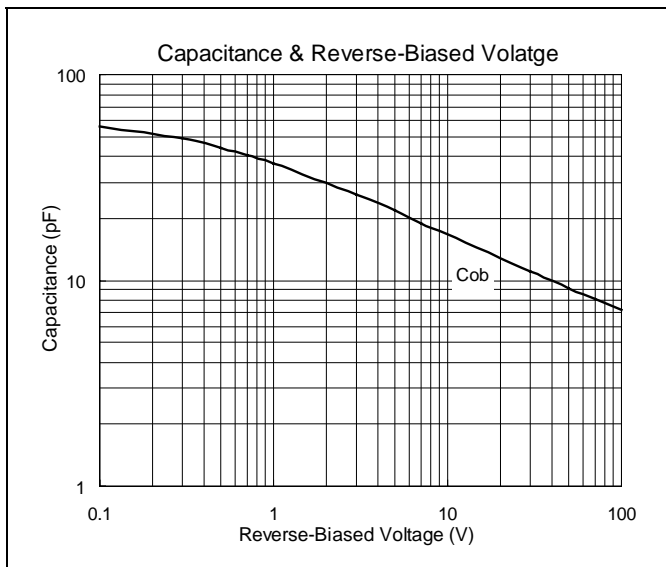
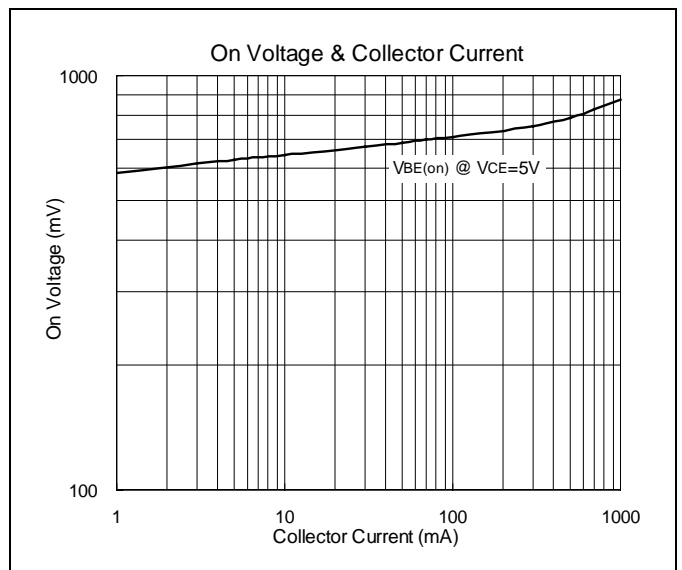
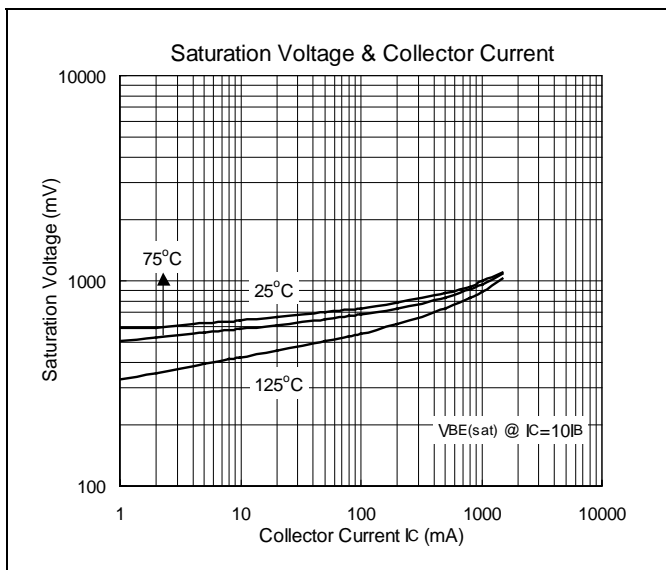
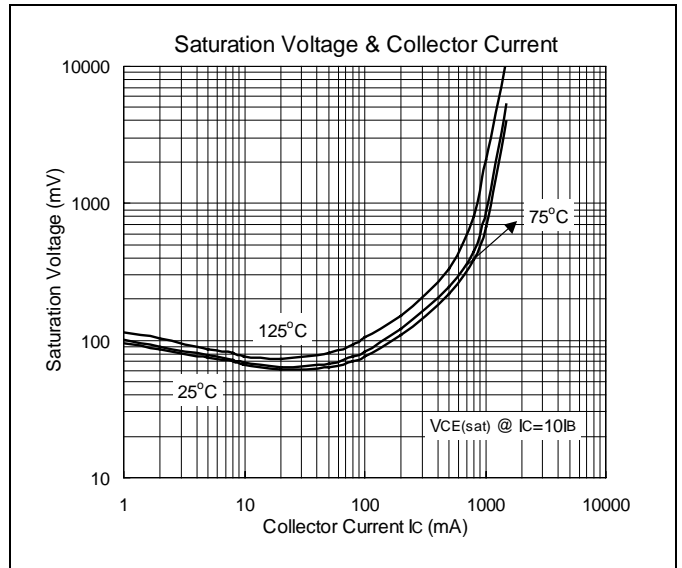
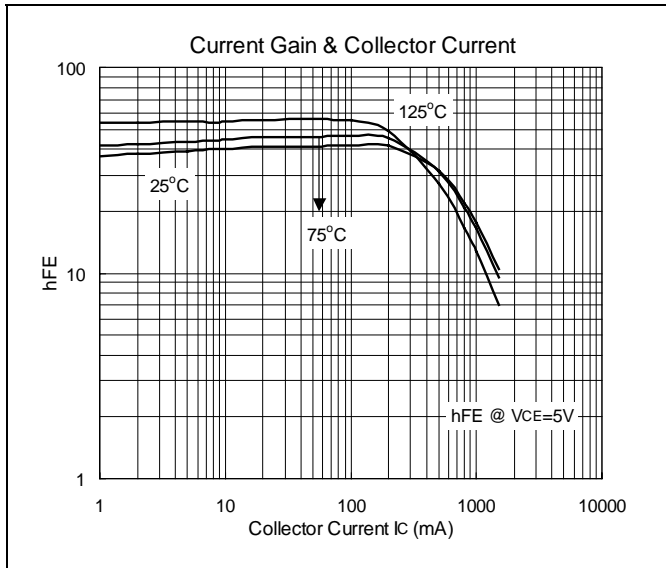
## Classification Of hFE1

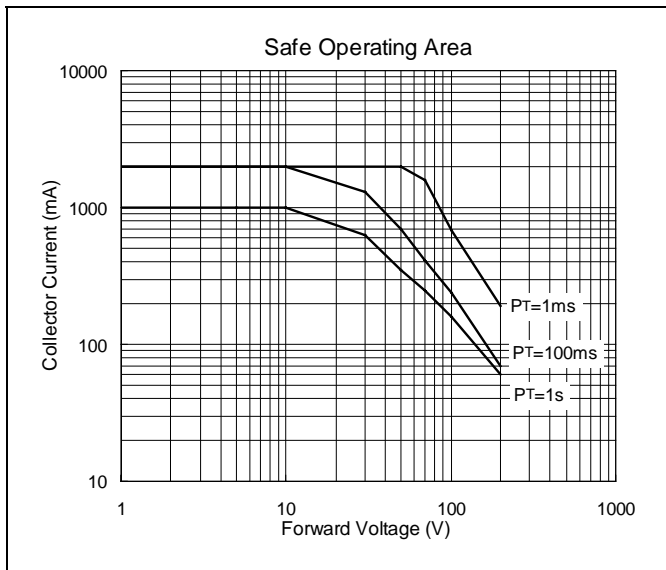
Rank	B1	B2	B3	B4	B5	B6	B7	B8
Range	10-17	13-22	18-27	23-32	28-37	33-42	38-47	43-50





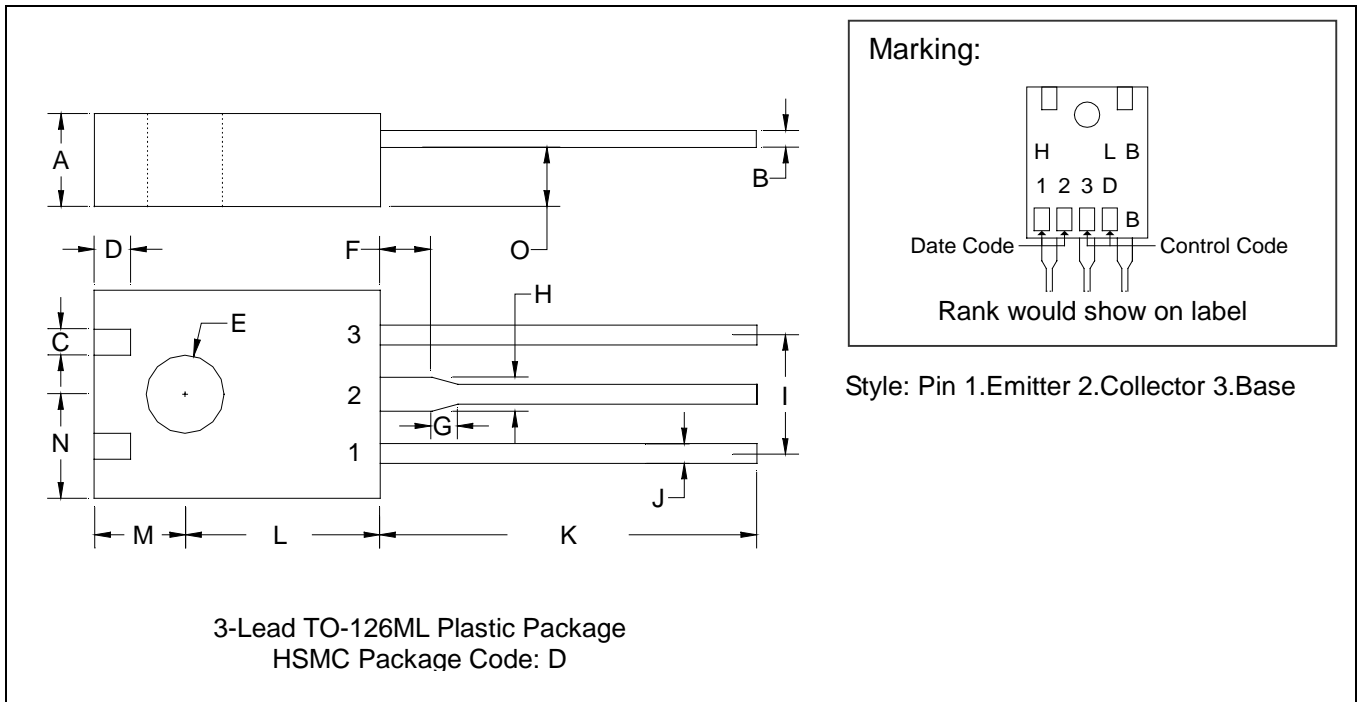
### Characteristics Curve



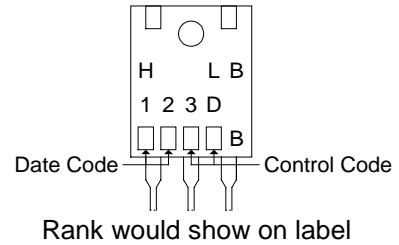




### TO-126ML Dimension



Marking:



Style: Pin 1. Emitter 2. Collector 3. Base

\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1356	0.1457	3.44	3.70	I	-	*0.1795	-	*4.56
B	0.0170	0.0272	0.43	0.69	J	0.0268	0.0331	0.68	0.84
C	0.0344	0.0444	0.87	1.12	K	0.5512	0.5906	14.00	15.00
D	0.0501	0.0601	1.27	1.52	L	0.2903	0.3003	7.37	7.62
E	0.1131	0.1231	2.87	3.12	M	0.1378	0.1478	3.50	3.75
F	0.0737	0.0837	1.87	2.12	N	0.1525	0.1625	3.87	4.12
G	0.0294	0.0494	0.74	1.25	O	0.0740	0.0842	1.88	2.14
H	0.0462	0.0562	1.17	1.42					

Notes: 1. Dimension and tolerance based on our Spec. dated Mar. 6, 1995.  
 2. Controlling dimension: millimeters.  
 3. Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 4. If there is any question with packing specification or packing method, please contact your local HSMC sales office.

**Material:**

- Lead 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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