

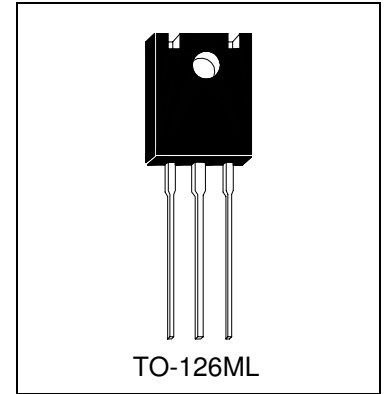


# HSB857D

PNP EPITAXIAL PLANAR TRANSISTOR

## Description

Low frequency power amplifier.



## Absolute Maximum Ratings (T<sub>A</sub>=25°C)

- Maximum Temperatures
  - Storage Temperature ..... -50~+150 °C
  - Junction Temperature ..... +150 °C Maximum
- Maximum Power Dissipation
  - Total Power Dissipation (T<sub>A</sub>=25°C) ..... 1.5 W
  - Total Power Dissipation (T<sub>C</sub>=25°C) ..... 10 W
- Maximum Voltages and Currents
  - BV<sub>CBO</sub> Collector to Base Voltage ..... -60 V
  - BV<sub>CEO</sub> Collector to Emitter Voltage ..... -50 V
  - BV<sub>EBO</sub> Emitter to Base Voltage ..... -5 V
  - I<sub>C</sub> Collector Current ..... -3 A
  - I<sub>CP</sub> Collector Current (I<sub>C</sub> Peak) ..... -4.5 A

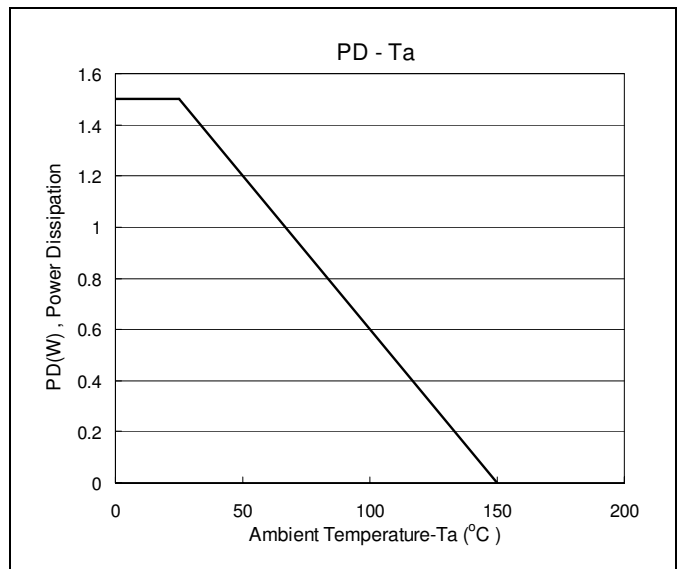
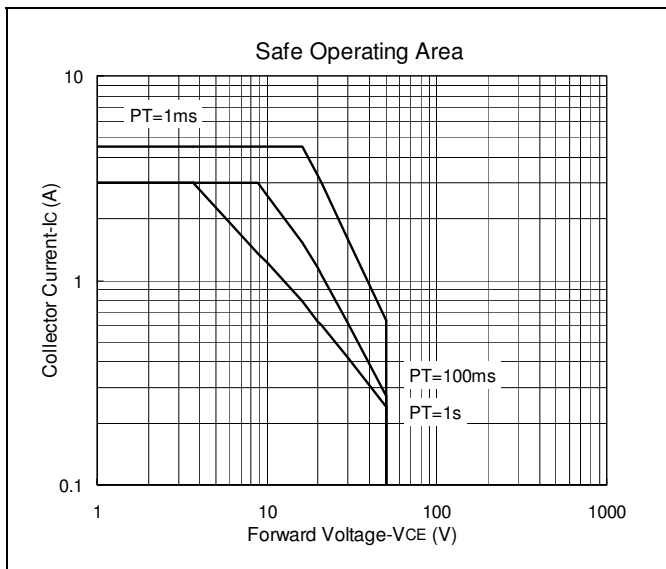
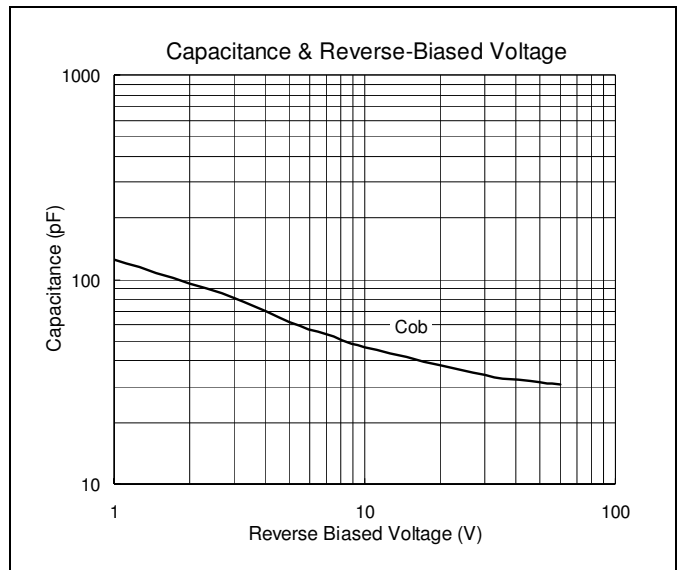
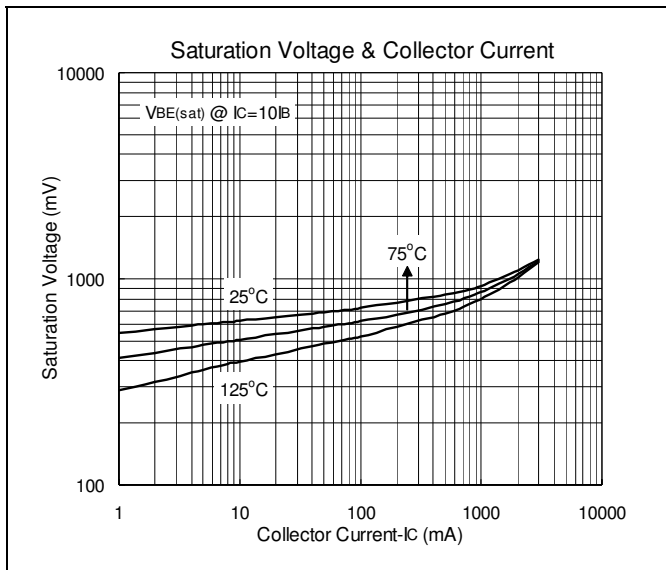
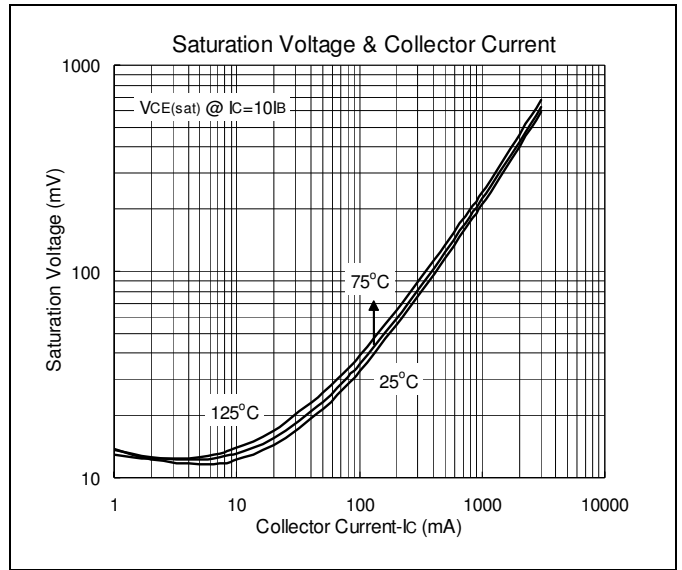
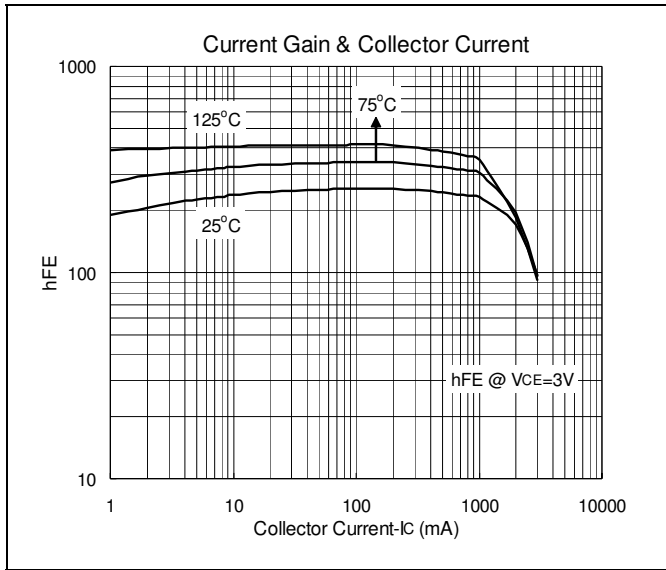
## Electrical Characteristics (T<sub>A</sub>=25°C)

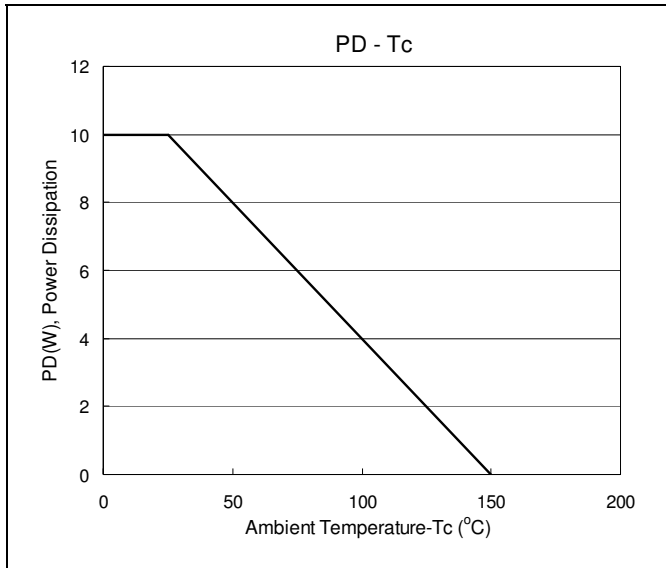
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV <sub>CBO</sub>	-60	-	-	V	I <sub>C</sub> =-50uA
BV <sub>CEO</sub>	-50	-	-	V	I <sub>C</sub> =-1mA
BV <sub>EBO</sub>	-5	-	-	V	I <sub>E</sub> =-50uA
I <sub>CBO</sub>	-	-	-1	uA	V <sub>CB</sub> =-50V
I <sub>CEO</sub>	-	-	-1	uA	V <sub>CE</sub> =-40V
I <sub>EBO</sub>	-	-	-1	uA	V <sub>EB</sub> =-4V
*V <sub>CE(sat)</sub>	-	-0.3	-1	V	I <sub>C</sub> =-2A, I <sub>B</sub> =-0.2A
*V <sub>BE(sat)</sub>	-	-	-1.5	V	I <sub>C</sub> =-2A, I <sub>B</sub> =-0.2A
*h <sub>FE</sub>	170	-	400		I <sub>C</sub> =-500mA, V <sub>CE</sub> =-3V
f <sub>T</sub>	-	15	-	MHz	V <sub>CE</sub> =-5V, I <sub>C</sub> =-500mA, f=100MHz

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



### Characteristics Curve





### TO-126ML Dimension

**Marking:**

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

Date Code: 8 5 7 D      Control Code: S 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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### 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 <sub>L</sub> to T <sub>p</sub> )	<3°C/sec	<3°C/sec
Preheat		
- Temperature Min (T <sub>smin</sub> )	100°C	150°C
- Temperature Max (T <sub>smax</sub> )	150°C	200°C
- Time (min to max) (ts)	60~120 sec	60~180 sec
T <sub>smax</sub> to T <sub>L</sub>		
- Ramp-up Rate	<3°C/sec	<3°C/sec
Time maintained above:		
- Temperature (T <sub>L</sub> )	183°C	217°C
- Time (t <sub>L</sub> )	60~150 sec	60~150 sec
Peak Temperature (T <sub>p</sub> )	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t <sub>p</sub> )	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