



HBC807

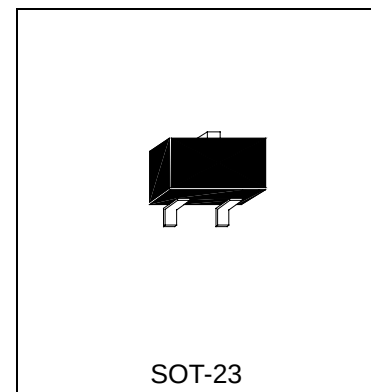
PNP EPITAXIAL PLANAR TRANSISTOR

Description

The HBC807 is designed for switching and AF amplifier amplification suitable for driver stages and low power output stages.

Feature

- Collector current capability $I_C = -800\text{mA}$
- Collector-emitter voltage $V_{CEO(\text{max})} = -45\text{V}$
- General purpose switching and amplification
- NPN complement: HBC817 series
- Pb-Free Package is available



Absolute Maximum Ratings

Characteristic	Symbol	Value (Max.)	Unit
Collector-Emitter Voltage	V_{CEO}	-45	V
Collector-Base Voltage	V_{CBO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current-Continuous	I_C	-800	mA
Total Device Dissipation ($T_A = 25^\circ\text{C}$)	P_D	225	mW
Total Device Dissipation (Dreate above 25°C)		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$

Electrical Characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted.)

Characteristic	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = -10\text{mA}$	-45	-	-	V
Collector-Emitter Breakdown Voltage	BV_{CES}	$I_C = -100\mu\text{A}$	-50	-	-	V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = -100\mu\text{A}$	-5	-	-	V
Collector Cutoff Current	I_{CES}	$V_{CB} = -25\text{V}$	-	-	-100	nA
		$V_{CB} = -20\text{V}, T_J = 150^\circ\text{C}$	-	-	-5	μA
DC Current Gain	$*h_{FE}$	$I_C = -100\text{mA}, V_{CE} = -1\text{V}$	100	-	630	
	$*h_{FE2}$	$I_C = -500\text{mA}, V_{CE} = -1\text{V}$	40	-	-	
Collector-Emitter Saturation Voltage	$*V_{CE(\text{sat})}$	$I_C = -500\text{mA}, I_B = -50\text{mA}$	-	-	-0.7	V
Base-Emitter On VOLTage	$V_{BE(\text{on})}$	$I_C = -300\text{mA}, V_{CE} = -1\text{V}$	-	-	-1.2	V
Current-Gain-Bandwidth Product	f_T	$I_C = -10\text{mA}, V_{CE} = -5\text{V}, f = 100\text{MHz}$	-	100	-	MHz
Output Capacitance	Cob	$V_{CB} = -10\text{V}, f = 1\text{MHz}$	-	-	12	pF

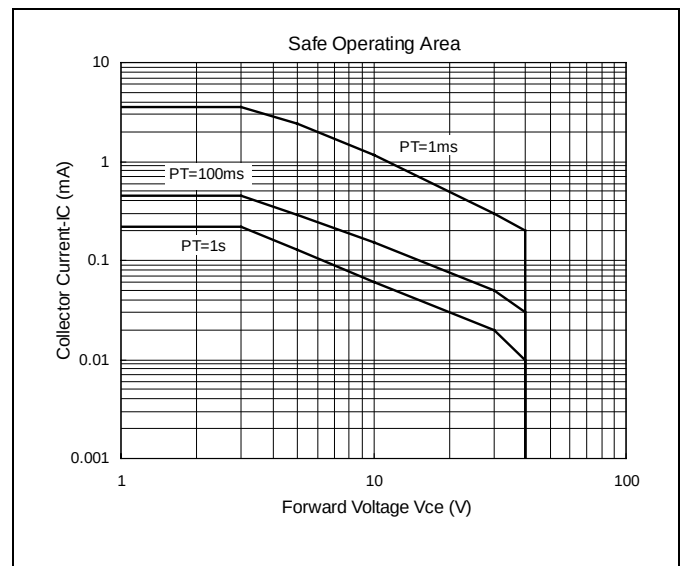
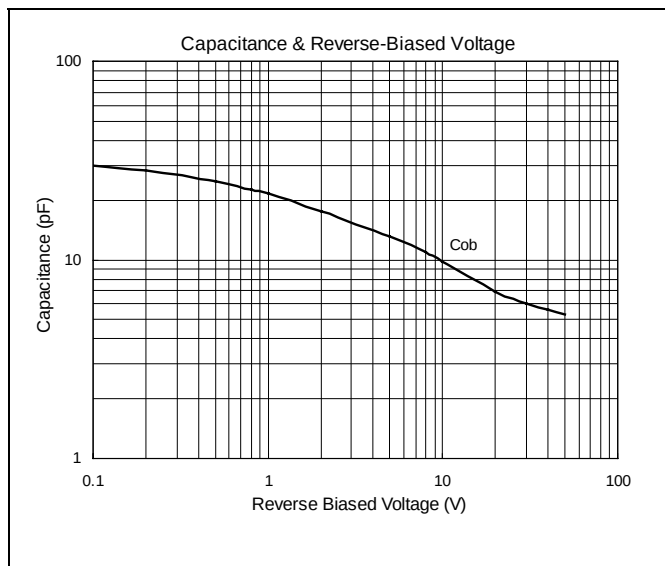
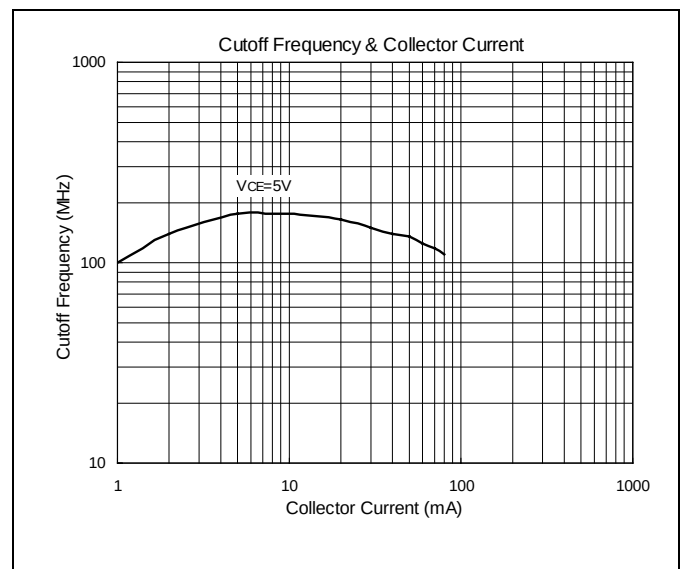
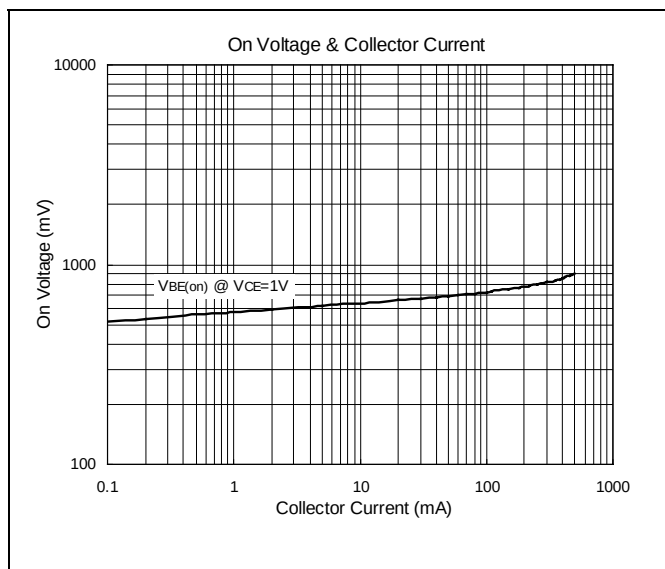
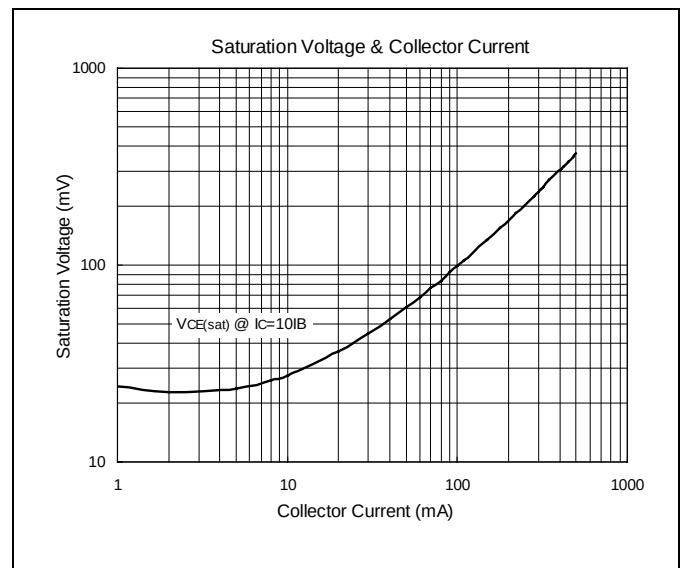
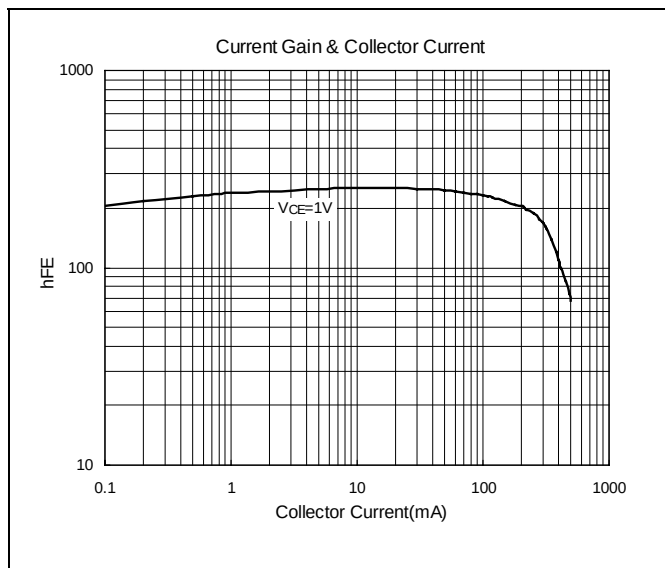
*Pulse Test: Pulse Width $\leq 380\mu\text{s}$, Duty Cycle $\leq 2\%$

Classification Of hFE

Rank(Marking)	16(5A)	25(5B)	40(5C)
hFE	100-250	160-400	250-630

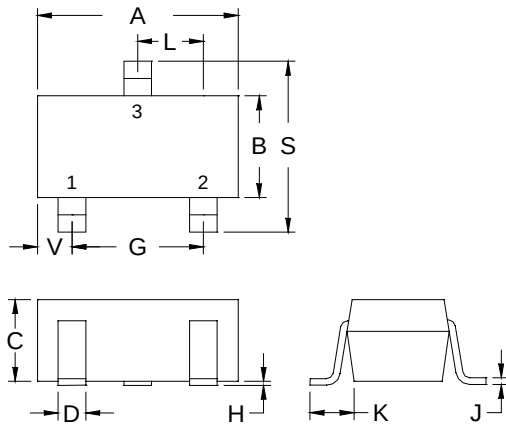


Characteristics Curve



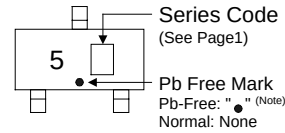


SOT-23 Dimension



3-Lead SOT-23 Plastic
Surface Mounted Package
HSMC Package Code: N

Marking:



Note: Pb-free product can distinguish by the green label or the extra description on the right side of the label.

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

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

DIM	Min.	Max.
A	2.80	3.04
B	1.20	1.60
C	0.89	1.30
D	0.30	0.50
G	1.70	2.30
H	0.013	0.10
J	0.085	0.177
K	0.32	0.67
L	0.85	1.15
S	2.10	2.75
V	0.25	0.65

*: Typical, Unit: mm

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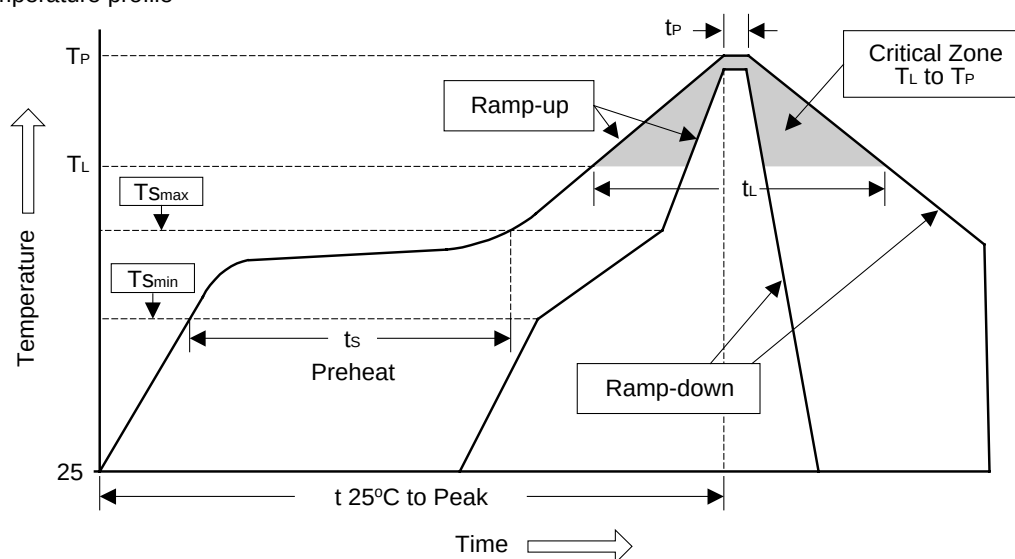


Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%

2. Reflow soldering of surface-mount devices

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