



HMBT8050

NPN EPITAXIAL TRANSISTOR

Description

The HMBT8050 is designed for general purpose amplifier applications.

Features

- High DC Current $h_{FE}=150-400$ at $I_C=150mA$
- Complementary to HMBT8550

Absolute Maximum Ratings

- Maximum Temperatures
Storage Temperature..... -55 ~ +150 °C
Junction Temperature..... +150 °C Maximum
- Maximum Power Dissipation
Total Power Dissipation ($T_A=25^{\circ}C$)..... 225 mW
- Maximum Voltages and Currents ($T_A=25^{\circ}C$)
 V_{CBO} Collector to Base Voltage 25 V
 V_{CEO} Collector to Emitter Voltage 20 V
 V_{EBO} Emitter to Base Voltage 5 V
 I_C Collector Current 700 mA

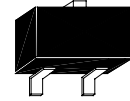
Electrical Characteristics ($T_A=25^{\circ}C$)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	25	-	-	V	$I_C=10\mu A, I_E=0$
BV_{CEO}	20	-	-	V	$I_C=1mA, I_B=0$
BV_{EBO}	5	-	-	V	$I_E=10\mu A, I_C=0$
I_{CBO}	-	-	1	μA	$V_{CB}=20V, I_E=0$
$*V_{CE(sat)}$	-	-	500	mV	$I_C=500mA, I_B=50mA$
$V_{BE(on)}$	-	-	1	V	$V_{CE}=1V, I_C=150mA$
$*h_{FE}$	150	-	500		$V_{CE}=1V, I_C=150mA$
f_T	150	-	-	MHz	$V_{CE}=10V, I_C=20mA, f=100MHz$
Cob	-	-	10	pF	$V_{CB}=10V, f=1MHz$

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

Classification Of h_{FE}

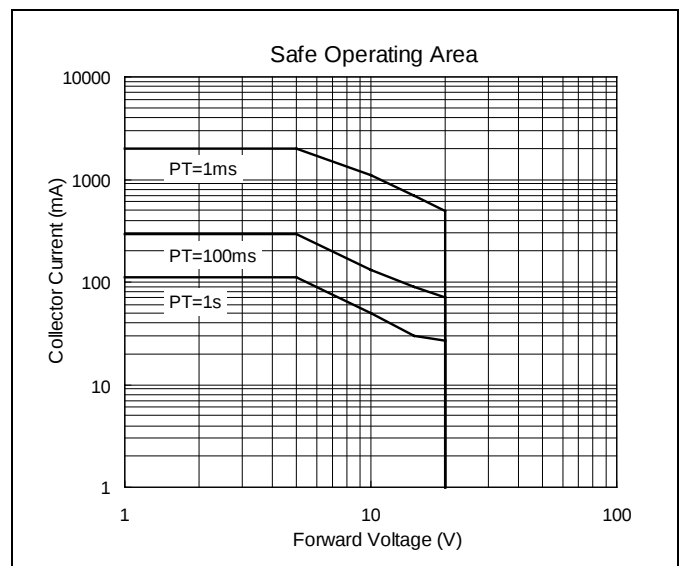
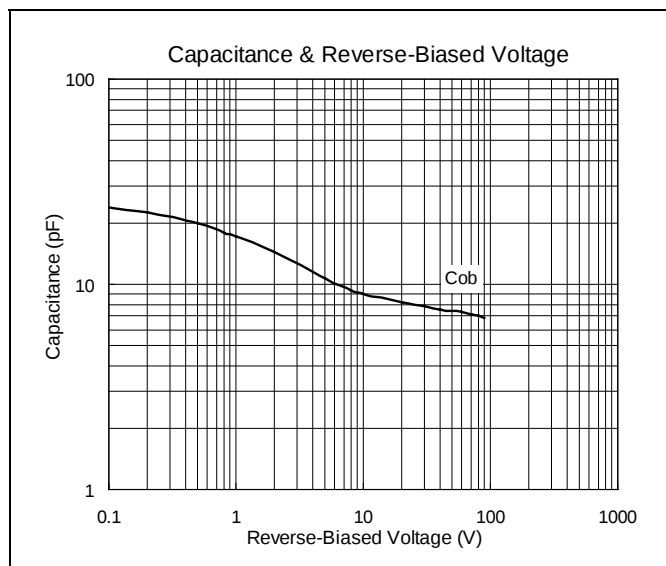
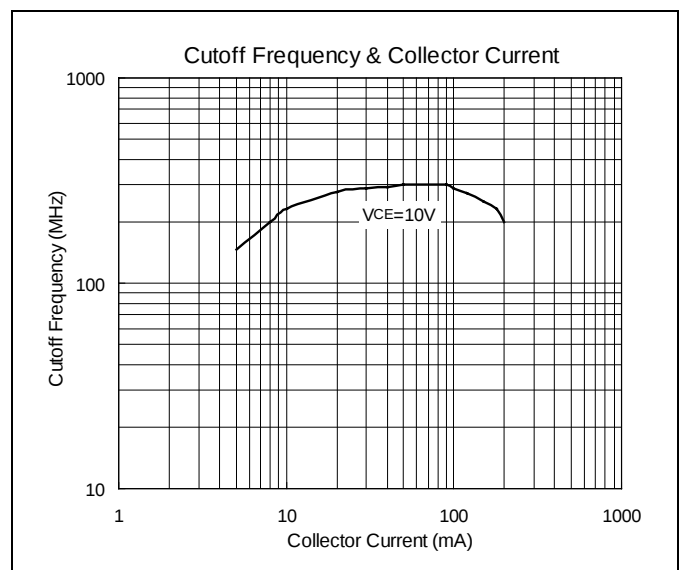
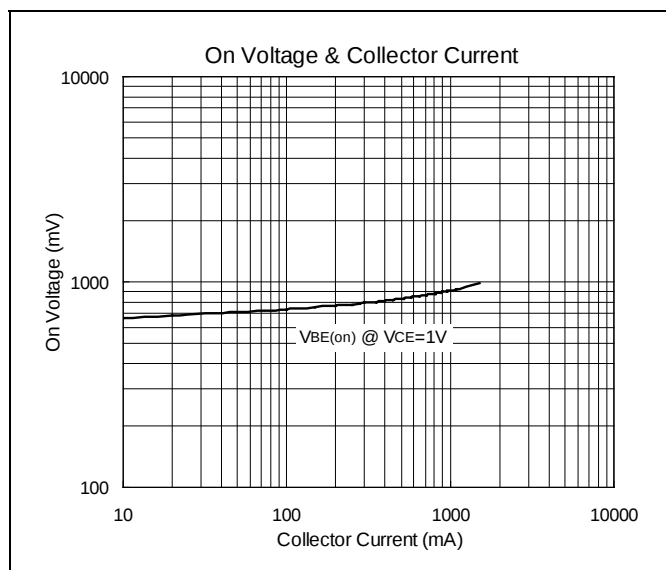
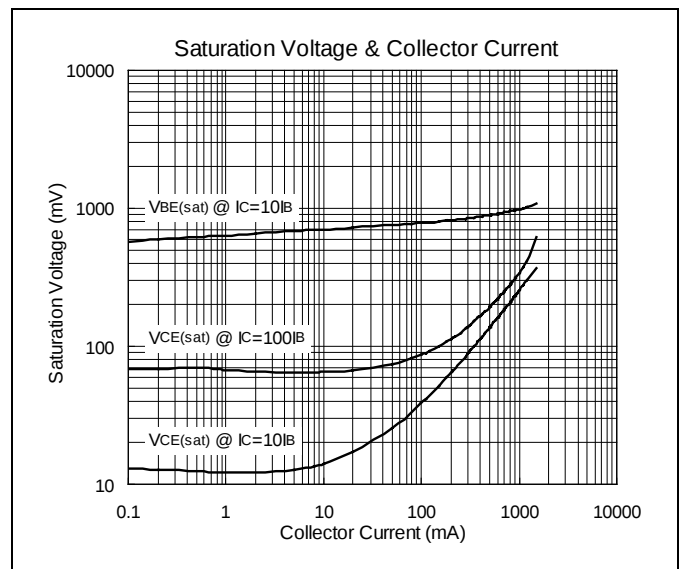
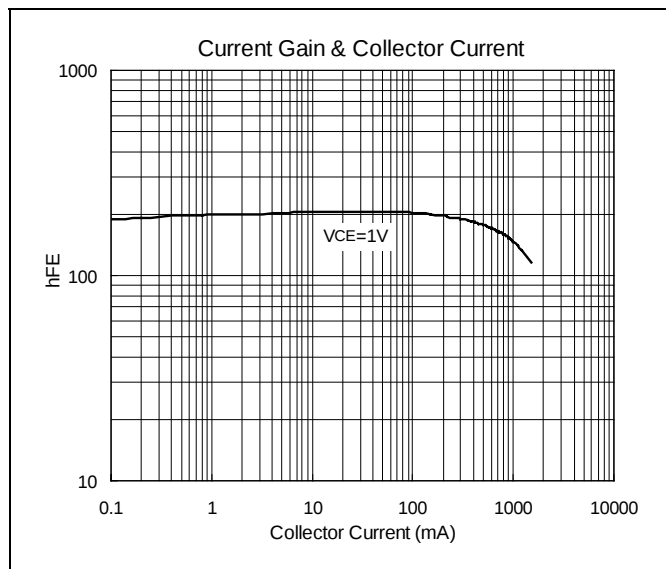
Rank	D9D	D9E
Range	150-300	250-500



SOT-23

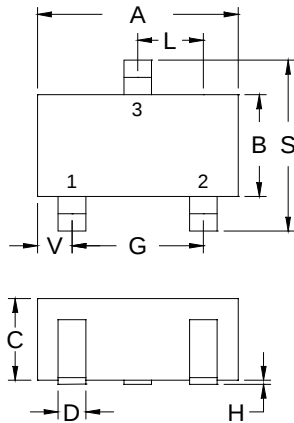


Characteristics Curve



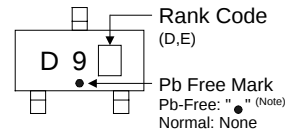


SOT-23 Dimension



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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Head Office And Factory:

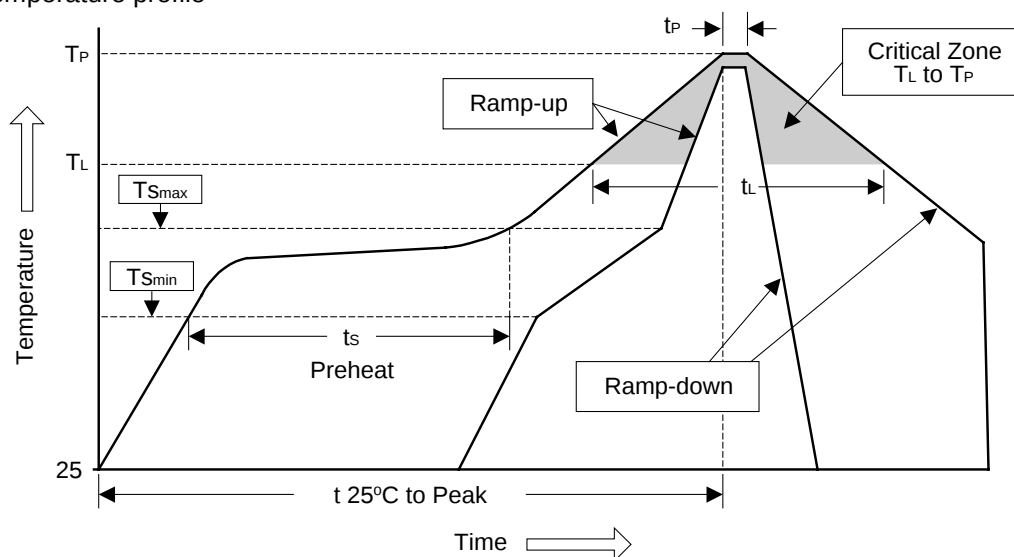
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Soldering Methods for HSMC's Products

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