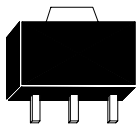
HM117

PNP EPITAXIAL PLANAR TRANSISTOR

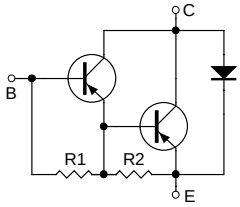


SOT-89

Description

The HM117 is designed for use in general purpose amplifier and low-speed switching applications.

Darlington Schematic



Absolute Maximum Ratings (T_A=25°C)

- Maximum Temperatures
  Storage Temperature ..... -55 ~ +150 °C
  Junction Temperature ..... +150 °C Maximum

- Maximum Power Dissipation
  Total Power Dissipation (T_A=25°C) ..... 1.2 W
  Total Power Dissipation
  (Printed circuit board 2mm thick, collector plating 1cm^2 square or larger) ..... 1.6 W

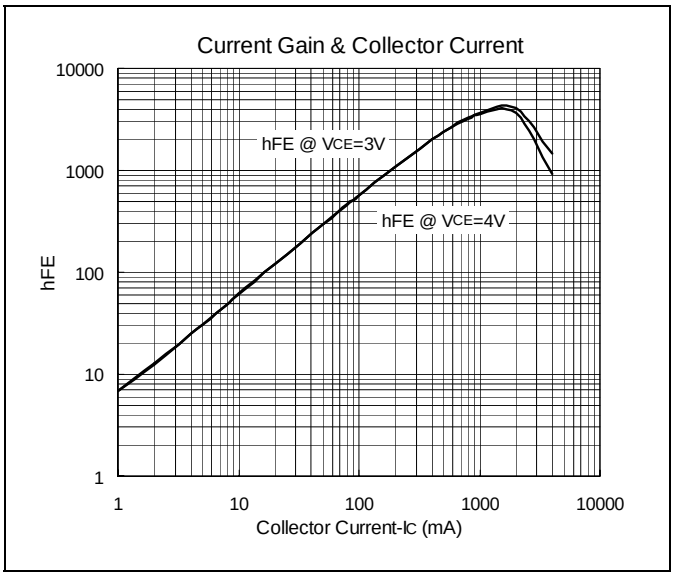
- Maximum Voltages and Currents
  BV_{CBO} Collector to Base Voltage ..... -100 V
  BV_{CEO} Collector to Emitter Voltage ..... -100 V
  BV_{EBO} Emitter to Base Voltage ..... -5 V
  I_C Collector Current (Continue) ..... -4 A
  I_C Collector Current (Peak) ..... -6 A

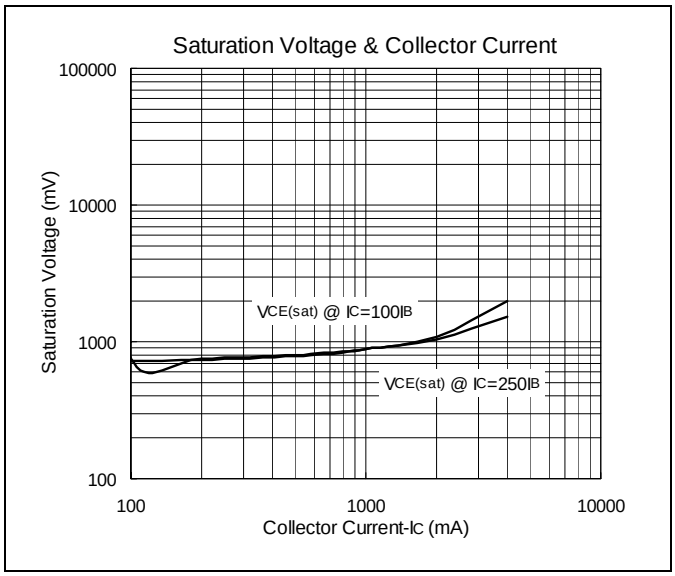
Electrical Characteristics (T_A=25°C)

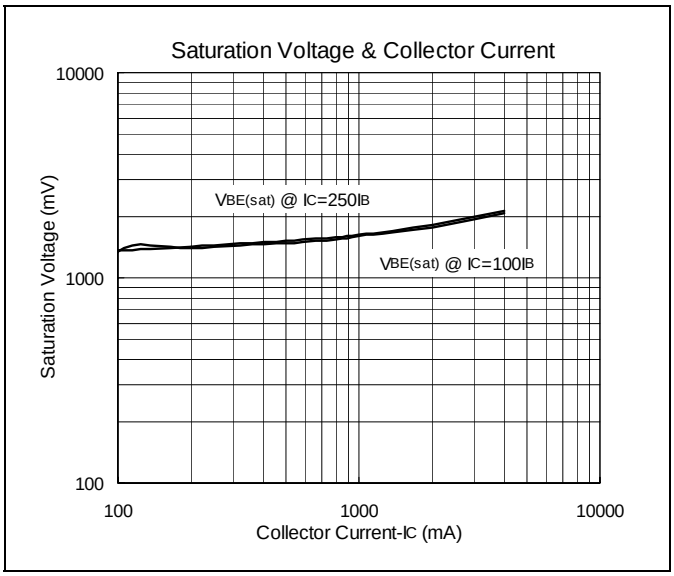
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	-100	-	-	V	I_C=-1mA
BV_{CEO}	-100	-	-	V	I_C=-30mA
I_{CBO}	-	-	-1	mA	V_{CB}=-100V
I_{CEO}	-	-	-2	mA	V_{CE}=-50V
I_{EBO}	-	-	-2	mA	V_{EB}=-5V
*$V_{CE(sat)}$	-	-	-2.5	V	I_C=-2A, I_B=-8mA
*$V_{BE(on)}$	-	-	-2.8	V	I_C=-2A, V_{CE}=-4V
*h_{FE1}	1	-	-	K	I_C=-1A, V_{CE}=-4V
*h_{FE2}	500	-	-		I_C=-2A, V_{CE}=-4V
Cob	-	-	200	pF	V_{CB}=-10V, f=0.1MHz

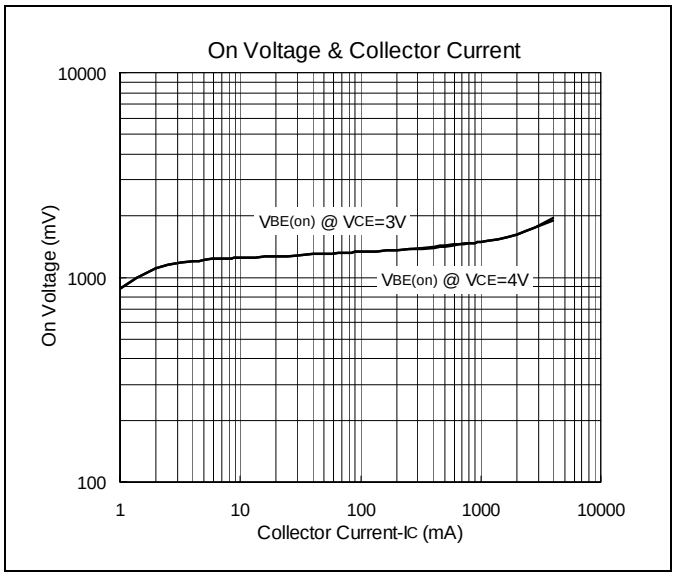
*Pulse Test: Pulse Width ≤380us, Duty Cycle≤2%

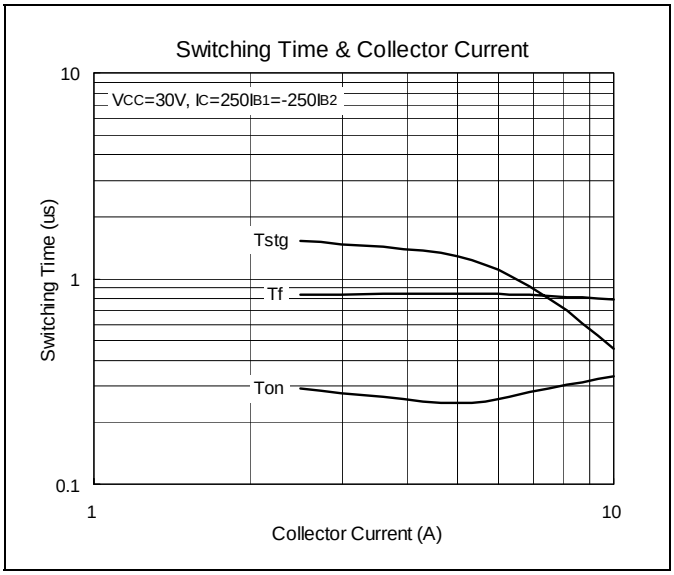
Characteristics Curve

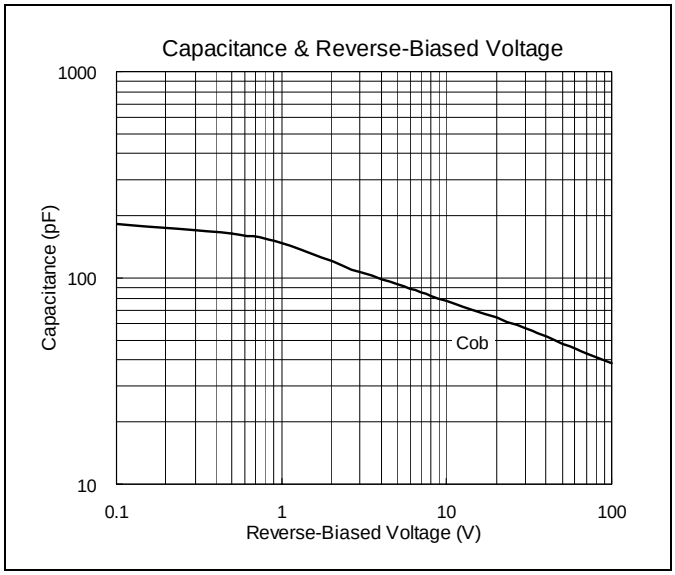


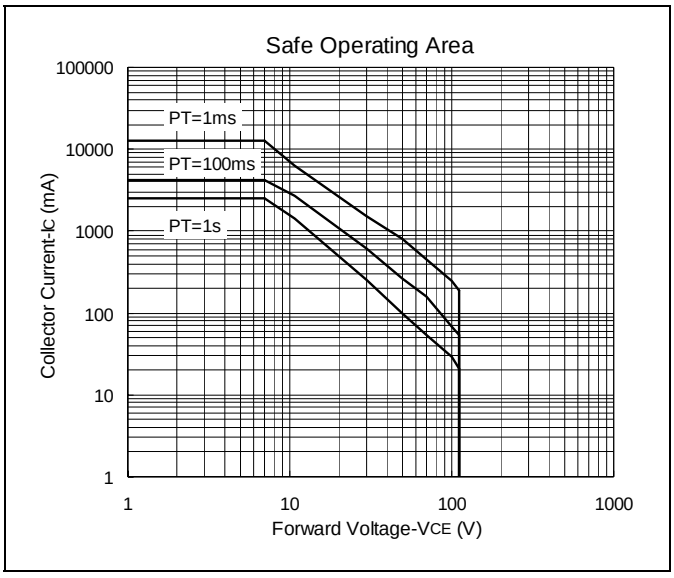




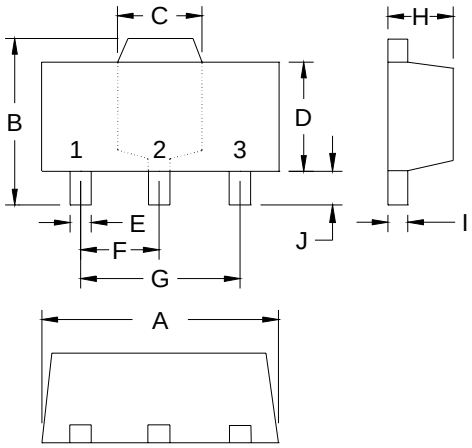






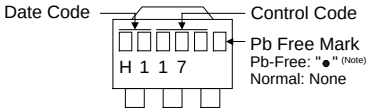

Safe Operating Area
100000
10000
1000
100
10
1
PT=1ms
PT=100ms
PT=1s
Collector Current-Ic (mA)
1
10
100
1000
Forward Voltage-VCE (V)

SOT-89 Dimension



3-Lead SOT-89 Plastic
Surface Mounted Package
HSMC Package Code: M

Marking:



Note: Green label is used for pb-free packing

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

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	4.40	4.60
B	4.05	4.25
C	1.50	1.70
D	2.40	2.60
E	0.36	0.51
F	*1.50	-
G	*3.00	-
H	1.40	1.60
I	0.35	0.41

*: Typical, Unit: mm

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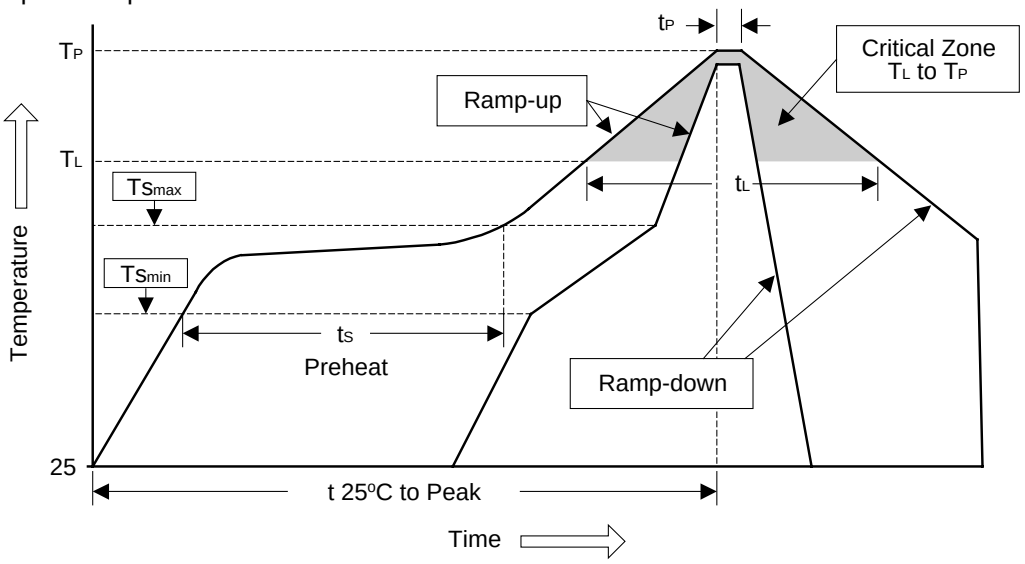
Soldering Methods for HSMC's Products

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 (Ts_{min}) - Temperature Max (Ts_{max}) - Time (min to max) (ts)	 100°C 150°C 60~120 sec	 150°C 200°C 60~180 sec
Tsmax to T_L - Ramp-up Rate	 <3°C/sec	 <3°C/sec
Time maintained above: - Temperature (T_L) - Time (t_L)	 183°C 60~150 sec	 217°C 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