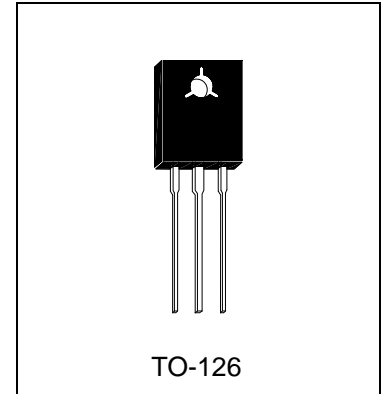




HMJE13003

NPN EPITAXIAL PLANAR TRANSISTOR



Description

- High Voltage, High Speed Power Switch
- Switch Regulators
- PWM Inverters and Motor Controls
- Solenoid and Relay Drivers
- Deflection Circuits

Absolute Maximum Ratings (T_A=25°C)

- Maximum Temperatures
 Storage Temperature -50 ~ +150 °C
 Junction Temperature 150 °C Maximum
- Maximum Power Dissipation
 Total Power Dissipation (T_C=25°C) 20 W
- Maximum Voltages and Currents (T_A=25°C)
 V_{CB0} Collector to Base Voltage 700 V
 V_{CEO} Collector to Emitter Voltage 400 V
 V_{EBO} Emitter to Base Voltage 9 V
 I_C Collector Current Continuous 1.5 A
 I_B Base Current Continuous 0.75 A

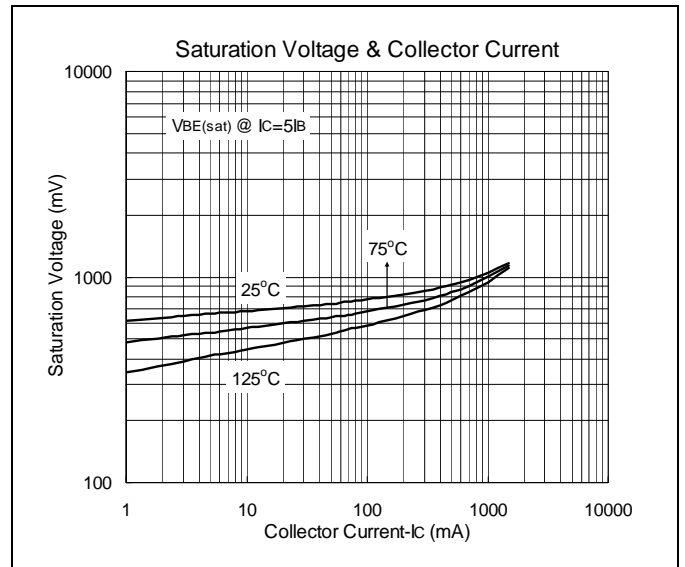
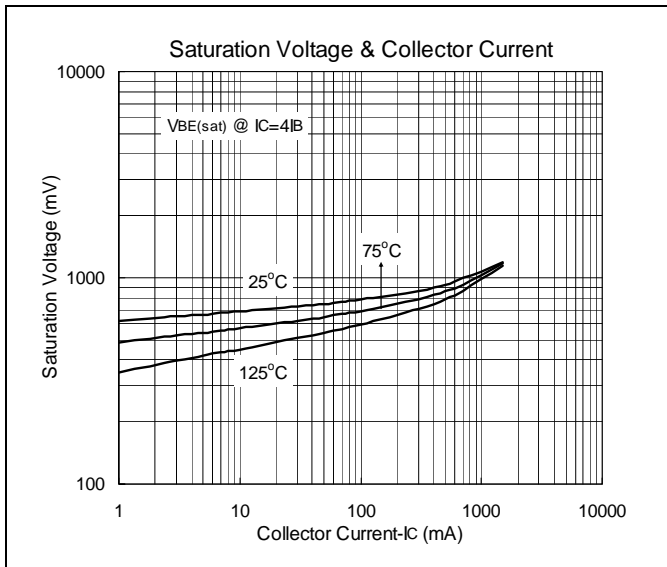
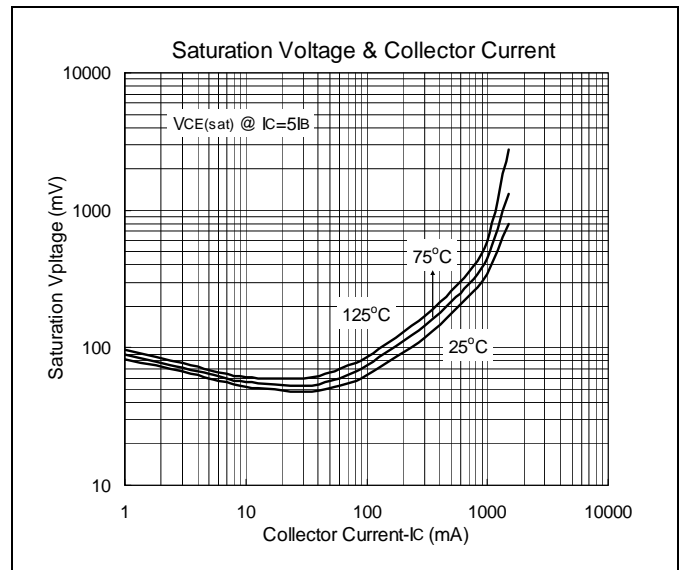
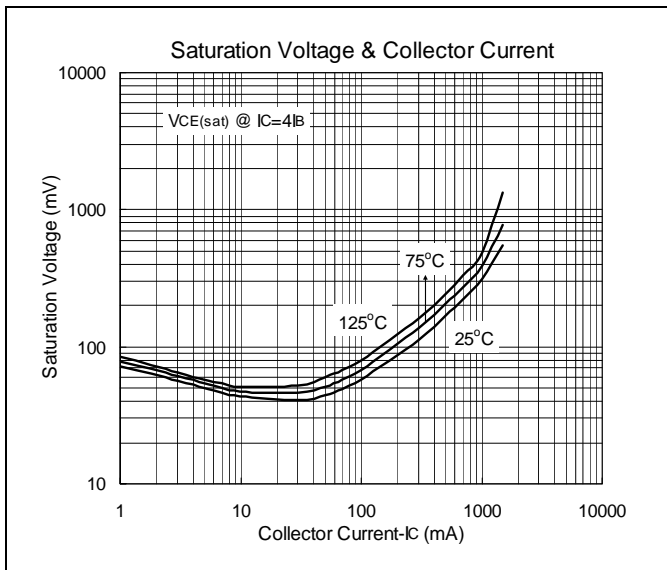
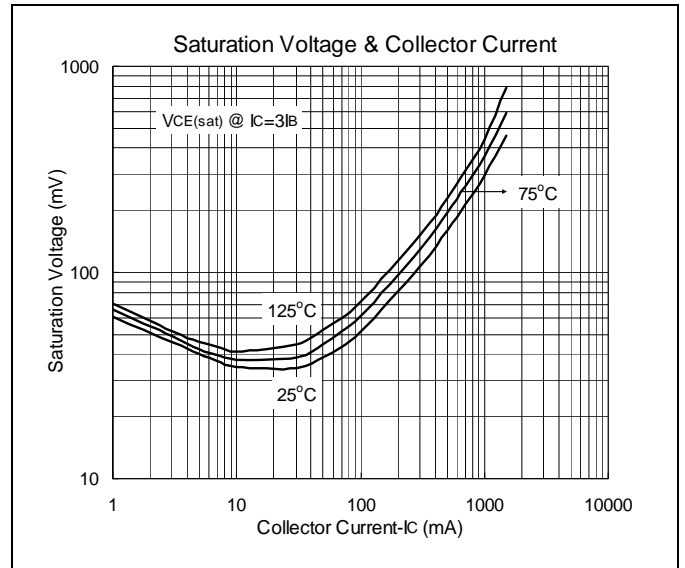
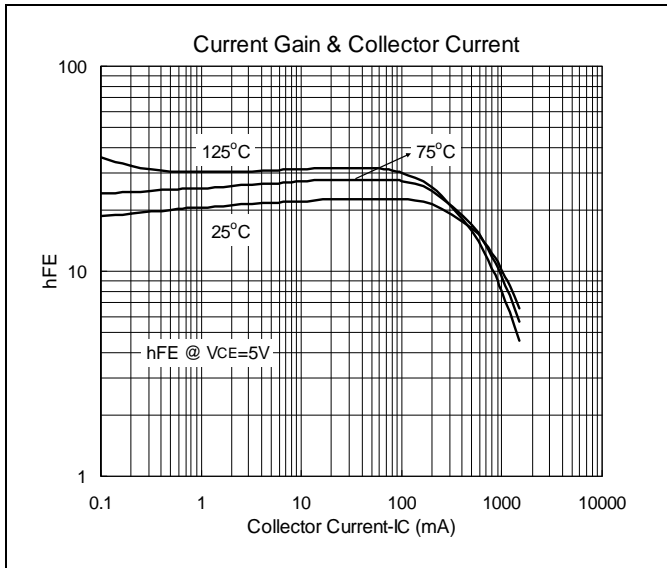
Electrical Characteristics (T_A=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV _{CB0}	700	-	-	V	I _C =1mA, I _E =0
BV _{CEO}	400	-	-	V	I _C =10mA, I _B =0
I _{EBO}	-	-	1	mA	V _{EB} =9V, I _C =0
I _{CEX}	-	-	1	mA	V _{CE} =700V, V _{BE(off)} =1.5V
*V _{CE(sat)1}	-	-	500	mV	I _C =0.5A, I _B =0.1A
*V _{CE(sat)2}	-	-	1	V	I _C =1A, I _B =0.25A
*V _{CE(sat)3}	-	-	3	V	I _C =1.5A, I _B =0.5A
*V _{BE(sat)}	-	-	1	V	I _C =0.5A, I _B =0.1A
*V _{BE(sat)}	-	-	1.2	V	I _C =1A, I _B =0.25A
*h _{FE1}	8	-	40		I _C =0.3A, V _{CE} =5V
*h _{FE2}	5	-	25		I _C =1A, V _{CE} =5V

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

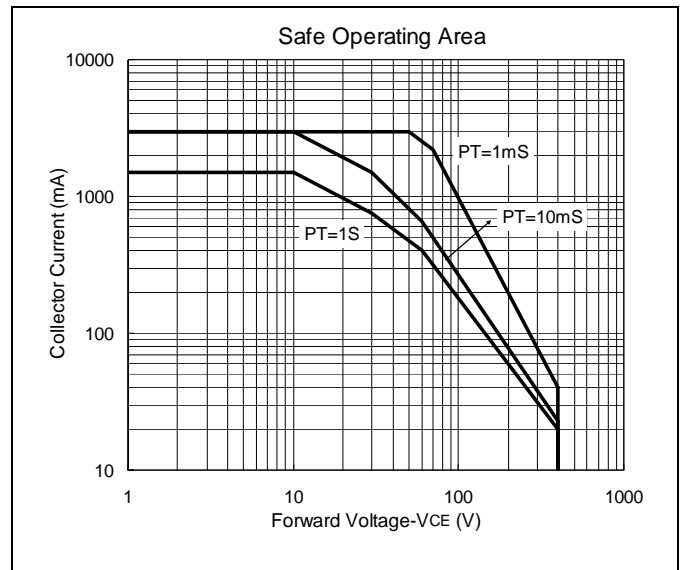
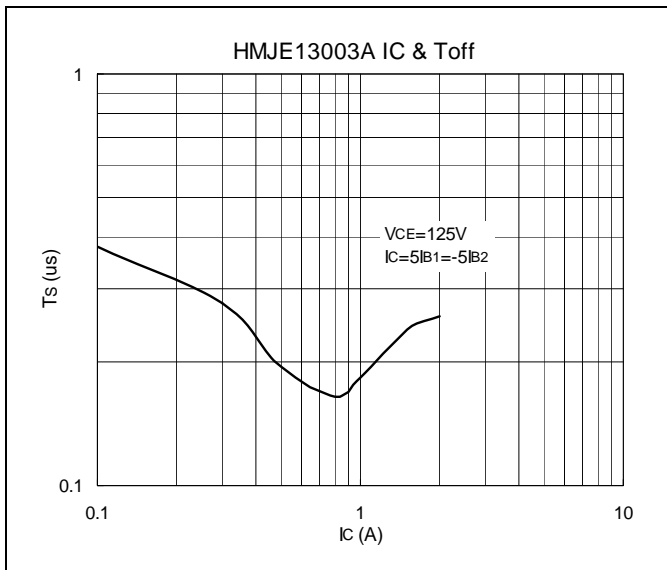
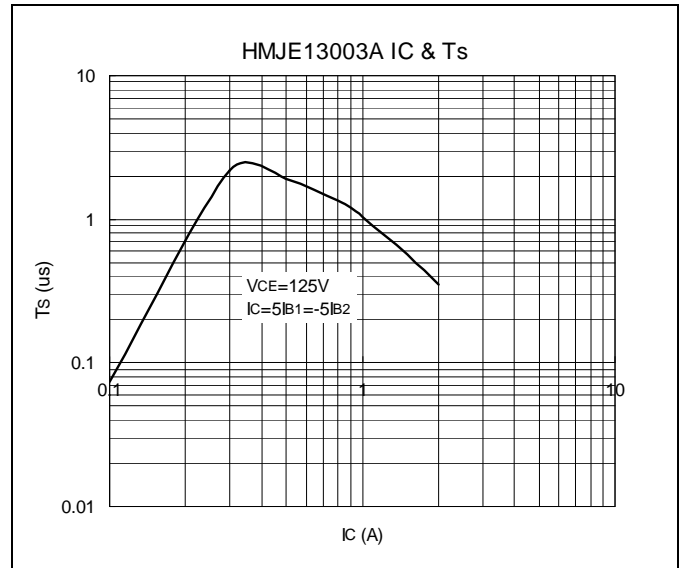
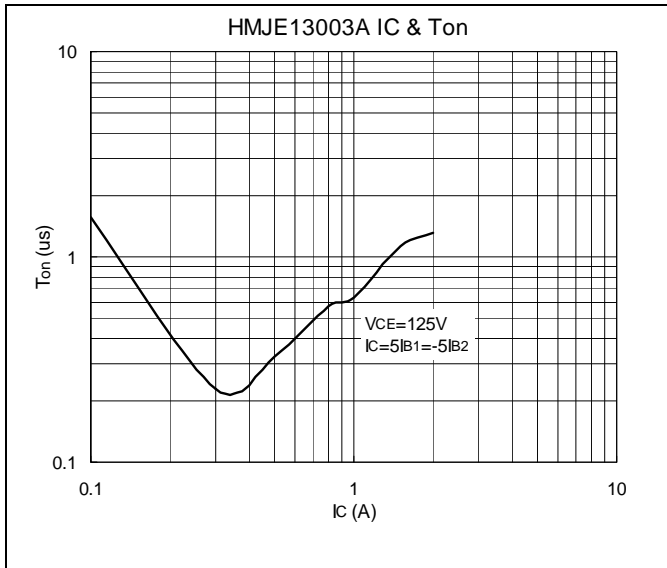


Characteristics Curve





Characteristics Curve





TO-126 Dimension

3-Lead TO-126
Plastic Package
HSMC Package Code: T

Marking:

Pb Free Mark
Pb Free: "•" (Note)
Normal: None

Date Code Control Code

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	3.60	4.40
B	6.90	7.60
C	13.00	16.50
D	7.20	8.50
F	0.65	0.88
G	1.00	1.42
H	4.52	4.62
J	1.14	1.50
K	0.90	1.50
L	0.45	0.60
M	2.92	3.40
N	2.00	2.70

Unit: mm

TO-126S Dimension

3-Lead TO-126
Plastic Package
HSMC Package Code: T

Marking:

Pb Free Mark
Pb Free: "•" (Note)
Normal: None

Date Code Control Code

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	2.280	2.680
b1	1.170	1.370
bp	0.660	0.860
c	0.350	0.500
D	10.700	11.100
E	7.430	7.830
e	2.280	REF
e1	4.560	REF
L	7.400	8.600
L1	1.750	1.950
P	3.350	3.550
P1	3.600	3.900
Q	1.060	1.460

Unit: mm

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MICROELECTRONICS CORP.

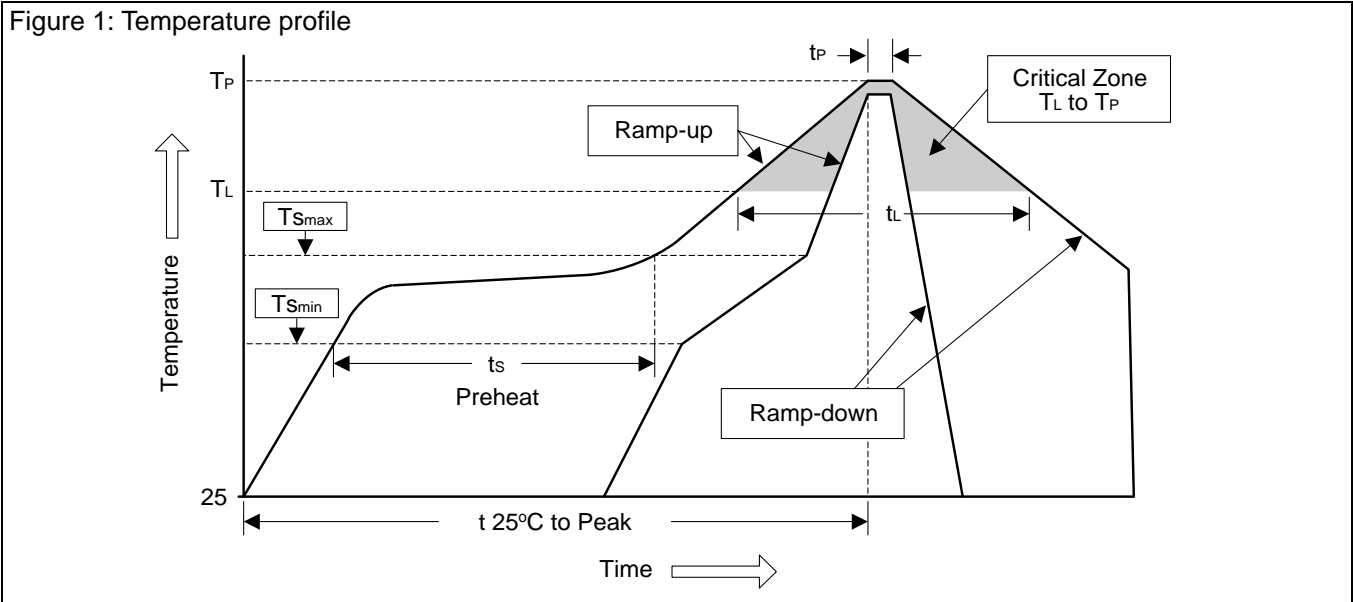
Spec. No. : HT200210
Issued Date : 2001.01.01
Revised Date : 2010.03.16
Page No. : 5/6





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_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	10sec ±1sec
Pb-Free devices.	260°C ±5°C	10sec ±1sec