



H2N5551

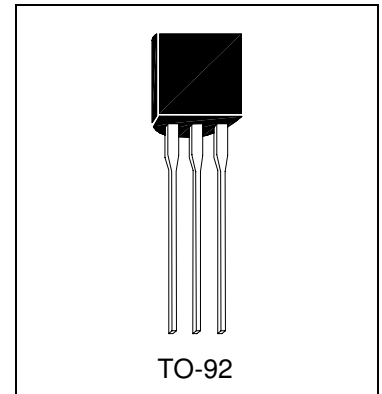
NPN EPITAXIAL PLANAR TRANSISTOR

Description

The H2N5551 is designed for amplifier transistor.

Features

- Complements to PNP Type H2N5401
- High Collector-Emitter Breakdown Voltage ($V_{CEO} > 160V$ (@ $I_C = 1mA$))



Absolute Maximum Ratings

- Maximum Temperatures
 - Storage Temperature -55 ~ +150 °C
 - Junction Temperature +150 °C Maximum
- Maximum Power Dissipation
 - Total Power Dissipation ($T_A = 25^\circ C$) 625 mW
- Maximum Voltages and Currents ($T_A = 25^\circ C$)
 - V_{CBO} Collector to Base Voltage 180 V
 - V_{CEO} Collector to Emitter Voltage 160 V
 - V_{EBO} Emitter to Base Voltage 6 V
 - I_C Collector Current 600 mA

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

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	180	-	-	V	$I_C = 100\mu A, I_E = 0$
BV_{CEO}	160	-	-	V	$I_C = 1mA, I_B = 0$
BV_{EBO}	6	-	-	V	$I_E = 10\mu A, I_C = 0$
I_{CBO}	-	-	50	nA	$V_{CB} = 120V, I_E = 0$
I_{EBO}	-	-	50	nA	$V_{EB} = 4V, I_C = 0$
$*V_{CE(sat)1}$	-	-	0.15	V	$I_C = 10mA, I_B = 1.0mA$
$*V_{CE(sat)2}$	-	-	0.2	V	$I_C = 50mA, I_B = 5mA$
$*V_{BE(sat)1}$	-	-	1	V	$I_C = 10mA, I_B = 1mA$
$*V_{BE(sat)2}$	-	-	1	V	$I_C = 50mA, I_B = 5mA$
$*h_{FE1}$	80	-	-		$V_{CE} = 5V, I_C = 1mA$
$*h_{FE2}$	80	160	400		$V_{CE} = 5V, I_C = 10mA$
$*h_{FE3}$	50	-	-		$V_{CE} = 5V, I_C = 50mA$
f_T	100	-	300	MHz	$V_{CE} = 10V, I_C = 10mA, f = 100MHz$
Cob	-	-	6	pF	$V_{CB} = 10V, f = 1MHz, I_E = 0$

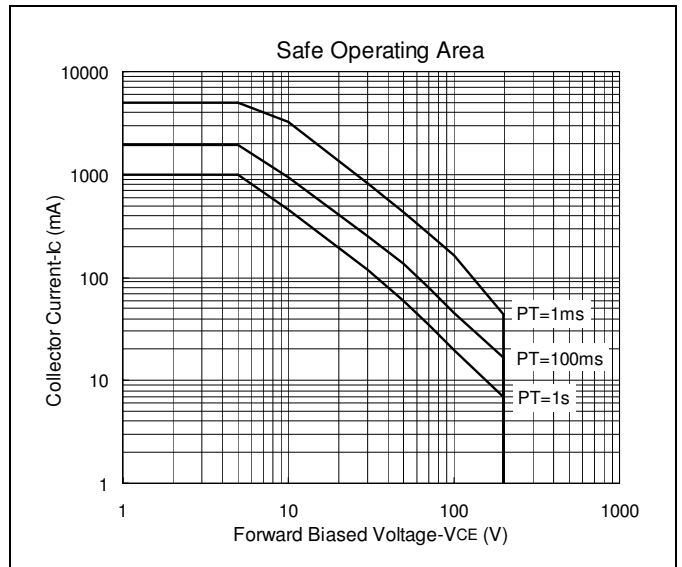
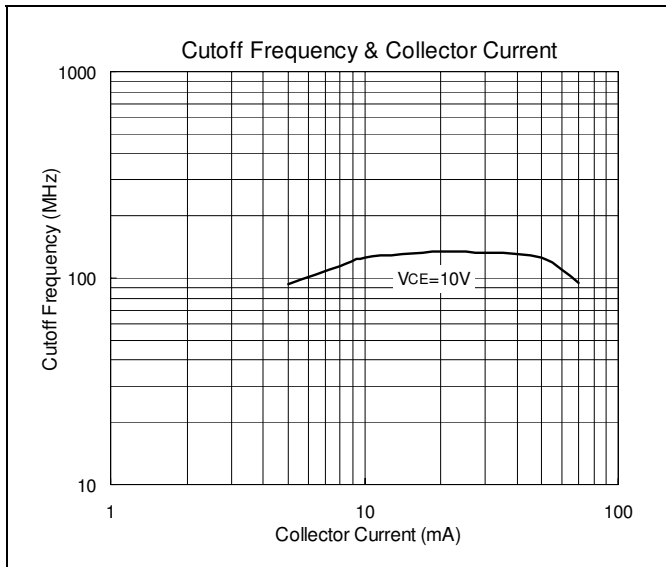
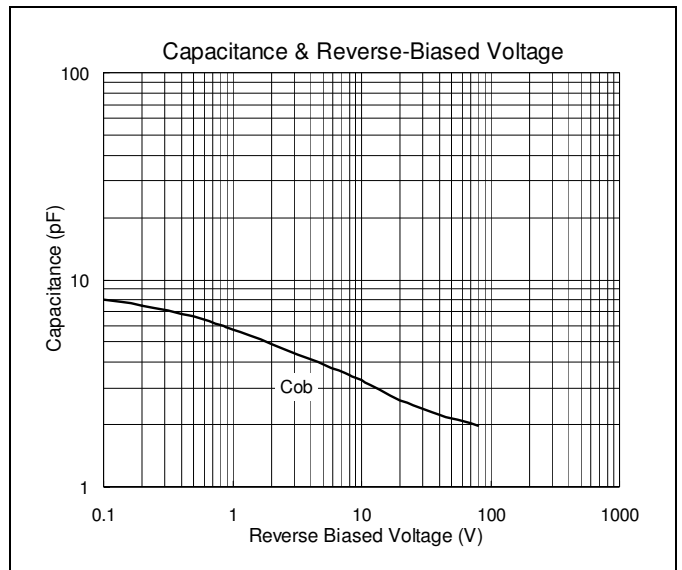
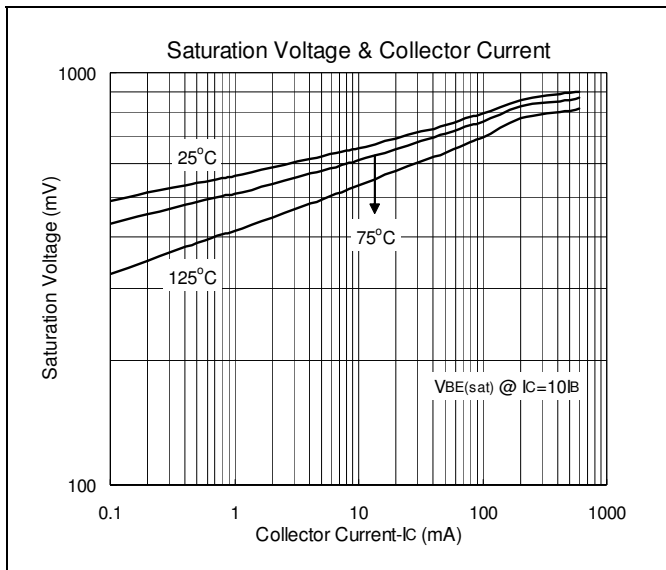
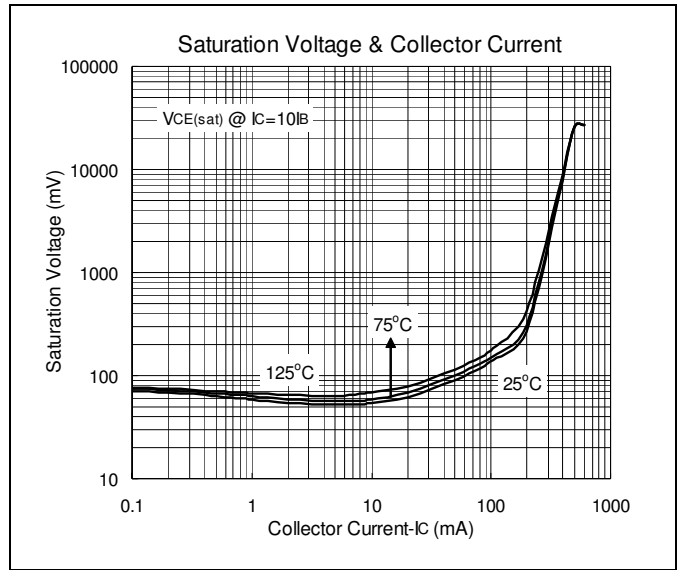
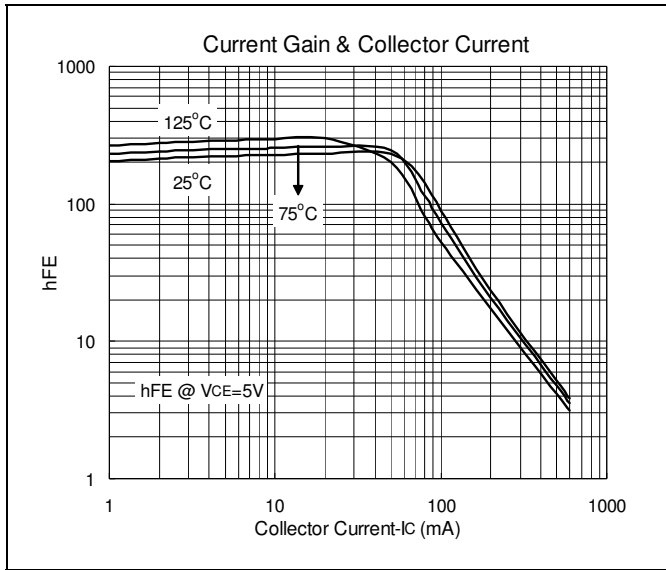
*Pulse Test: Pulse Width $\leq 380\mu s$, Duty Cycle $\leq 2\%$

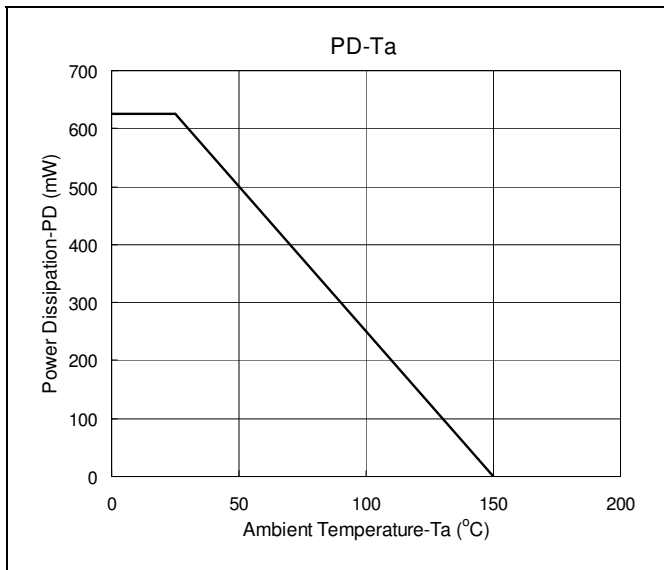
Classification of h_{FE2}

Rank	A	N	C
Range	80-200	100-250	160-400



Characteristics Curve







TO-92 Dimension

Marking:

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

H	2 N
5	5 5 1

Date Code Control Code

Note: Green label is used for pb-free packing

Pin Style: 1. Emitter 2. Base 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	4.33	4.83
B	4.33	4.83
C	12.70	-
D	0.36	0.56
E	-	*1.27
F	3.36	3.76
G	0.36	0.56
H	-	*2.54
I	-	*1.27
$\alpha 1$	-	*5°
$\alpha 2$	-	*2°
$\alpha 3$	-	*2°

*: Typical, Unit: mm

3-Lead TO-92 Plastic Package
 HSMC Package Code: A

TO-92 Taping Dimension

DIM	Min.	Max.
A	4.33	4.83
D	3.80	4.20
D1	0.36	0.53
D2	4.33	4.83
F1, F2	2.40	2.90
H	15.50	16.50
H1	8.50	9.50
H2	-	1
H2A	-	1
H3	-	27
H4	-	21
L	-	11
L1	2.50	-
P	12.50	12.90
P1	5.95	6.75
P2	50.30	51.30
T	-	0.55
T1	-	1.42
T2	0.36	0.68
W	17.50	19.00
W1	5.00	7.00

Unit: mm

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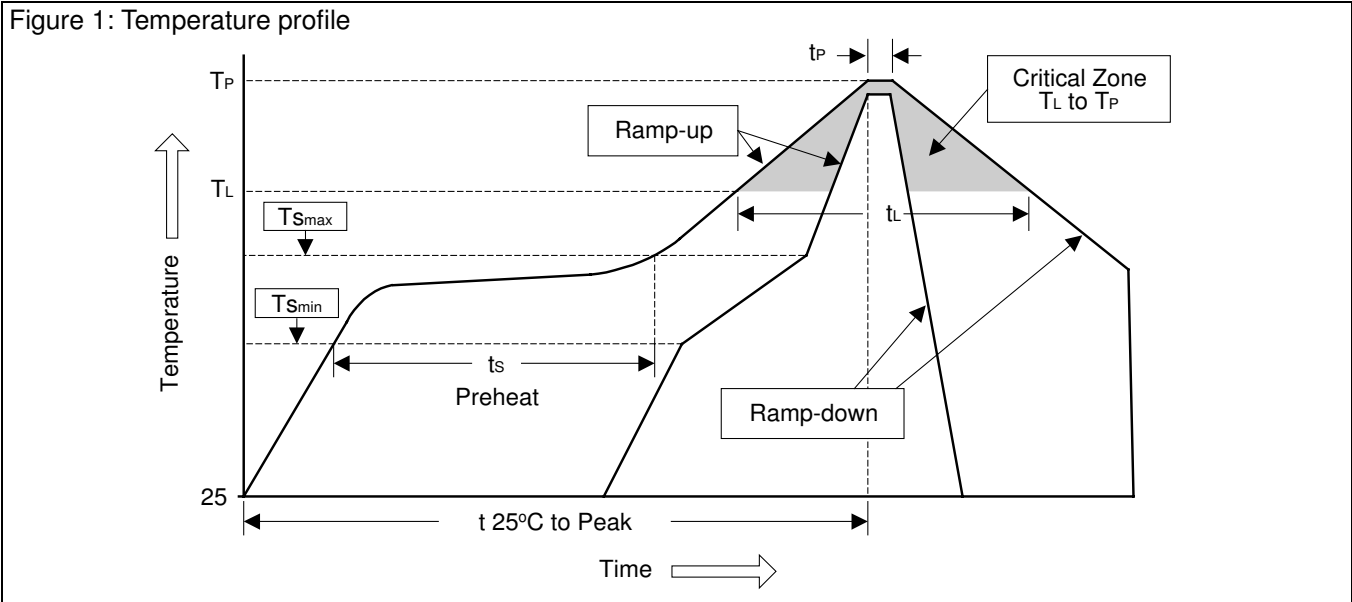
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Soldering Methods for HSMC's Products

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 _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) (ts)	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