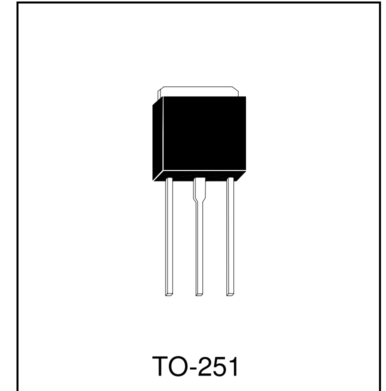
HI3669

NPN EPITAXIAL PLANAR TRANSISTOR


TO-251

Description

The HI3669 is designed for using in power amplifier applications, power switching application.

Absolute Maximum Ratings (T_A=25°C)

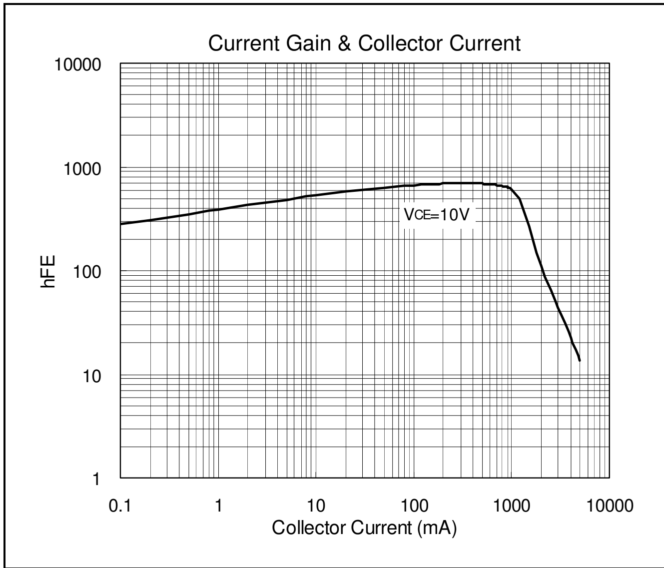
- Maximum Temperatures
  Tstg Storage Temperature .... -55 ~ +150 °C
  Tj Junction Temperature .... +150 °C
- Maximum Power Dissipation
  Total Power Dissipation (T_A=25°C) .... 1.25 W
- Maximum Voltages and Currents
  BV_{CBO} Collector to Base Breakdown Voltage .... 80 V
  BV_{CEO} Collector to Emitter Breakdown Voltage .... 80 V
  BV_{EBO} Emitter to Base Emitter Breakdown Voltage .... 5 V
  I_C Collector Current (DC) .... 2 A

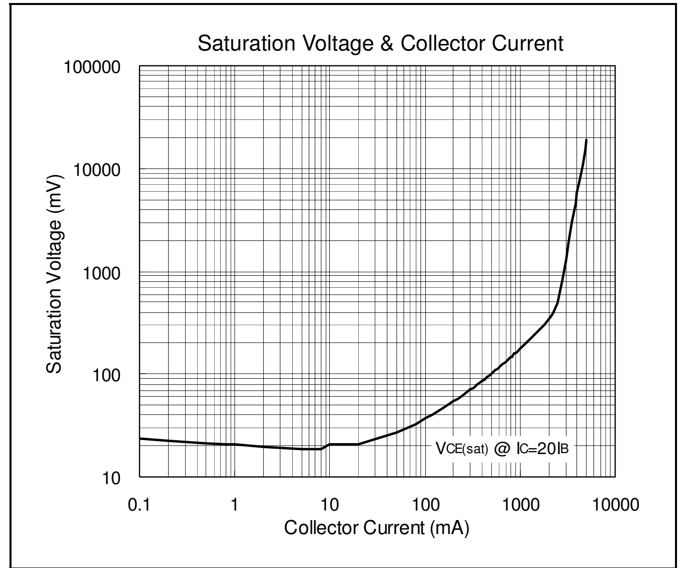
Electrical Characteristics (T_A=25°C)

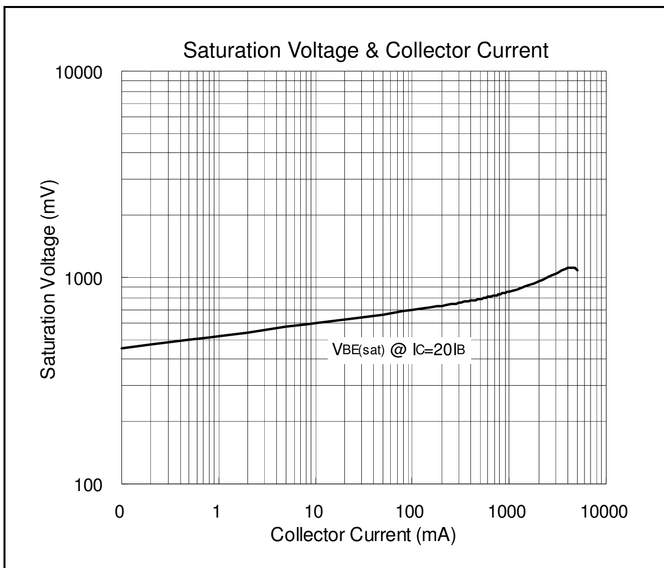
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	80	-	-	V	I_C=100uA
BV_{CEO}	80	-	-	V	I_C=10mA
BV_{EBO}	5	-	-	V	I_E=100uA
I_{CBO}	-	-	1000	nA	V_{CB}=80V
I_{EBO}	-	-	1000	nA	V_{EB}=5V
*$V_{CE(sat)}$	-	0.15	0.5	V	I_C=1A, I_B=50mA
*$V_{BE(sat)}$	-	0.9	1.2	V	I_C=1A, I_B=50mA
*h_{FE}	300	-	-		V_{CE}=2V, I_C=500mA
f_T	-	100	-	MHz	V_{CE}=2V, I_C=500mA
Cob	-	30	-	pF	V_{CB}=10V, f=1MHz
T_{on}	-	0.2	-	uS	I_{B1}=-I_{B2}=50mA, Duty Cycle≤1%
T_{stg}	-	1.0	-	uS	
T_f	-	0.2	-	uS	

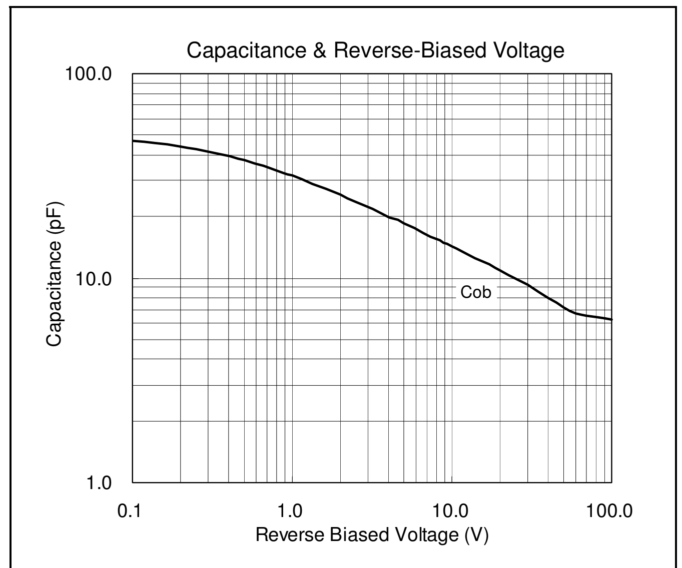
*Pulse Test: Pulse Width ≤380us, Duty Cycle≤2%

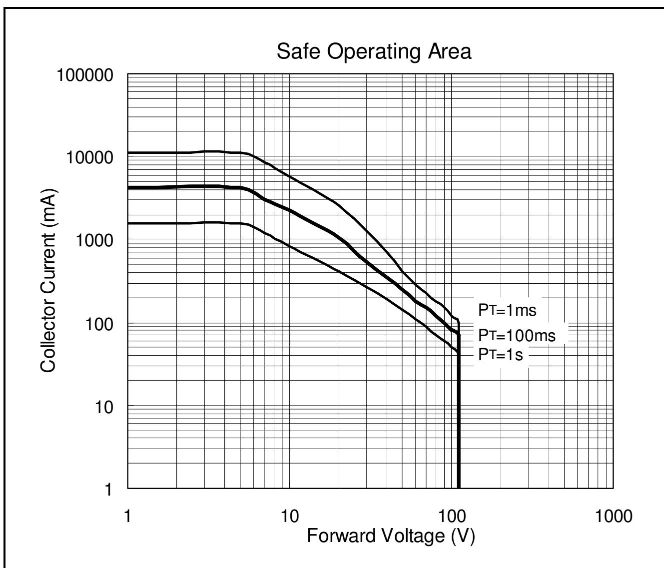
Characteristics Curve











TO-251 Dimension

Marking:

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

H I
3 6 6 9

Date Code
Control Code

Note: Green label is used for pb-free packing

Pin Style: 1.Base 2/Tab.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	6.35	6.80
C	4.80	5.50
F	1.30	1.70
G	5.40	6.25
H1	6.75	8.00
K	0.50	0.90
K1	0.40	0.90
L	0.90	1.50
M	2.20	2.40
a1	0.40	0.65
a2	-	*2.30

*: Typical, Unit: mm

3-Lead TO-251
Plastic Package
HSMC Package Code: I

Marking:

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

H I
3 6 6 9

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	6.40	6.80
B	-	6.00
C	5.04	5.64
D	-	*4.34
E	0.40	0.80
F	0.50	0.90
G	5.90	6.30
H	-	*1.80
H1	-	*9.30
I	-	*16.10
J	-	*0.80
K	-	0.96
K1	-	*0.76
M	2.20	2.40
a1	0.40	0.60
a2	2.10	2.50
y1	-	5°
y2	-	3°

*: Typical, Unit: mm

3-Lead TO-251
Plastic Package
HSMC Package Code: I

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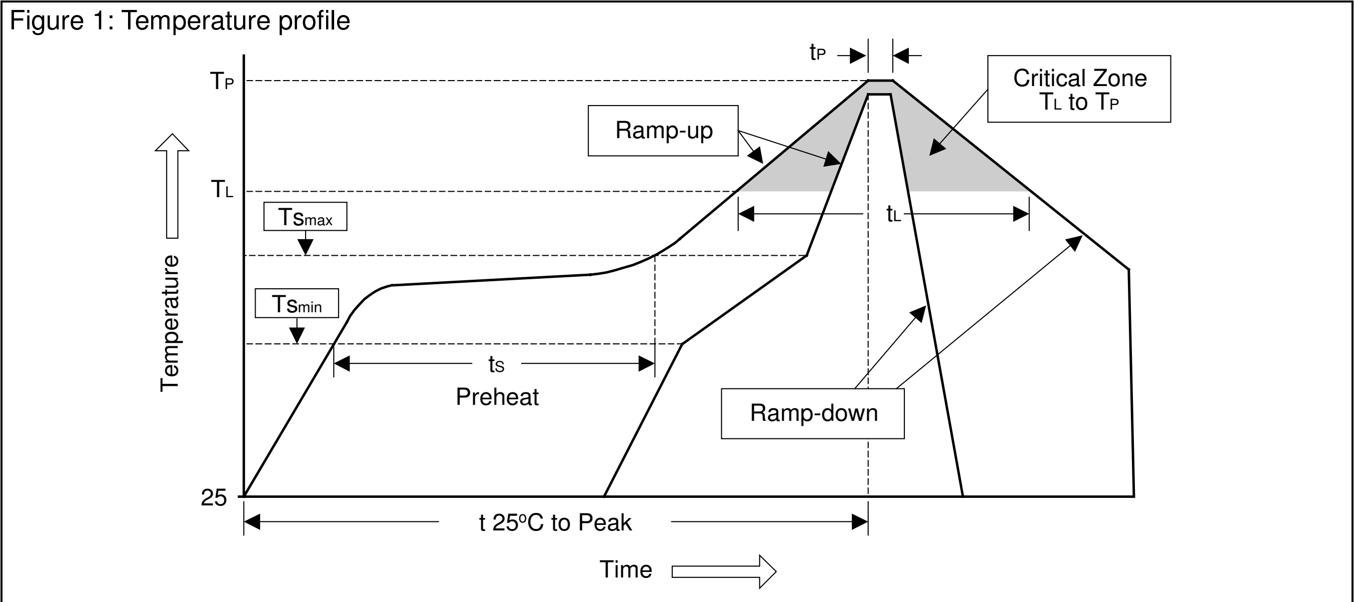
Soldering Methods for HSMC's Products

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