

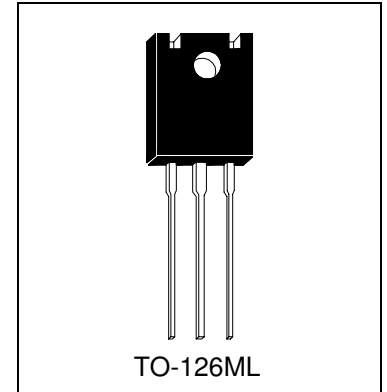


HSB772

PNP EPITAXIAL PLANAR TRANSISTOR

Description

The HSB772 is designed for using in output stage of 1w audio amplifier, voltage regulator, DC-DC converter and relay driver.



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 W
 - Total Power Dissipation (T_C=25°C) 10 W
- Maximum Voltages and Currents
 - BV_{CBO} Collector to Base Voltage -40 V
 - BV_{CEO} Collector to Emitter Voltage -30 V
 - BV_{EBO} Emitter to Base Voltage -5 V
 - I_C Collector Current (DC) -3 A
 - I_C Collector Current (Pulse) -7 A
 - I_B Base Current (DC) -0.6 A

Electrical Characteristics (T_A=25°C)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-----------------------|------|------|------|------|--|
| BV _{CBO} | -40 | - | - | V | I _C =-100uA |
| BV _{CEO} | -30 | - | - | V | I _C =-1mA |
| BV _{EBO} | -5 | - | - | V | I _E =-10uA |
| I _{CBO} | - | - | -1 | uA | V _{CB} =-30V |
| I _{EBO} | - | - | -1 | uA | V _{EB} =-3V |
| *V _{CE(sat)} | - | - | -0.5 | V | I _C =-2A, I _B =-0.2A |
| *V _{BE(sat)} | - | -1 | -2 | V | I _C =-2A, I _B =-0.2A |
| *h _{FE1} | 30 | - | - | | I _C =-20mA, V _{CE} =-2V |
| *h _{FE2} | 100 | 200 | 400 | | I _C =-1A, V _{CE} =-2V |
| f _T | - | 80 | - | MHz | I _C =-0.1A, V _{CE} =-5V |
| Cob | - | 55 | - | pF | V _{CB} =-10V, f=1MHz, I _E =0 |

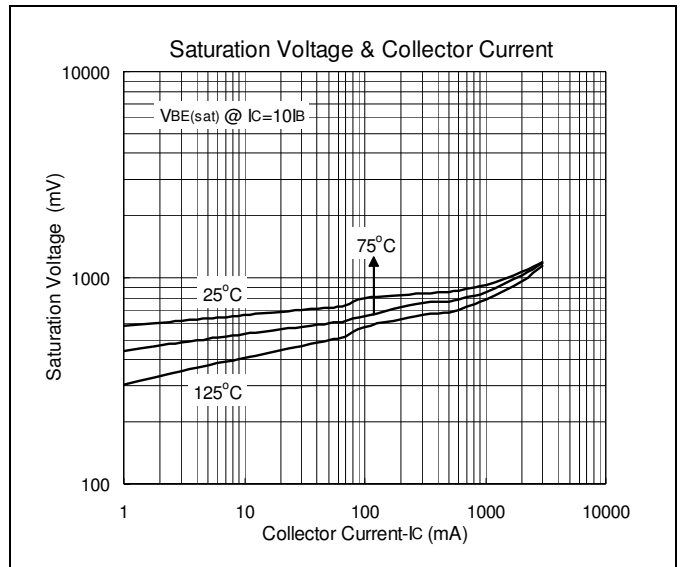
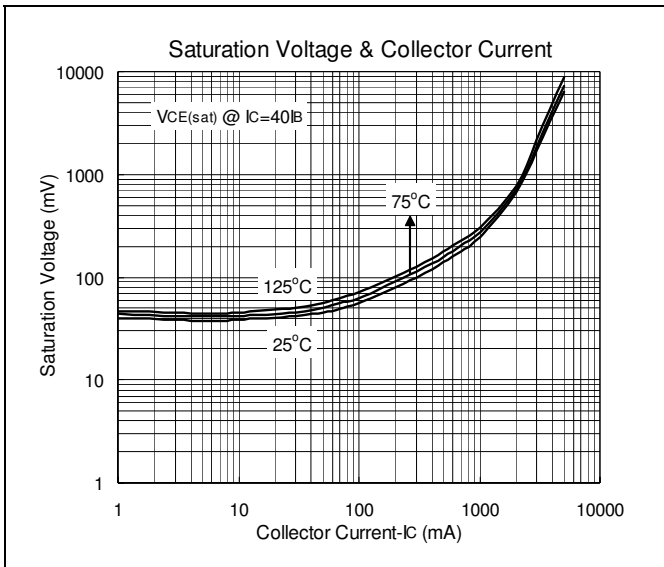
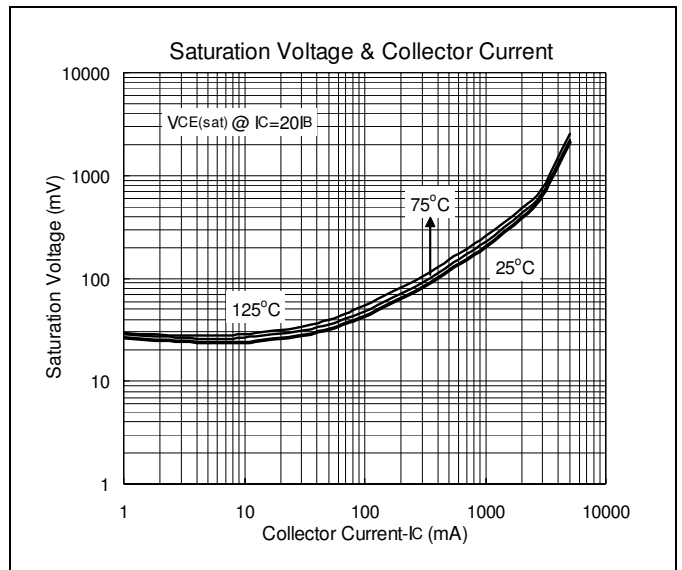
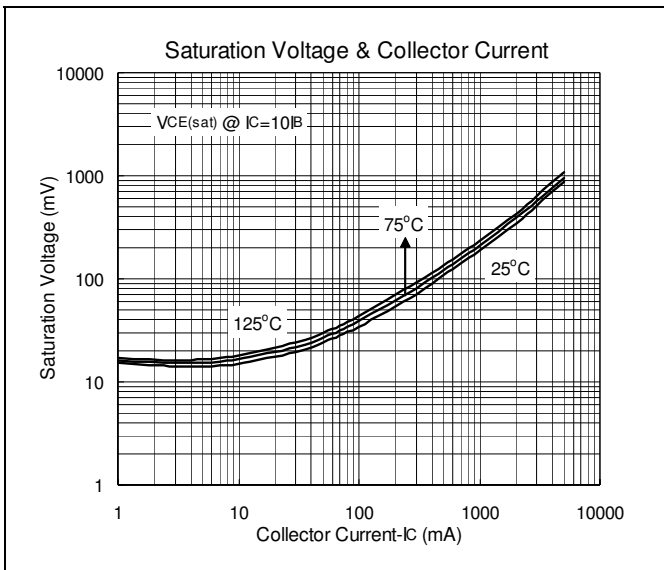
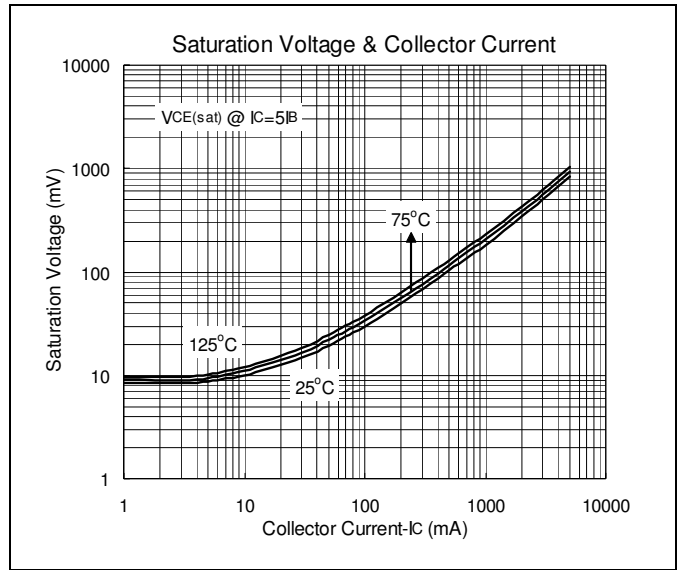
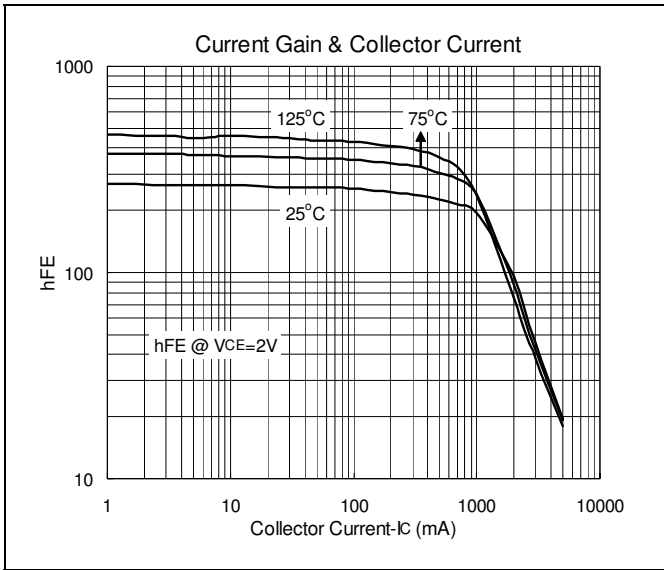
*Pulse Test: Pulse Width ≤380us, Duty Cycle≤2%

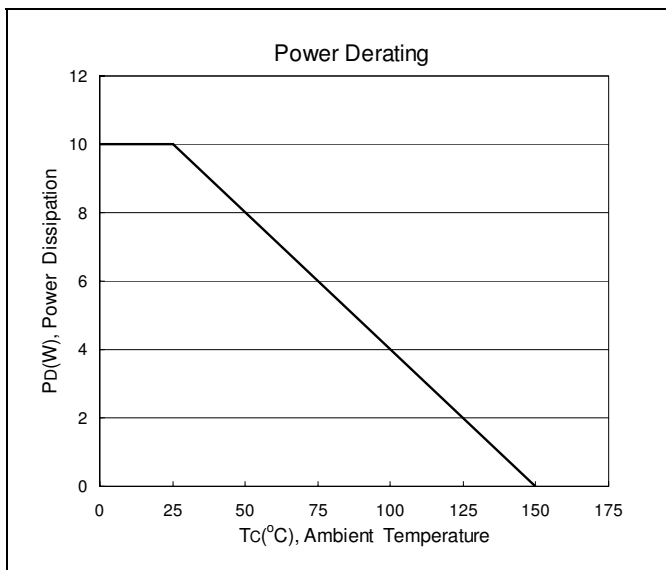
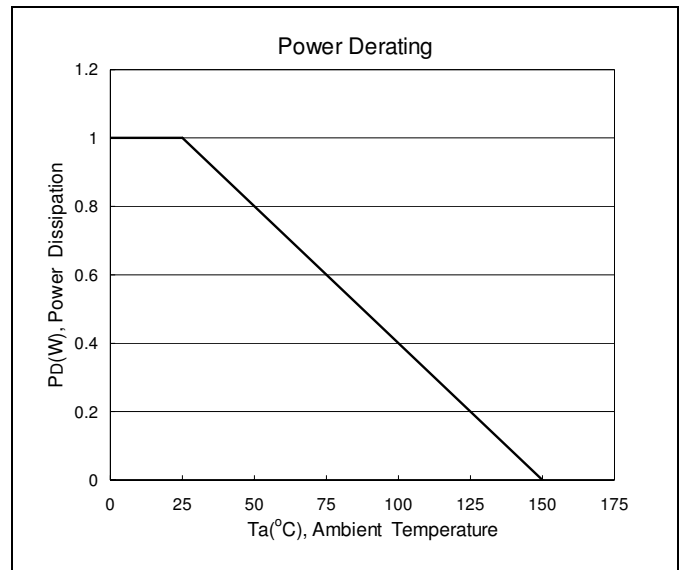
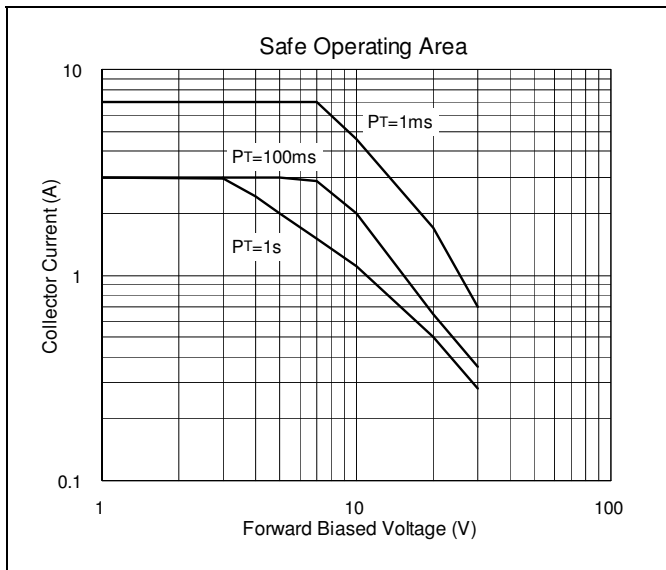
Classification Of hFE2

| Rank | Q | P | E |
|-------|---------|---------|---------|
| Range | 100-200 | 160-320 | 200-400 |



Characteristics Curve







TO-126ML Dimension

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.Emitter 2.Collector 3.Base

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

3-Lead TO-126ML
 Plastic Package
 HSMC Package Code: D

| DIM | Min. | Max. |
|-----|-------|-------|
| A | 7.74 | 8.24 |
| B | 10.87 | 11.37 |
| C | 0.88 | 1.12 |
| D | 1.28 | 1.52 |
| E | 3.50 | 3.75 |
| F | 2.61 | 3.37 |
| G | 13 | - |
| H | 1.18 | 1.42 |
| I | 2.88 | 3.12 |
| J | 0.68 | 0.84 |
| K | - | 2.30 |
| L | 3.44 | 3.70 |
| M | 1.88 | 2.14 |
| N | 0.50 | 0.51 |

*: Typical, Unit: mm

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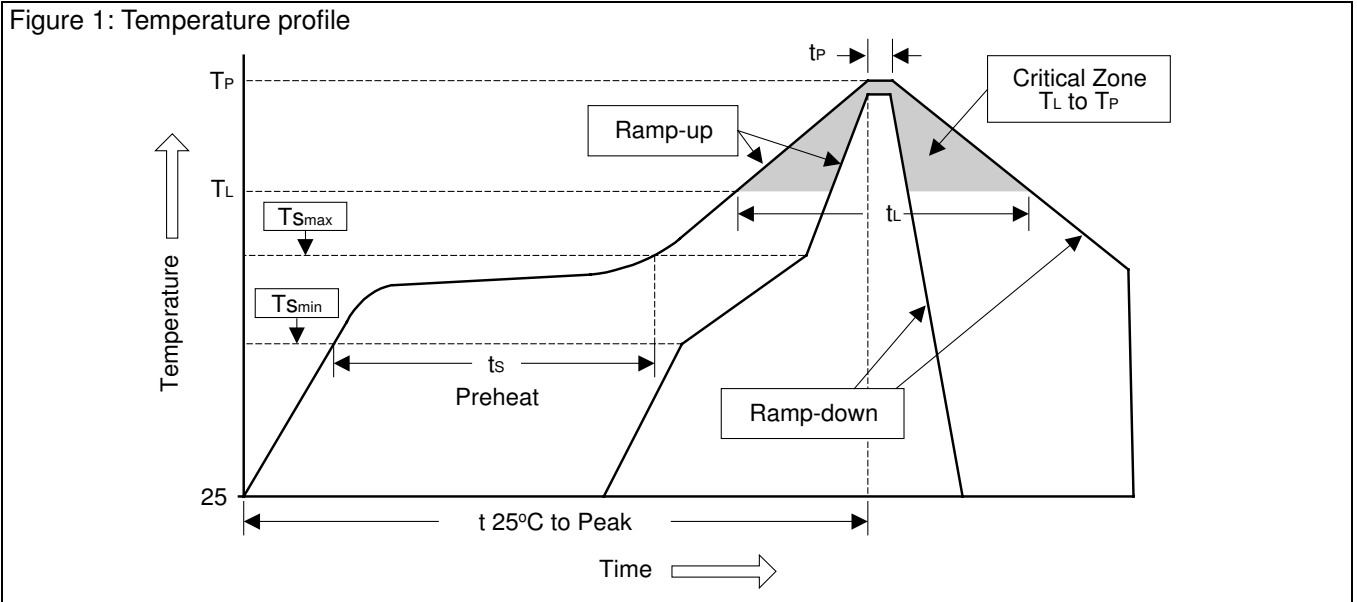
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Soldering Methods for HSMC's Products

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 |