

## / Descriptions

Silicon NPN transistor in a SOT-23 Plastic Package.

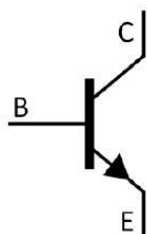
## / Features

High  $I_C$ , high  $h_{FE}$ .

## / Applications

Use in audio output driver stage amplifier applications.

## / Equivalent Circuit



## / Pinning



PIN1 Base

PIN 2 Emitter

PIN 3 Collector

## / $h_{FE}$ Classifications & Marking

| $h_{FE}$ Classifications<br>Symbol | B       | C       | D        |
|------------------------------------|---------|---------|----------|
| $h_{FE}$ Range                     | 300~550 | 500~700 | 650~1000 |
| Marking                            | H28B    | H28C    | H28D     |

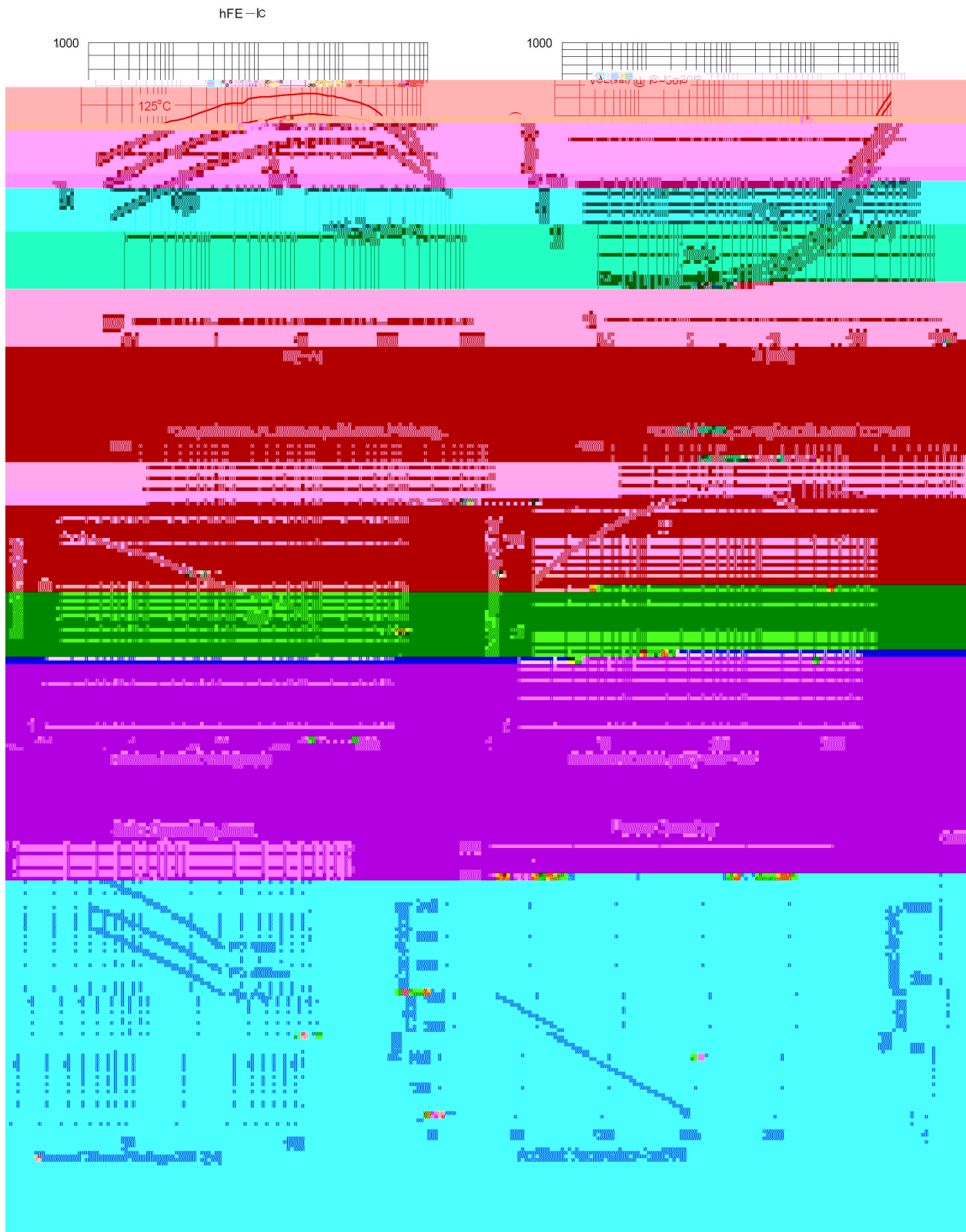
**/ Absolute Maximum Ratings(Ta=25 )**

| Parameter                      | Symbol    | Rating  | Unit |
|--------------------------------|-----------|---------|------|
| Collector to Base Voltage      | $V_{CBO}$ | 40      | V    |
| Collector to Emitter Voltage   | $V_{CEO}$ | 20      | V    |
| Emitter to Base Voltage        | $V_{EBO}$ | 6.0     | V    |
| Collector Current - Continuous | $I_C$     | 1.0     | A    |
| Collector Power Dissipation    | $P_C$     | 400     | mW   |
| Junction Temperature           | $T_j$     | 150     |      |
| Storage Temperature Range      | $T_{stg}$ | -55 150 |      |

**/ Electrical Characteristics(Ta=25 )**

| Parameter                               | Symbol        | Test Conditions                   | Min | Typ | Max  | Unit |
|-----------------------------------------|---------------|-----------------------------------|-----|-----|------|------|
| Collector to Base Breakdown Voltage     | $V_{CBO}$     | $I_C=0.1mA$ $I_E=0$               | 40  |     |      | V    |
| Collector to Emitter Breakdown Voltage  | $V_{CEO}$     | $I_C=1.0mA$ $I_B=0$               | 20  |     |      | V    |
| Emitter to Base Breakdown Voltage       | $V_{EBO}$     | $I_E=0.1mA$ $I_C=0$               | 6.0 |     |      | V    |
| Collector Cut-Off Current               | $I_{CBO}$     | $V_{CB}=40V$ $I_E=0$              |     |     | 1.0  | A    |
| Emitter Cut-Off Current                 | $I_{CEO}$     | $V_{CE}=20V$ $I_B=0$              |     |     | 5.0  | A    |
| Emitter Base Cut-Off Current            | $I_{EBO}$     | $V_{EB}=5.0V$ $I_C=0$             |     |     | 0.1  | A    |
| DC Current Gain                         | $h_{FE(1)}$   | $V_{CE}=1.0V$ $I_C=100mA$         | 300 |     | 1000 |      |
|                                         | $h_{FE(2)}$   | $V_{CE}=1.0V$ $I_C=500mA$         | 300 |     |      |      |
|                                         | $h_{FE(3)}$   | $V_{CE}=1.0V$ $I_C=300mA$         | 300 |     |      |      |
|                                         | $h_{FE(4)}$   | $V_{CE}=1.0V$ $I_C=1.0mA$         | 290 |     |      |      |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=600mA$ $I_B=20mA$            |     |     | 0.55 | V    |
| Transition Frequency                    | $f_T$         | $I_C=50mA$ $f=30MHz$ $V_{CE}=10V$ | 100 |     |      | MHz  |

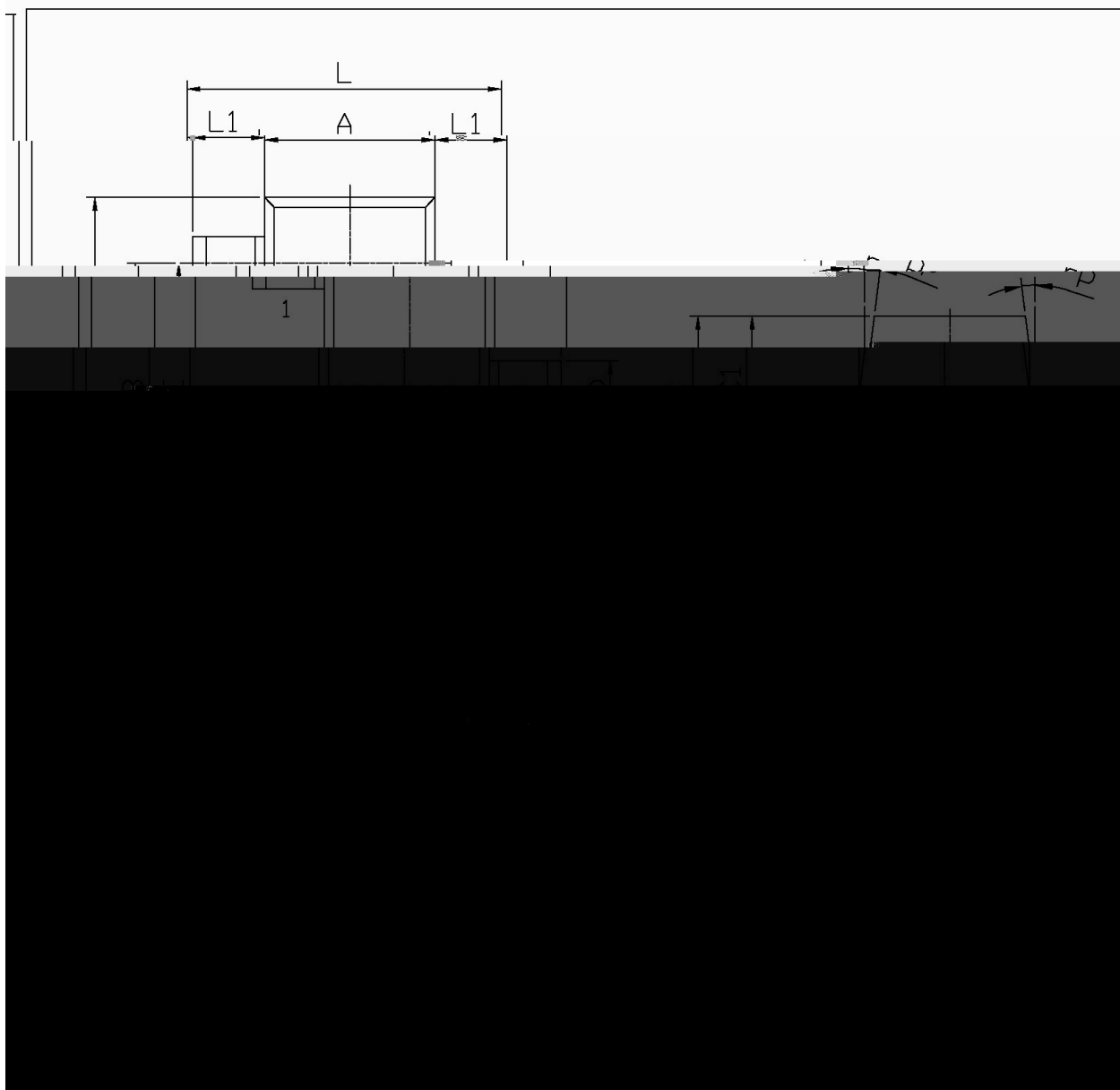
## / Electrical Characteristic Curve



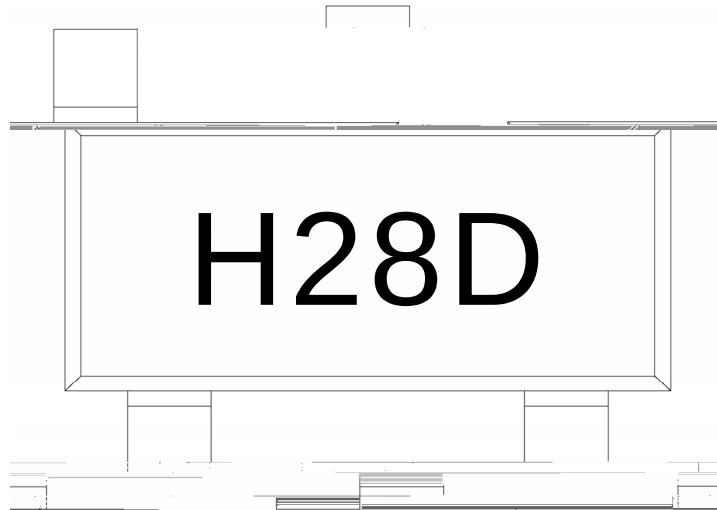
/ Package Dimensions

SMT-23

单位: mm



**/ Marking Instructions**



H

28

D             $h_{FE}$

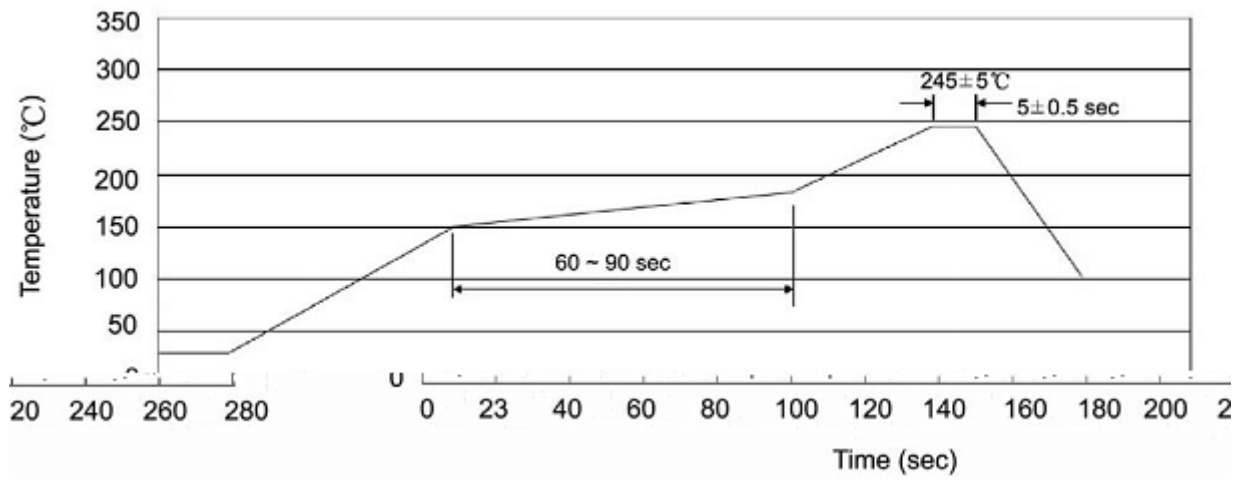
Note:

H:            Company Code.

28:           Product Type.

D:             $h_{FE}$  Classifications Symbol.

(     ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |     |     |    |          |                                         |
|---|-----|-----|----|----------|-----------------------------------------|
| 1 | 25  | 150 | 60 | 90sec;   | 1.Preheating:25~150 , Time:60~90sec.    |
| 2 | 245 | 5   | 5  | 0.5sec;  | 2.Peak Temp.:245 5 , Duration:5 0.5sec. |
| 3 |     |     | 2  | 10 /sec. | 3. Cooling Speed: 2~10 /sec.            |

/ Resistance to Soldering Heat Test Conditions

260 5                      10 1 sec.                      Temp.:260 5                      Time:10 1 sec

/ Packaging SPEC.

/ REEL

| Package Type | Units |
|--------------|-------|
| 封装形式         |       |