# Silicon PNP Power Transistors 2SA1386 2SA1386A

## DESCRIPTION

・With TO-3PN package
・Complement to type 2SC3519/3519A

## APPLICATIONS

・Audio and general purpose

**PINNING**

| PIN | DESCRIPTION |
|---|---|
| 1 | Base |
| 2 | Collector;connected to mounting base |
| 3 | Emitter |

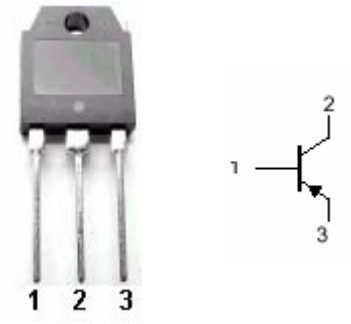


**Fig.1 simplified outline (TO-3PN) and symbol**

## Absolute maximum ratings(Ta=℃)

| SYMBOL | PARAMETER | | CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|---|
| $V_{CBO}$ | Collector-base voltage | 2SA1386 | Open emitter | -160 | V |
| | | 2SA1386A | | -180 | |
| $V_{CEO}$ | Collector-emitter voltage | 2SA1386 | Open base | -160 | V |
| | | 2SA1386A | | -180 | |
| $V_{EBO}$ | Emitter-base voltage | | Open collector | -5 | V |
| $I_C$ | Collector current | | | -15 | A |
| $I_B$ | Base current | | | -4 | A |
| $P_C$ | Collector power dissipation | | $T_C$=25℃ | 130 | W |
| $T_j$ | Junction temperature | | | 150 | ℃ |
| $T_{stg}$ | Storage temperature | | | -55~150 | ℃ |

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## CHARACTERISTICS

**Tj=25℃ unless otherwise specified**

| SYMBOL | PARAMETER | | CONDITIONS | MIN | TYP. | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage | 2SA1386 | $I_C$=-25mA ;$I_B$=0 | -160 | | | V |
| | | 2SA1386A | | -180 | | | |
| $V_{CEsat}$ | Collector-emitter saturation voltage | | $I_C$=-5A; $I_B$=-0.5A | | | -2.0 | V |
| $I_{CBO}$ | Collector cut-off Current | 2SA1386 | $V_{CB}$=-160V; $I_E$=0 | | | -100 | μA |
| | | 2SA1386A | $V_{CB}$=-180V; $I_E$=0 | | | | |
| $I_{EBO}$ | Emitter cut-off current | | $V_{EB}$=-5V; $I_C$=0 | | | -100 | μA |
| $h_{FE}$ | DC current gain | | $I_C$=-5A ; $V_{CE}$=-4V | 50 | | 180 | |
| $C_{ob}$ | Output capacitance | | $I_E$=0 ; $V_{CB}$=10V;f=1MHz | | 500 | | pF |
| $f_T$ | Transition frequency | | $I_C$=-2A ; $V_{CE}$=-12V | | 40 | | MHz |
| Switching times | | | | | | | |
| $t_{on}$ | Turn-on time | | $I_C$=-5A;$R_L$=4Ω<br>$I_{B1}$=-$I_{B2}$=-1A<br>$V_{CC}$=40V | | 0.30 | | μs |
| $t_s$ | Storage time | | | | 0.70 | | μs |
| $t_f$ | Fall time | | | | 0.20 | | μs |



◆ **$h_{FE}$ Classifications**

| O | P | Y |
|---|---|---|
| 50-100 | 70-140 | 90-180 |

**PACKAGE OUTLINE**

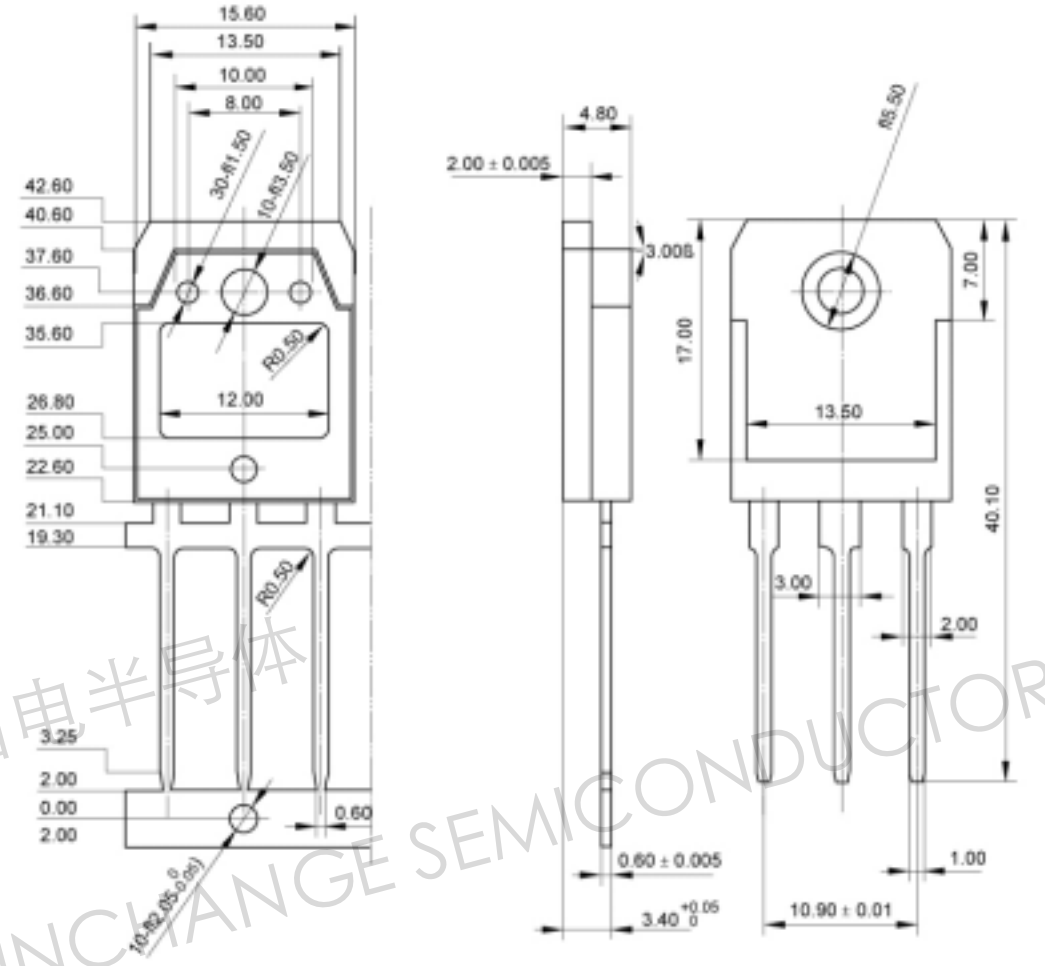




**Fig.2 outline dimensions (unindicated tolerance:±0.1mm)**

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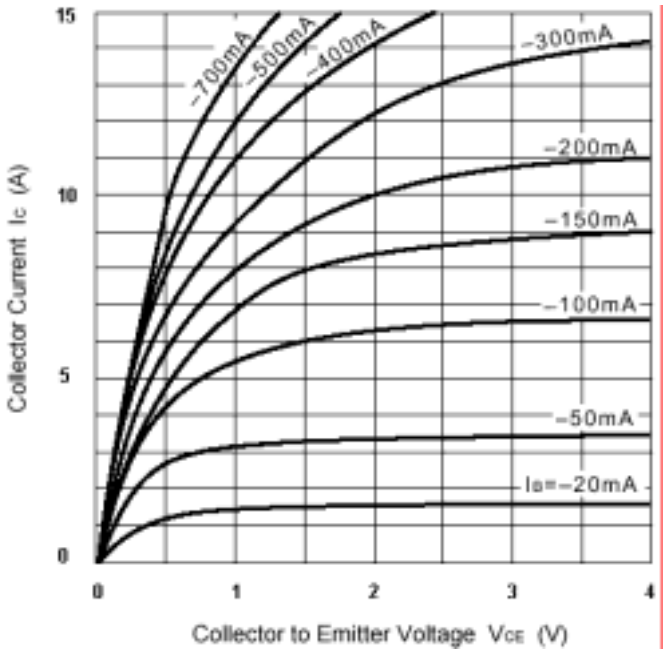


Fig.3 Static Characteristic

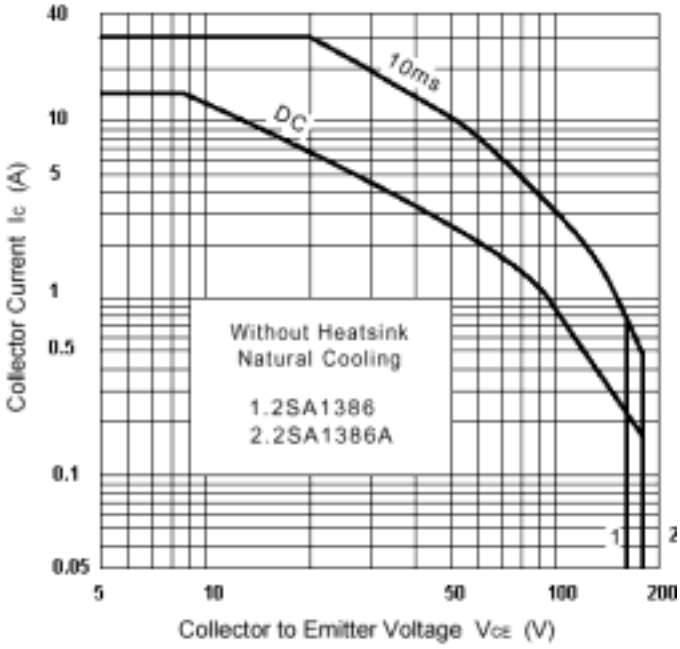


Fig.4 Safe Operating Area

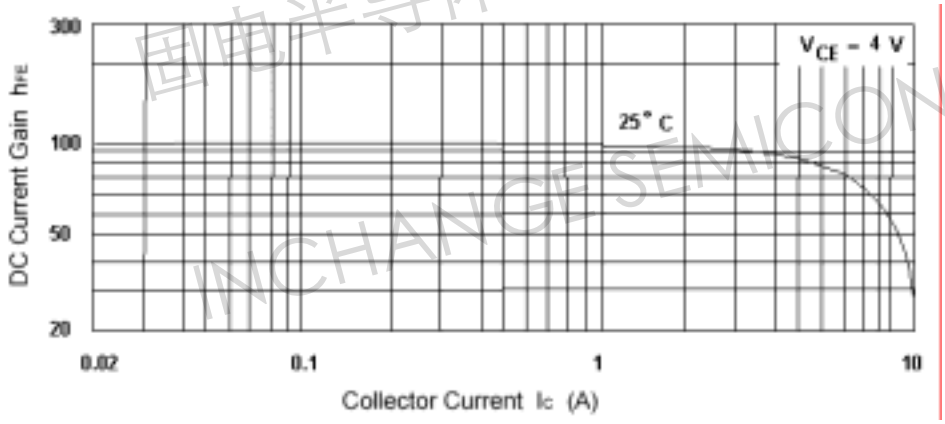


Fig.5 DC current Gain