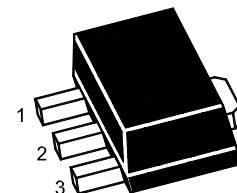


## NPN Silicon Epitaxial Planar Transistor

for power amplification applications



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

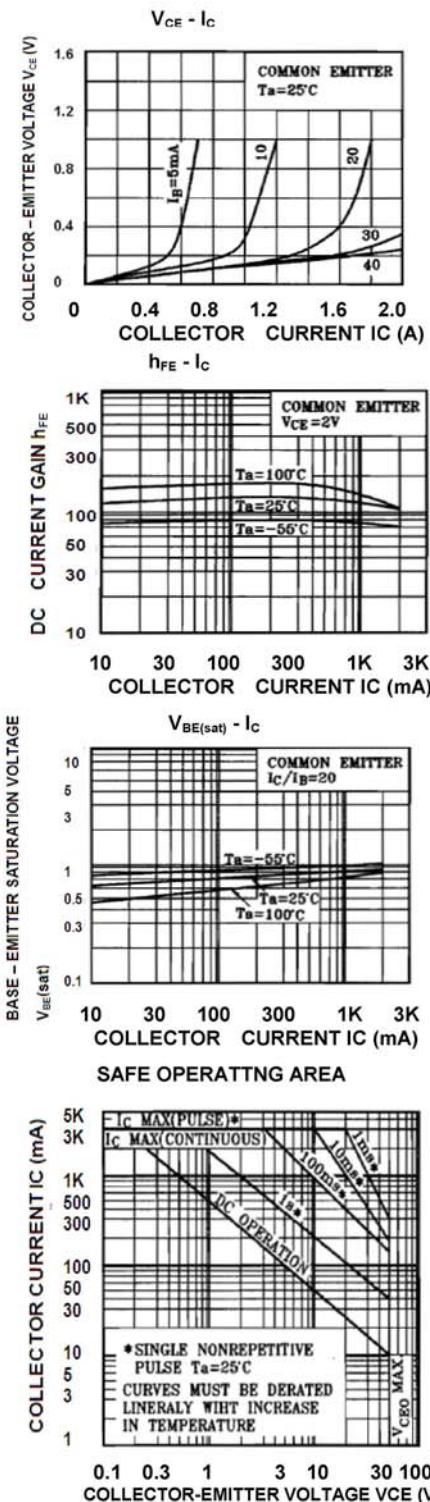
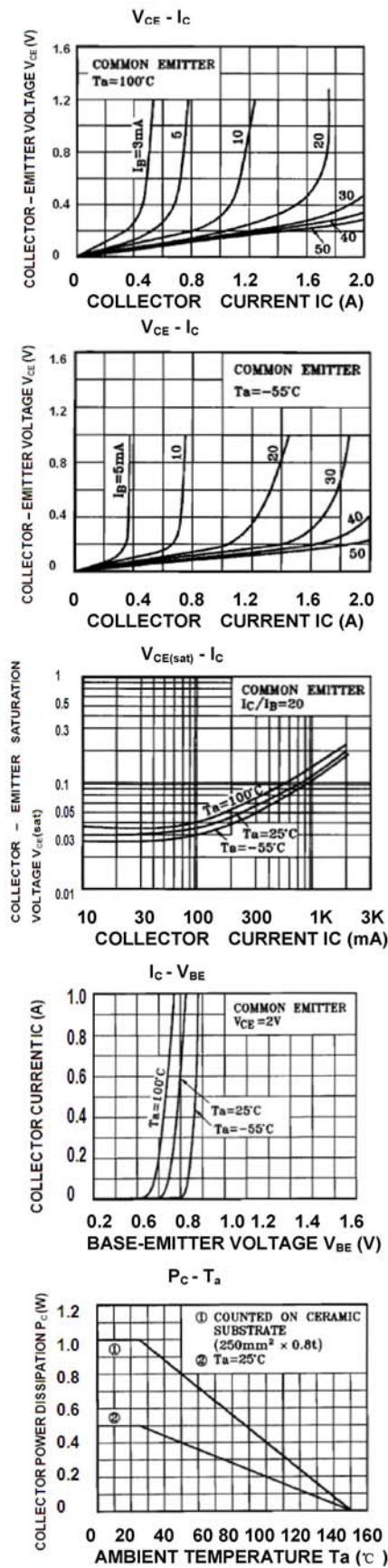
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

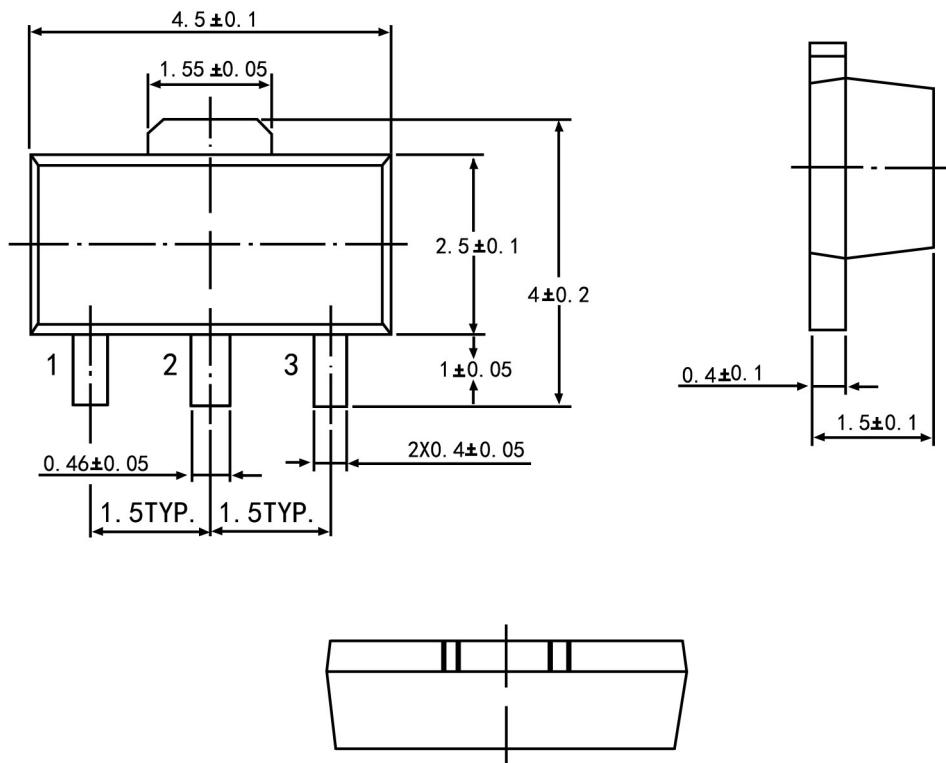
| Parameter                 | Symbol    | Value                  | Unit             |
|---------------------------|-----------|------------------------|------------------|
| Collector Base Voltage    | $V_{CBO}$ | 50                     | V                |
| Collector Emitter Voltage | $V_{CEO}$ | 50                     | V                |
| Emitter Base Voltage      | $V_{EBO}$ | 5                      | V                |
| Collector Current         | $I_C$     | 2                      | A                |
| Base Current              | $I_B$     | 0.4                    | A                |
| Total Power Dissipation   | $P_{tot}$ | 0.5<br>1 <sup>1)</sup> | W                |
| Junction Temperature      | $T_j$     | 150                    | $^\circ\text{C}$ |
| Storage Temperature Range | $T_{stg}$ | - 55 to + 150          | $^\circ\text{C}$ |

<sup>1)</sup> When mounted on a 250 mm<sup>2</sup> X 0.8 t ceramic substrate.

### Characteristics at $T_a = 25^\circ\text{C}$

| Parameter  | Symbol        | Min. | Typ. | Max. | Unit |
|--|---------------|------|------|------|------|
| DC Current Gain<br>at $V_{CE} = 2 \text{ V}$ , $I_C = 0.5 \text{ A}$                   | $h_{FE}$      | 70   | -    | 140  | -    |
| at $V_{CE} = 2 \text{ V}$ , $I_C = 1.5 \text{ A}$                                      | $h_{FE}$      | 120  | -    | 240  | -    |
| at $V_{CE} = 2 \text{ V}$ , $I_C = 1.5 \text{ A}$                                      | $h_{FE}$      | 40   | -    | -    | -    |
| Collector Base Cutoff Current<br>at $V_{CB} = 50 \text{ V}$                            | $I_{CBO}$     | -    | -    | 100  | nA   |
| Emitter Base Cutoff Current<br>at $V_{EB} = 5 \text{ V}$                               | $I_{EBO}$     | -    | -    | 100  | nA   |
| Collector Emitter Breakdown Voltage<br>at $I_C = 10 \text{ mA}$                        | $V_{(BR)CEO}$ | 50   | -    | -    | V    |
| Collector Emitter Saturation Voltage<br>at $I_C = 1 \text{ A}$ , $I_B = 50 \text{ mA}$ | $V_{CE(sat)}$ | -    | -    | 0.5  | V    |
| Base Emitter Saturation Voltage<br>at $I_C = 1 \text{ A}$ , $I_B = 50 \text{ mA}$      | $V_{BE(sat)}$ | -    | -    | 1.2  | V    |
| Transition Frequency<br>at $V_{CE} = 2 \text{ V}$ , $I_C = 500 \text{ mA}$             | $f_T$         | -    | 120  | -    | MHz  |
| Collector Output Capacitance<br>at $V_{CB} = 10 \text{ V}$ , $f = 1 \text{ MHz}$       | $C_{ob}$      | -    | 30   | -    | pF   |



**SOT-89 PACKAGE OUTLINE**


| <b>Symbol</b>        | <b>Dimension in Millimeters</b> |            |
|----------------------|---------------------------------|------------|
|                      | <b>Min</b>                      | <b>Max</b> |
| A                    | 1.40                            | 1.60       |
| B                    | 0.44                            | 0.62       |
| B1                   | 0.35                            | 0.54       |
| C                    | 0.35                            | 0.44       |
| D                    | 4.40                            | 4.60       |
| D1                   | 1.62                            | 1.83       |
| E                    | 2.29                            | 2.60       |
| e                    | 1.50 Typ                        |            |
| H                    | 3.94                            | 4.25       |
| H1                   | 2.63                            | 2.93       |
| L                    | 0.89                            | 1.20       |
| All Dimensions In mm |                                 |            |