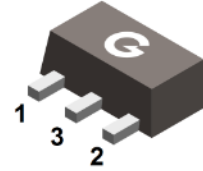
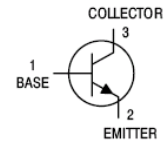


## Features

- High  $BV_{CEO}$
- High DC current gain
- Epitaxial planar die construction
- Complimentary to 2SA1201
- RoHS compliant with Halogen-free

**HF**



**SOT-89**

## Mechanical Data

- Case: SOT-89
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

## Ordering Information

| Part Number | Package | Shipping Quantity      | Marking Code |
|-------------|---------|------------------------|--------------|
| 2SC2881-O   | SOT-89  | 1000 pcs / Tape & Reel | CO1          |
| 2SC2881-Y   | SOT-89  | 1000 pcs / Tape & Reel | CY1          |

## Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                                        | Symbol    | Value | Unit |
|--------------------------------------------------|-----------|-------|------|
| Collector-Base Breakdown Voltage                 | $V_{CBO}$ | 120   | V    |
| Collector-Emitter Breakdown Voltage              | $V_{CEO}$ | 120   | V    |
| Emitter-Base Breakdown Voltage                   | $V_{EBO}$ | 5     | V    |
| Continuous Collector Current                     | $I_C$     | 0.8   | A    |
| Peak Collector Current ( $t_p \leq 1\text{ms}$ ) | $I_{CM}$  | 1.6   | A    |
| Continuous Base Current                          | $I_B$     | 0.16  | A    |

## Thermal Characteristics

| Parameter                                                    | Symbol          | Value      | Unit               |
|--------------------------------------------------------------|-----------------|------------|--------------------|
| Power Dissipation ( $T_A = 25^\circ\text{C}$ )               | $P_D$           | 0.5        | W                  |
| Power Dissipation ( $T_A = 25^\circ\text{C}$ ) <sup>*1</sup> |                 | 2          | W                  |
| Thermal Resistance Junction-to-Air <sup>*1</sup>             | $R_{\theta JA}$ | 60         | $^\circ\text{C/W}$ |
| Thermal Resistance Junction-to-Case <sup>*1</sup>            | $R_{\theta JC}$ | 25         | $^\circ\text{C/W}$ |
| Thermal Resistance Junction-to-Lead <sup>*1</sup>            | $R_{\theta JL}$ | 15         | $^\circ\text{C/W}$ |
| Operating junction Temperature                               | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                                    | $T_{STG}$       | -55 ~ +150 | $^\circ\text{C}$   |

Note 1: The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper

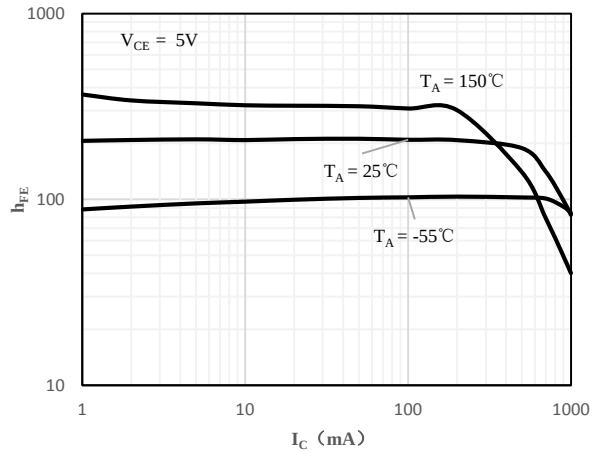
### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                            | Symbol        | Test Condition                                  | Min. | Typ. | Max. | Unit          |
|--------------------------------------|---------------|-------------------------------------------------|------|------|------|---------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = 1\text{mA}, I_E = 0$                     | 120  | -    | -    | V             |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 10\text{mA}, I_B = 0$                    | 120  | -    | -    | V             |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E = 1\text{mA}, I_C = 0$                     | 5    | -    | -    | V             |
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = 120\text{V}, I_E = 0$                 | -    | -    | 0.1  | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = 5\text{V}, I_C = 0$                   | -    | -    | 0.1  | $\mu\text{A}$ |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = 5\text{V}, I_C = 100\text{mA}$        | 80   | -    | 240  | -             |
| Collector-emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 500\text{mA}, I_B = 50\text{mA}$         | -    | -    | 1    | V             |
| Base-Emitter Voltage                 | $V_{BE(on)}$  | $I_C = 500\text{mA}, V_{CE} = 5\text{V}$        | -    | -    | 1    | V             |
| Transition Frequency                 | $f_T$         | $I_C = 100\text{mA}, V_{CE} = 5\text{V}$        | -    | 120  | -    | MHz           |
| Collector Output Capacitance         | $C_{OBO}$     | $V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$ | -    | -    | 30   | pF            |

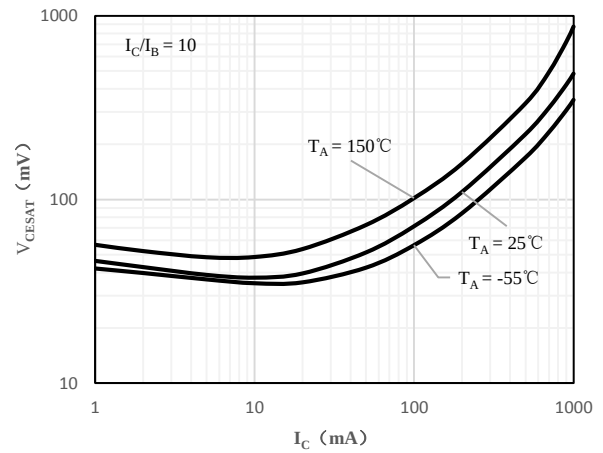
### Classification of $h_{FE}$

| Rank  | O      | Y       |
|-------|--------|---------|
| Range | 80-160 | 120-240 |

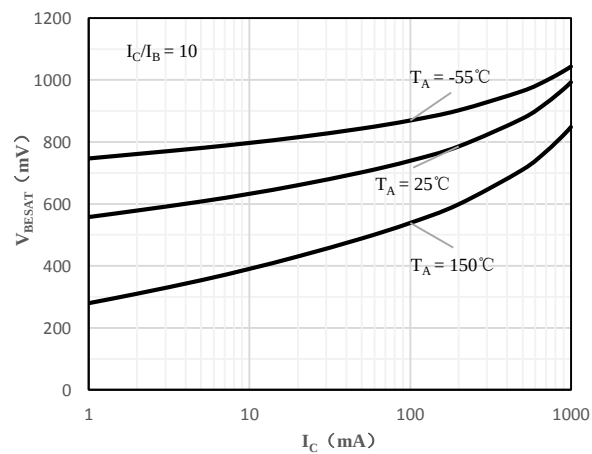
**Ratings and Characteristics Curves** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)



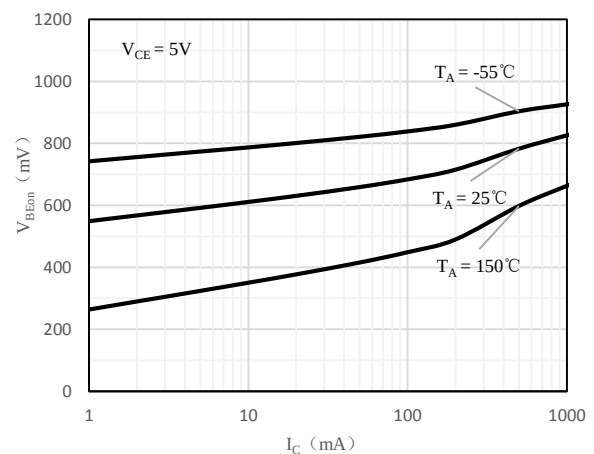
**Fig 1  $h_{FE}$  vs.  $I_C$**



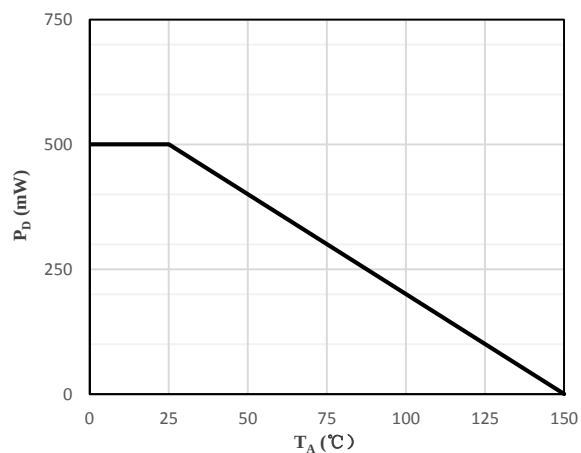
**Fig 2  $V_{CE(sat)}$  vs.  $I_C$**



**Fig 3  $V_{BE(sat)}$  vs.  $I_C$**

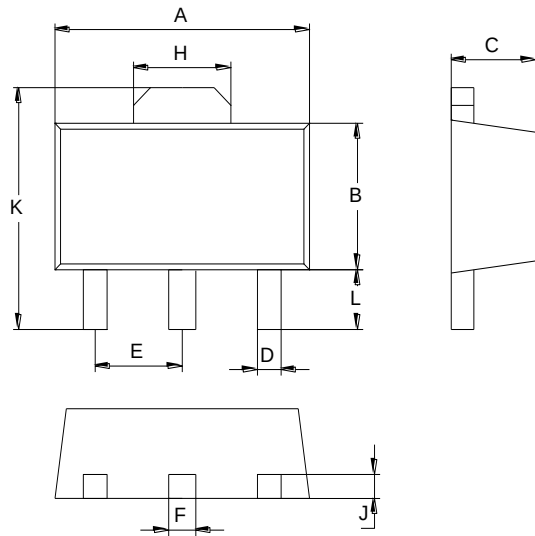


**Fig 4  $V_{BE(on)}$  vs.  $I_C$**



**Fig 5  $P_D$  vs.  $T_A$**

**Package Outline Dimensions** (Unit: mm)



| SOT-89    |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 4.30 | 4.70 |
| B         | 2.25 | 2.65 |
| C         | 1.30 | 1.70 |
| D         | 0.30 | 0.50 |
| E         | 1.40 | 1.60 |
| F         | 0.38 | 0.58 |
| H         | 1.60 | 1.80 |
| J         | 0.30 | 0.50 |
| L         | 0.90 | 1.10 |
| K         | 3.95 | 4.35 |

**Mounting Pad Layout** (Unit: mm)

**SOT-89**

