

SOT-89 Plastic-Encapsulate Transistors

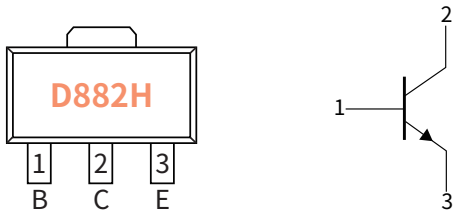
Features

- Switching and amplification in high voltage
- Applications such as telephony
- Power dissipation of 500mW
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260°C

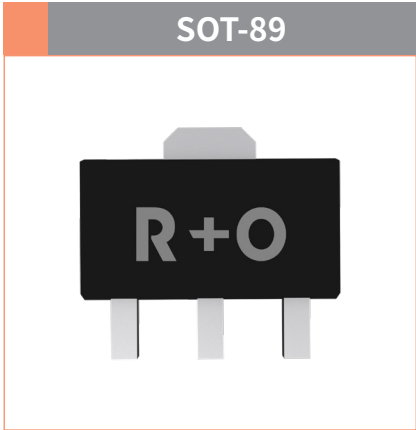
Mechanical Data

- Case: SOT-89
Molding compound meets UL 94V-0 flammability rating, RoHS-compliant,halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750,Method 2026

Function Diagram



Collector-Base Voltage
VCBO 70V
Collector Current
3.0 Ampere



Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                   | SYMBOL           | UNIT  | VALUE     |
|-----------------------------|------------------|-------|-----------|
| Collector-Base Voltage      | V <sub>CBO</sub> | V     | 70        |
| Collector-Emitter Voltage   | V <sub>CEO</sub> |       | 70        |
| Emitter-Base Voltage        | V <sub>EBO</sub> |       | 6.0       |
| Collector Current           | I <sub>C</sub>   | A     | 3.0       |
| Collector Power Dissipation | P <sub>C</sub>   | mW    | 500       |
| Storage temperature         | T <sub>stg</sub> | °C    | -55 ~+150 |
| Junction temperature        | T <sub>j</sub>   | °C    | -55 ~+150 |
| Typical Thermal Resistance  | R <sub>θJA</sub> | °C /W | 250       |

Electrical Characteristics (Ta=25°C Unless otherwise noted)

| PARAMETER                            | SYMBOL               | UNIT | Condition                                   | Min | Type | Max |
|--------------------------------------|----------------------|------|---------------------------------------------|-----|------|-----|
| Collector-Base Breakdown Voltage     | V <sub>(BR)CBO</sub> | V    | I <sub>C</sub> =100μA, I <sub>E</sub> =0    | 70  | —    | —   |
| Collector-Emitter Breakdown Voltage  | V <sub>(BR)CEO</sub> |      | I <sub>C</sub> =10mA, I <sub>B</sub> =0     | 70  | —    | —   |
| Emitter-Base Breakdown Voltage       | V <sub>(BR)EBO</sub> |      | I <sub>E</sub> =100μA, I <sub>C</sub> =0    | 6.0 | —    | —   |
| Collector-Emitter cut-off current    | I <sub>CEO</sub>     | μA   | V <sub>CE</sub> =30V, I <sub>B</sub> =0     | —   | —    | 10  |
| Collector-Base cut-off current       | I <sub>CBO</sub>     |      | V <sub>CB</sub> =40V, I <sub>E</sub> =0     | —   | —    | 1.0 |
| Emitter-Base cut-off current         | I <sub>EBO</sub>     |      | V <sub>EB</sub> =6.0V, I <sub>C</sub> =0    | —   | —    | 1.0 |
| DC Current Gain                      | h <sub>FE(1)</sub>   | —    | I <sub>C</sub> =1.0A V <sub>CE</sub> =2.0V  | 160 | —    | 320 |
|                                      | h <sub>FE(2)</sub>   |      | I <sub>C</sub> =3.0mA V <sub>CE</sub> =2.0V | 30  | —    | —   |
| Collector-Emitter Saturation Voltage | V <sub>CE(sat)</sub> | V    | I <sub>C</sub> =2.0A I <sub>B</sub> =0.2A   | —   | —    | 0.5 |
| Base-Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | V    | I <sub>C</sub> =2.0A I <sub>B</sub> =0.2A   | —   | —    | 1.5 |

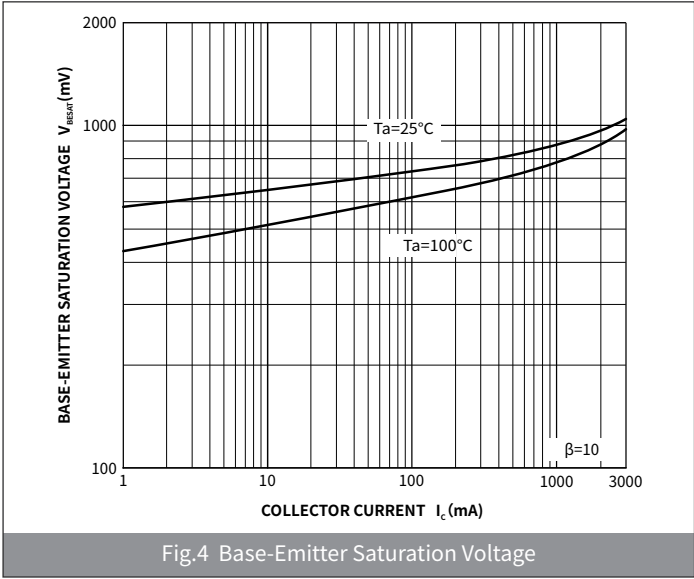
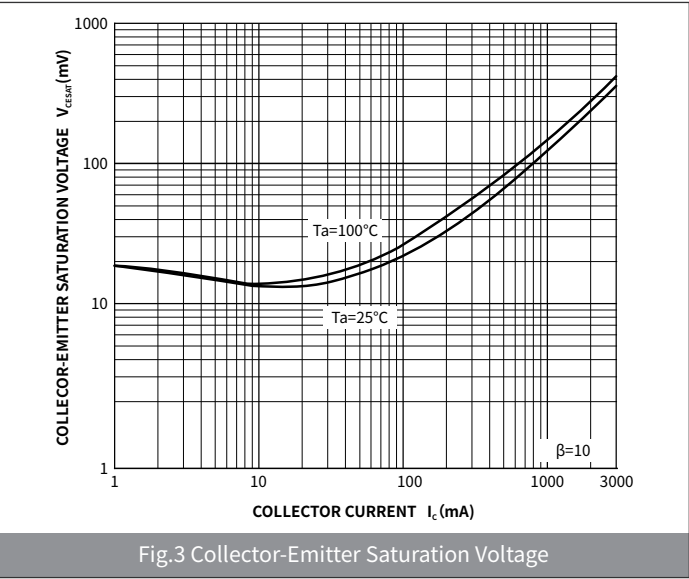
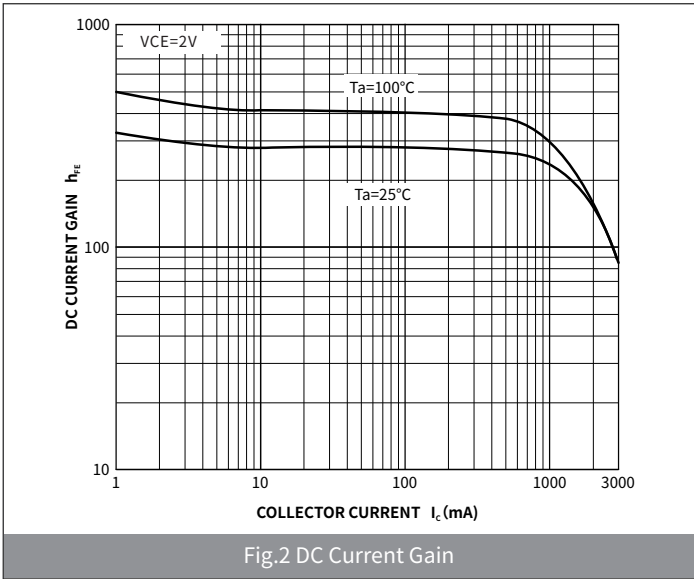
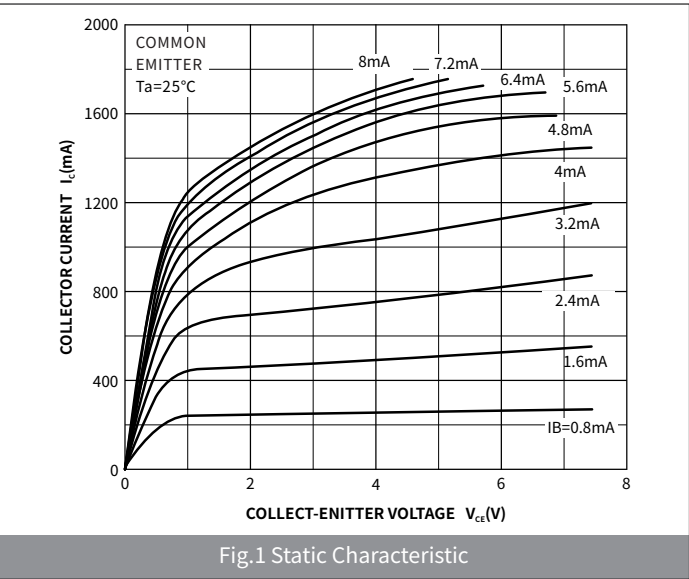
● Small-signal Characteristics

| ITEM                 | SYMBOL | Condition                        | UNIT | Min | Typ | Max |
|----------------------|--------|----------------------------------|------|-----|-----|-----|
| Transition frequency | $f_T$  | $I_C=0.1A, V_{CE}=5.0V, f=10MHz$ | MHz  | 50  | —   | —   |

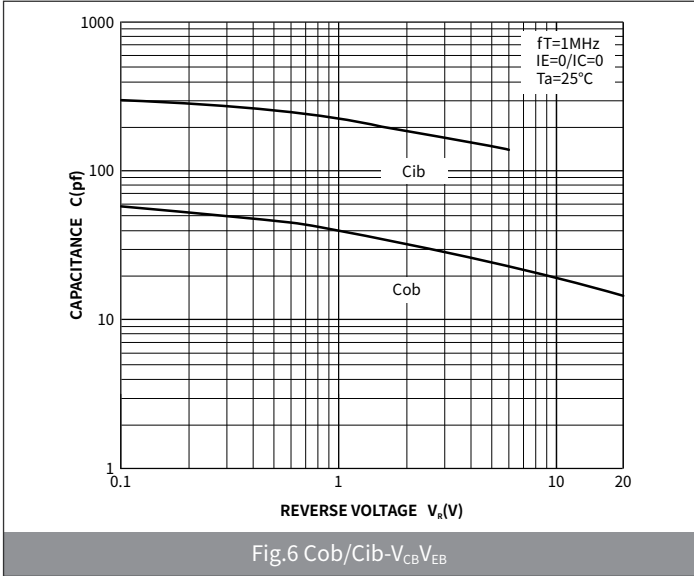
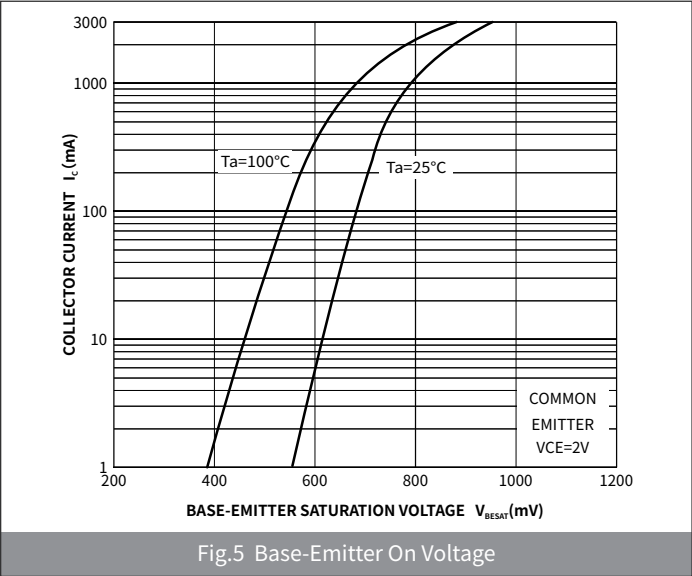
● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SOT-89  | R1           | 0.055          | 1000      | 7000     | 21000       | 7"            |

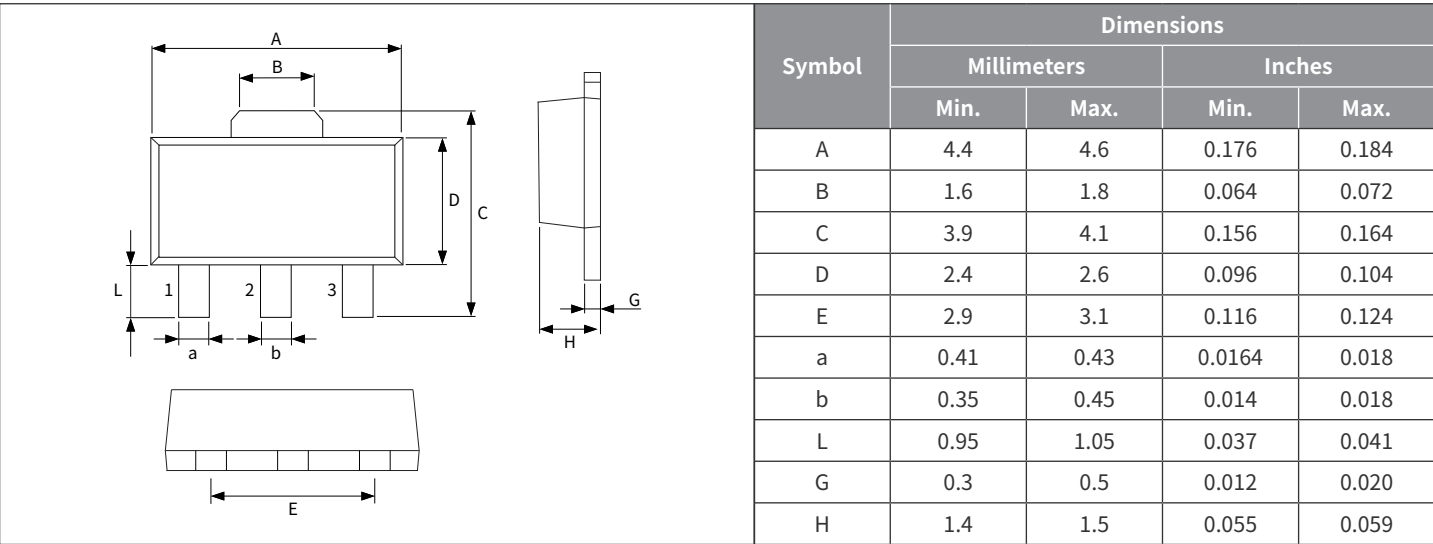
● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



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● Package Outline Dimensions (SOT-89)



● Suggested Pad Layout

