**TRANSISTOR (NPN)** **Plastic-Encapsulate Transistor**

## FEATURES

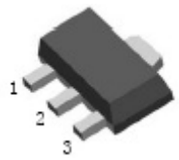
- Power dissipation

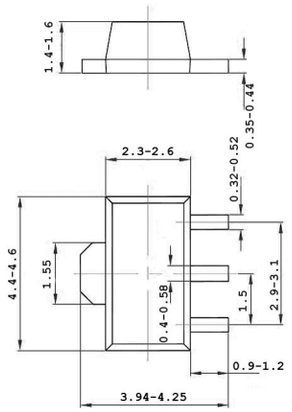
  $P_D$ : 0.5W(Ta=25℃)

**MARKING: DBP, DBQ, DBR**

## SOT-89

1. BASE
2. COLLECTOR
3. EMITTER




UNIT:mm

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25℃ ambient temperature unless otherwise specified.

### MAXIMUM RATINGS

| Parameters | Symbols | Value | UNITS |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 40 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 32 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current - Continuous | $I_C$ | 2 | mA |
| Collector Dissipation | $P_C$ | 500 | mW |
| Junction and Storage Temperature | $T_J$, $T_{stg}$ | -55-150 | ℃ |

### ELECTRICAL CHARACTERISTICS

| Parameters | Symbol | Test conditions | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C$=50μA, $I_E$=0 | 40 | | | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $I_B$=0 | 32 | | | V |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E$=50μA, $I_C$=0 | 5 | | | V |
| Collector Cut-Off Current | $I_{CBO}$ | $V_{CB}$=20V, $I_E$=0 | | | 1 | μA |
| Emitter Cut-Off Current | $I_{EBO}$ | $V_{EB}$=4V, $I_C$=0 | | | 1 | μA |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE}$=3V, $I_C$=500mA | 82 | | 390 | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C$=2A, $I_B$=0.2A | | | 0.8 | V |
| Transition Frequency | $f_T$ | $V_{CE}$=5V, $I_C$=50mA, f=100MHz | | 100 | | MHz |
| Collector Output Capacitance | $C_{ob}$ | $V_{CB}$=10V, $I_E$=0, f=1MHz | | 30 | | pF |

### CLASSIFICATION OF $h_{FE(1)}$

| Rank | P | Q | R |
|---|---|---|---|
| Range | 82-180 | 120-270 | 180-390 |



RoHS Pb-free TIP Semiconductor