

# 2SC3939

## Silicon NPN epitaxial planar type

For low-frequency driver amplification

Complementary to 2SA1533

### ■ Features

- High collector-emitter voltage (Base open)  $V_{CEO}$
- Optimum for the driver stage of a low-frequency and 25 W to 30 W output amplifier
- Allowing supply with the radial taping

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

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 80          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 80          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 5           | V                |
| Collector current                     | $I_C$     | 0.5         | A                |
| Peak collector current                | $I_{CP}$  | 1           | A                |
| Collector power dissipation           | $P_C$     | 1           | W                |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

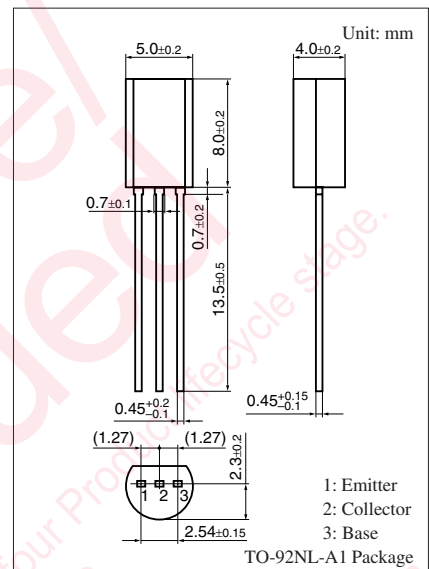
| Parameter   | Symbol        | Conditions  | Min | Typ  | Max  | Unit          |
|---|---------------|---|-----|------|------|---------------|
| Collector-base voltage (Emitter open)                               | $V_{CBO}$     | $I_C = 10 \mu\text{A}, I_E = 0$                                 | 80  |      |      | V             |
| Collector-emitter voltage (Base open)                               | $V_{CEO}$     | $I_C = 100 \mu\text{A}, I_B = 0$                                | 80  |      |      | V             |
| Emitter-base voltage (Collector open)                               | $V_{EBO}$     | $I_E = 10 \mu\text{A}, I_C = 0$                                 | 5   |      |      | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{CBO}$     | $V_{CB} = 20 \text{V}, I_E = 0$                                 |     |      | 0.1  | $\mu\text{A}$ |
| Forward current transfer ratio *1                                   | $h_{FE1}$ *2  | $V_{CE} = 10 \text{V}, I_C = 150 \text{mA}$                     | 130 |      | 330  | —             |
|   | $h_{FE2}$     | $V_{CE} = 5 \text{V}, I_C = 500 \text{mA}$                      | 50  | 100  |      | —             |
| Collector-emitter saturation voltage                                | $V_{CE(sat)}$ | $I_C = 300 \text{mA}, I_B = 30 \text{mA}$                       |     | 0.2  | 0.4  | V             |
| Base-emitter saturation voltage                                     | $V_{BE(sat)}$ | $I_C = 300 \text{mA}, I_B = 30 \text{mA}$                       |     | 0.85 | 1.20 | V             |
| Transition frequency  | $f_T$         | $V_{CB} = 10 \text{V}, I_E = -50 \text{mA}, f = 200 \text{MHz}$ |     | 120  |      | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = 10 \text{V}, I_E = 0, f = 1 \text{MHz}$               |     | 11   | 20   | pF            |

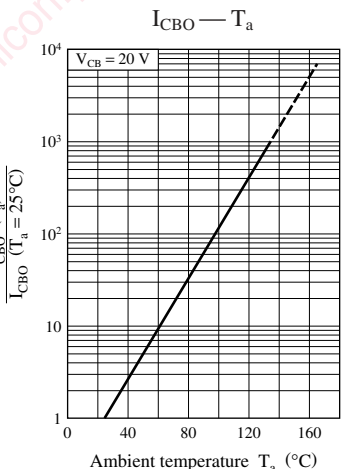
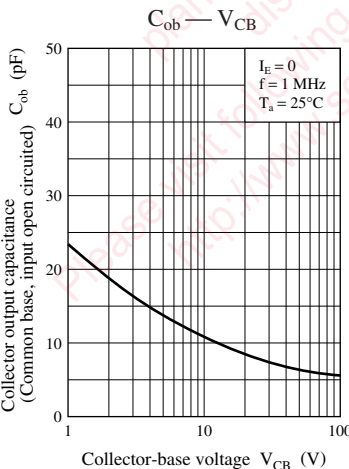
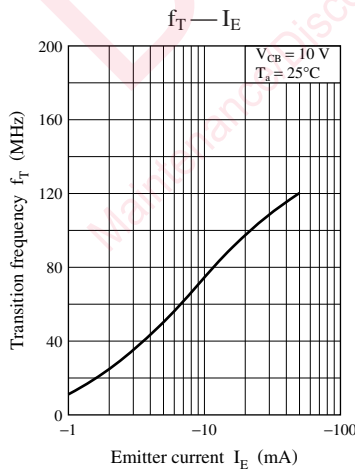
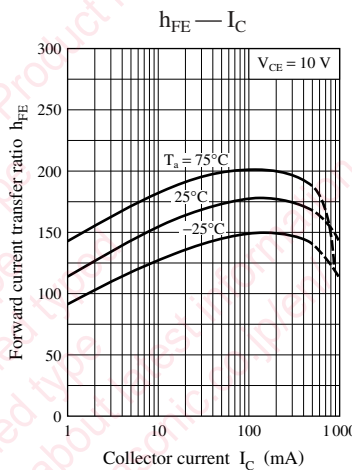
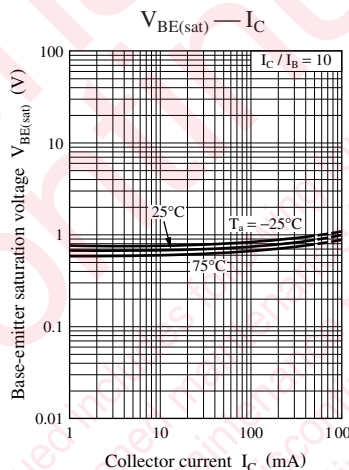
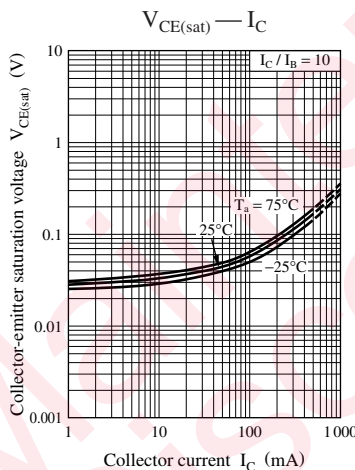
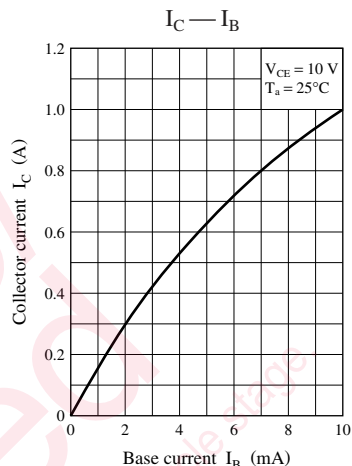
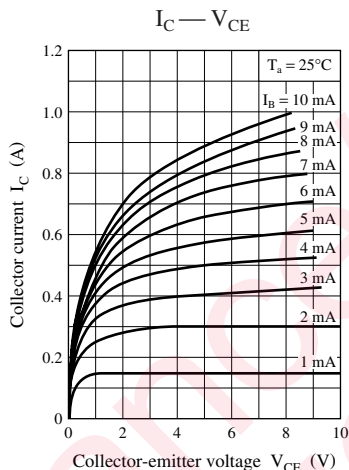
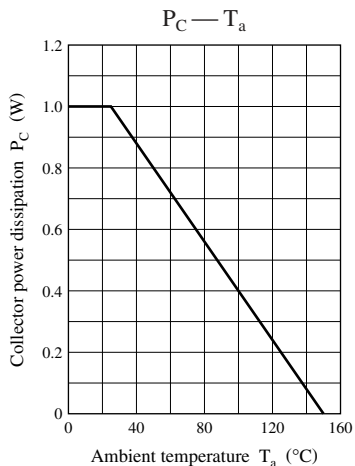
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

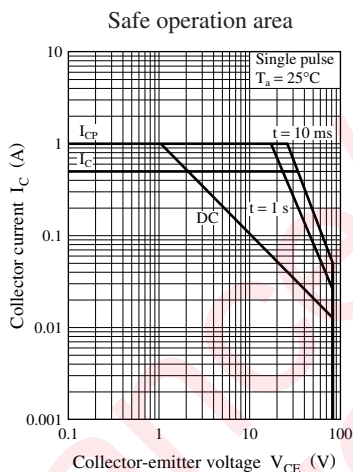
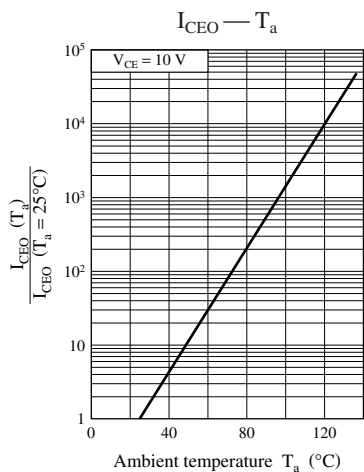
2. \*1: Pulse measurement

\*2: Rank classification

| Rank      | R          | S          |
|-----------|------------|------------|
| $h_{FE1}$ | 130 to 220 | 185 to 330 |







Maintenance/Discontinued

Discontinued includes following four Product lifecycle stage.  
 planned maintenance type  
 maintenance type  
 planned discontinued type  
 discontinued type  
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