

# 2SC3938

Silicon NPN epitaxial planer type

For high speed switching

## ■ Features

- High-speed switching.
- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- S-Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.
- Allowing pair use with 2SA1739.

## ■ Absolute Maximum Ratings (Ta=25°C)

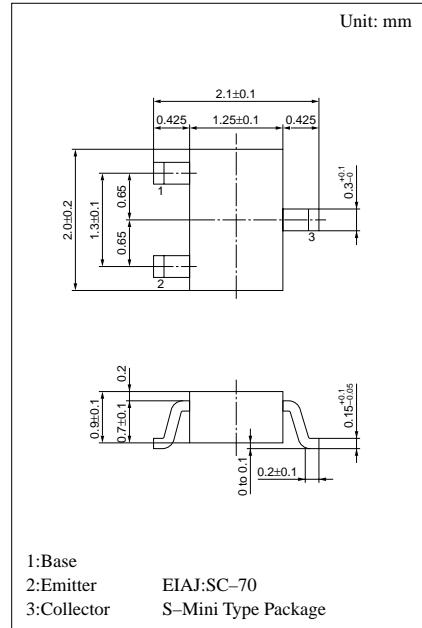
| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | 40         | V    |
| Collector to emitter voltage | $V_{CES}$ | 40         | V    |
| Emitter to base voltage      | $V_{EBO}$ | 5          | V    |
| Peak collector current       | $I_{CP}$  | 300        | mA   |
| Collector current            | $I_C$     | 100        | mA   |
| Collector power dissipation  | $P_C$     | 150        | mW   |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |

## ■ Electrical Characteristics (Ta=25°C)

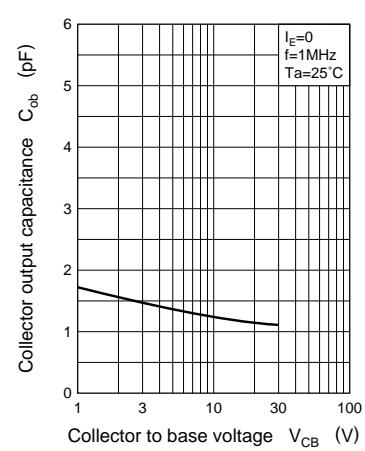
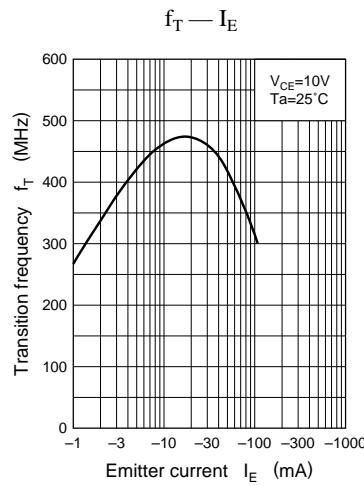
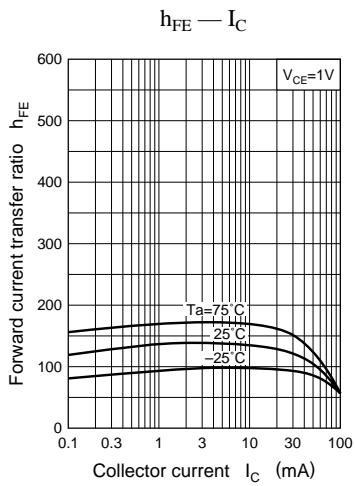
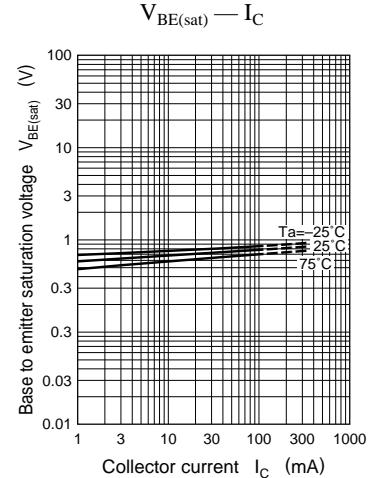
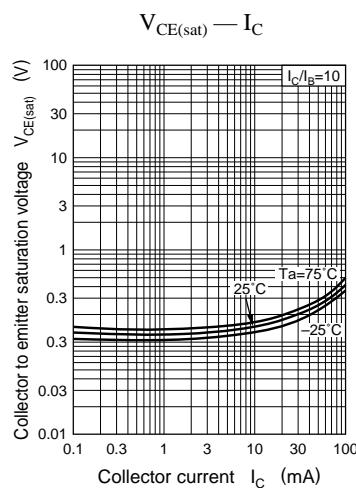
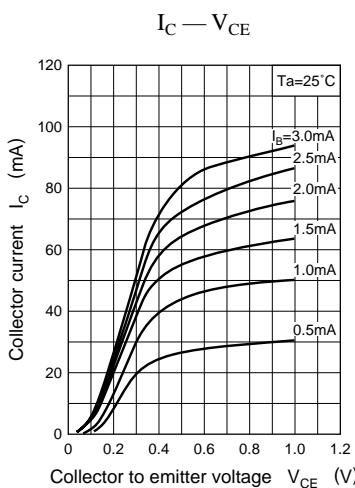
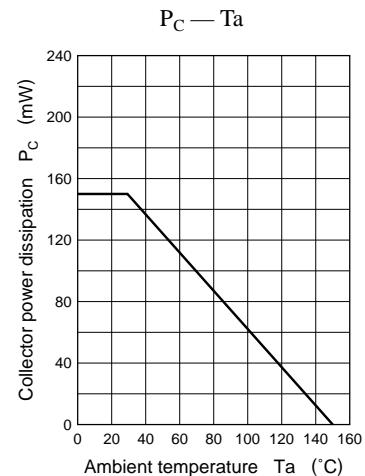
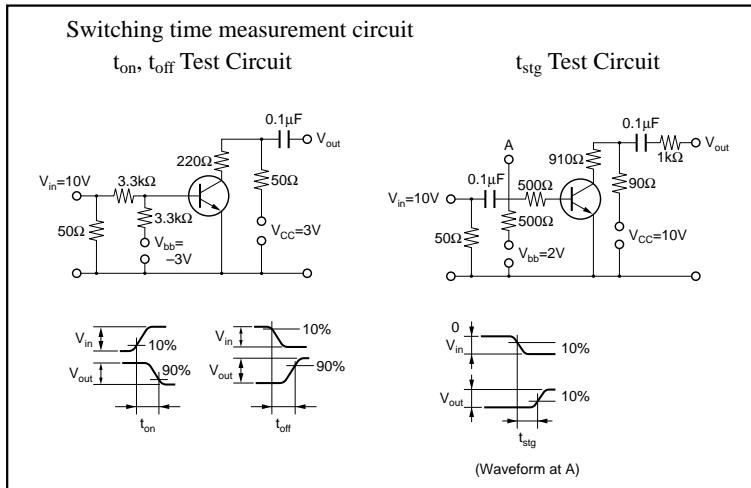
| Parameter                               | Symbol        | Conditions                              | min | typ  | max  | Unit |
|---|---------------|---|-----|------|------|------|
| Collector cutoff current                | $I_{CBO}$     | $V_{CB} = 40V, I_E = 0$                 |     |      | 0.1  | µA   |
| Emitter cutoff current                  | $I_{EBO}$     | $V_{EB} = 4V, I_C = 0$                  |     |      | 0.1  | µA   |
| Forward current transfer ratio          | $h_{FE}^*$    | $V_{CE} = 1V, I_C = 10mA$               | 60  |      | 200  |      |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10mA, I_B = 1mA$                 |     | 0.17 | 0.25 | V    |
| Base to emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = 10mA, I_B = 1mA$                 |     |      | 1.0  | V    |
| Transition frequency                    | $f_T$         | $V_{CB} = 10V, I_E = -10mA, f = 200MHz$ |     | 450  |      | MHz  |
| Collector output capacitance            | $C_{ob}$      | $V_{CB} = 10V, I_E = 0, f = 1MHz$       | 2   | 6    |      | pF   |
| Turn-on time                            | $t_{on}$      | Refer to the measurement circuit        |     | 17   |      | ns   |
| Turn-off time                           | $t_{off}$     |   |     | 17   |      | ns   |
| Storage time                            | $t_{stg}$     |   |     | 10   |      | ns   |

\* $h_{FE}$  Rank classification

| Rank           | Q        | R        |
|----------------|----------|----------|
| $h_{FE}$       | 60 ~ 120 | 90 ~ 200 |
| Marking Symbol | 2YQ      | 2YR      |



Marking symbol : 2Y



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