

XP05554

Silicon NPN epitaxial planar type

For high-speed switching

■ Features

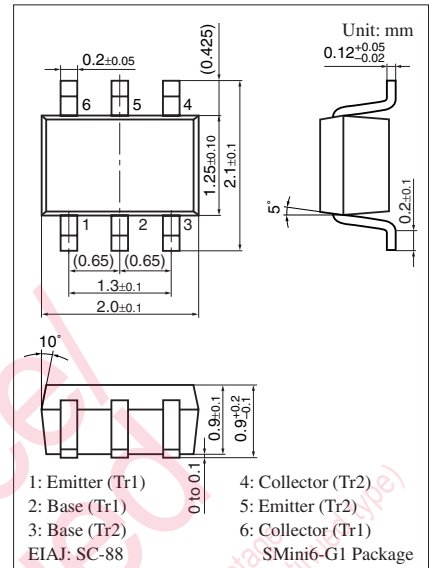
- Two elements incorporated into one package
- Low collector-emitter saturation voltage $V_{CE(sat)}$

■ Basic Part Number

- 2SC3757 × 2

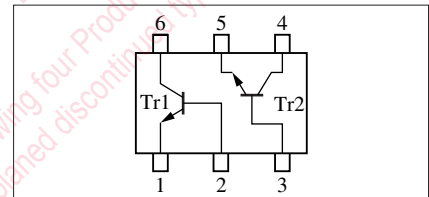
■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Rating | Unit |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | V_{CBO} | 40 | V |
| Collector-emitter voltage (E-B short) | V_{CES} | 40 | V |
| Emitter-base voltage (Collector open) | V_{EBO} | 5 | V |
| Collector current | I_C | 100 | mA |
| Peak collector current | I_{CP} | 300 | mA |
| Total power dissipation | P_T | 150 | mW |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |



Marking Symbol: HE

Internal Connection



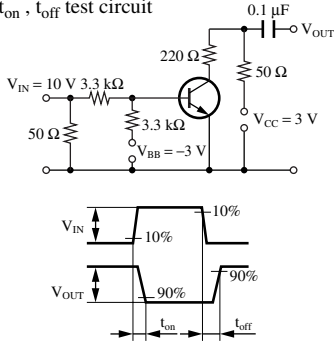
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter | Symbol | Conditions | Min | Typ | Max | Unit |
|--|---------------|---|-----|------|------|---------------|
| Collector-base cutoff current (Emitter open) | I_{CBO} | $V_{CB} = 15\text{ V}, I_E = 0$ | | | 0.1 | μA |
| Emitter-base cutoff current (Collector open) | I_{EBO} | $V_{EB} = 4\text{ V}, I_C = 0$ | | | 0.1 | μA |
| Forward current transfer ratio | h_{FE} | $V_{CE} = 1\text{ V}, I_C = 10\text{ mA}$ | 90 | | 200 | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10\text{ mA}, I_B = 1\text{ mA}$ | | 0.17 | 0.25 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C = 10\text{ mA}, I_B = 1\text{ mA}$ | | | 1.0 | V |
| Transition frequency | f_T | $V_{CB} = 10\text{ V}, I_E = -10\text{ mA}, f = 200\text{ MHz}$ | | 450 | | MHz |
| Collector output capacitance (Common base, input open circuited) | C_{ob} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | | 2 | 6 | pF |
| Turn-on time | t_{on} | Refer to the switching time measurement circuit | | 17 | | ns |
| Turn-off time | t_{off} | | | 17 | | ns |
| Storage time | t_{stg} | | | 10 | | ns |

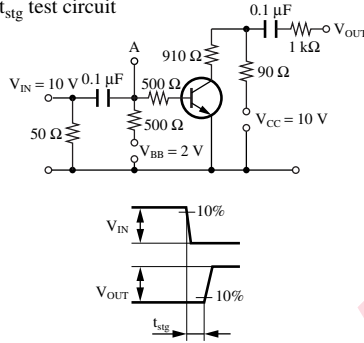
Note) Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

Switching time measurement circuit

t_{on} : t_{off} test circuit

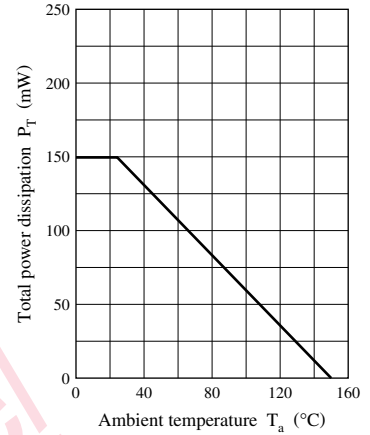


t_{stg} test circuit

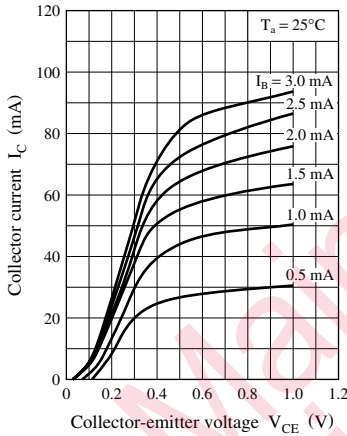


(Waveform A)

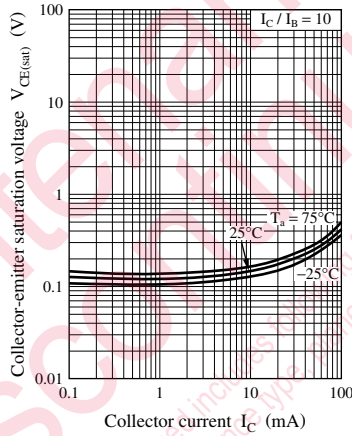
$P_T - T_a$



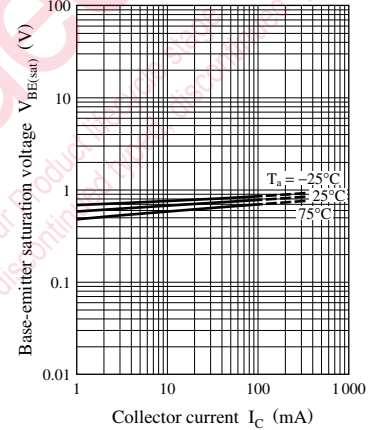
$I_C - V_{CE}$



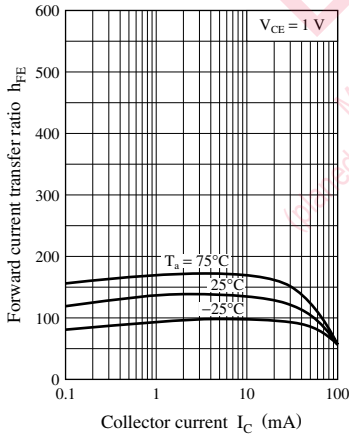
$V_{CE(sat)} - I_C$



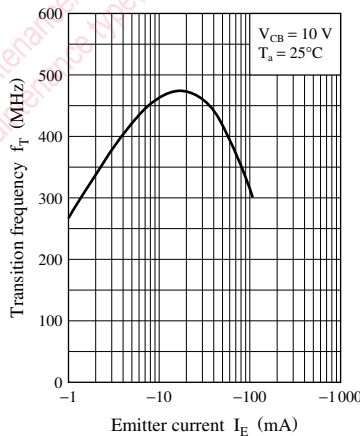
$V_{BE(sat)} - I_C$



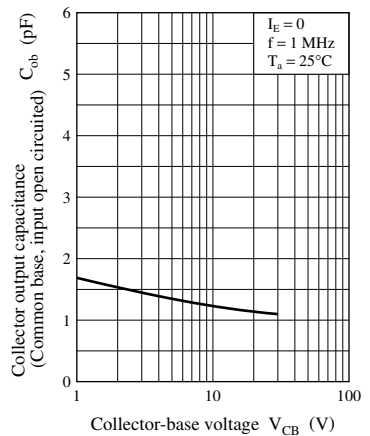
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



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