

# 2SC2377

## Silicon NPN epitaxial planar type

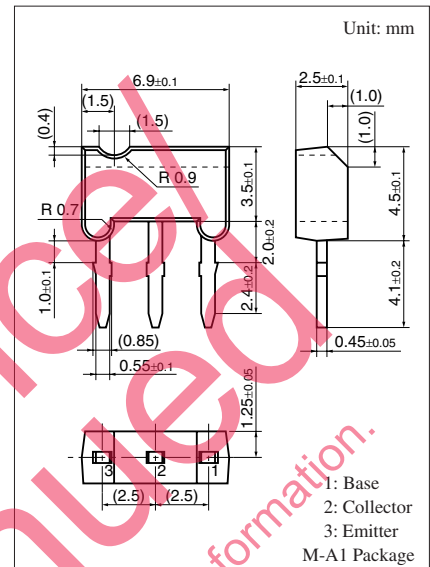
For high-frequency amplification

### ■ Features

- Optimum for RF amplification of FM/AM radios
- High transition frequency  $f_T$
- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board

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

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 30          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 20          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 3           | V                |
| Collector current                     | $I_C$     | 15          | mA               |
| Collector power dissipation           | $P_C$     | 200         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |



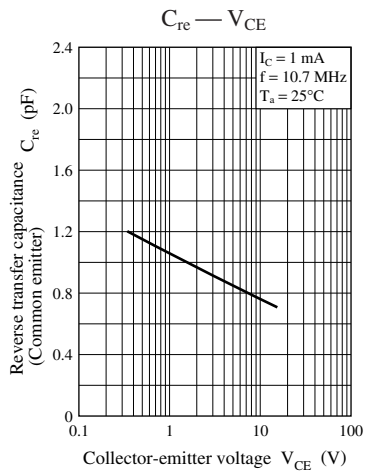
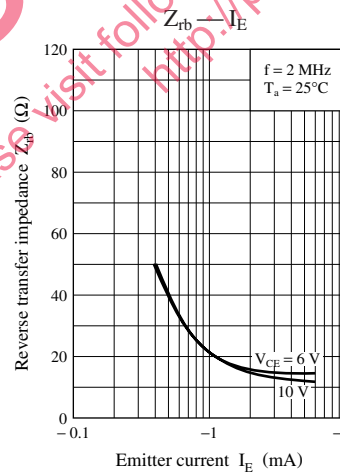
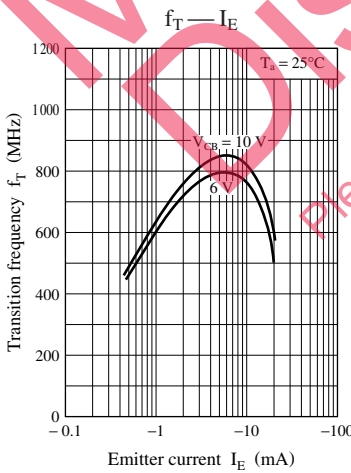
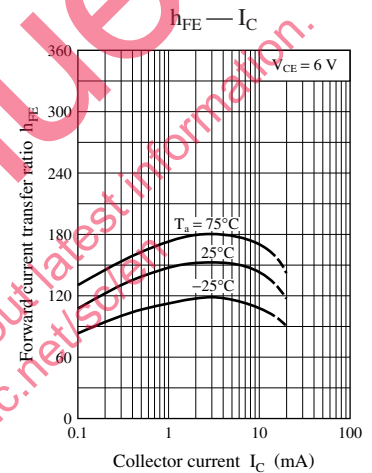
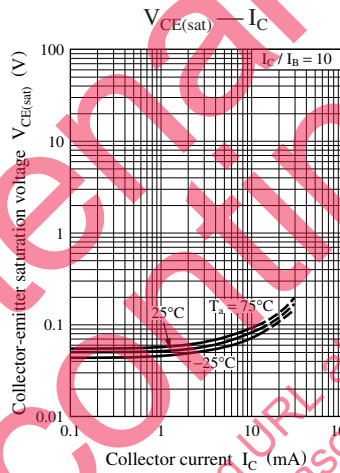
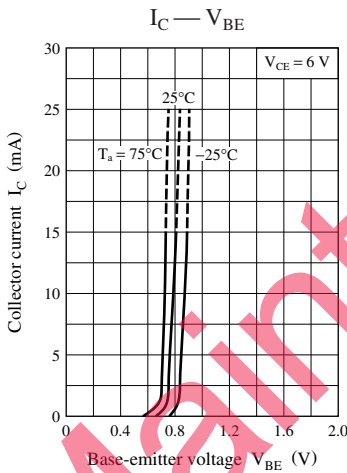
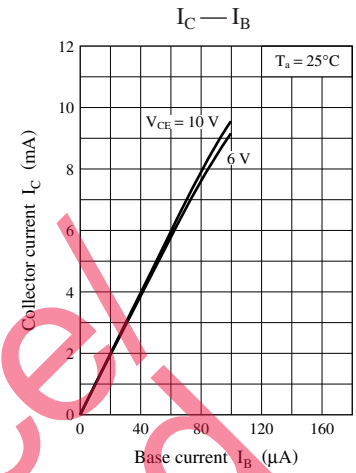
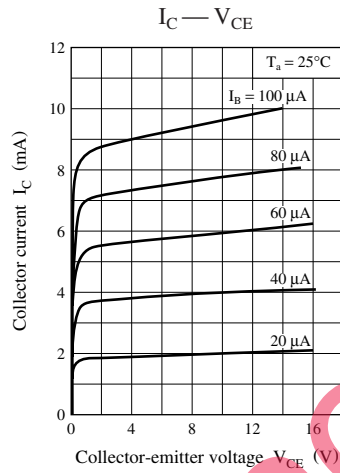
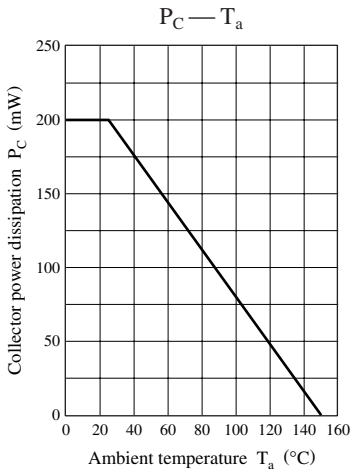
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

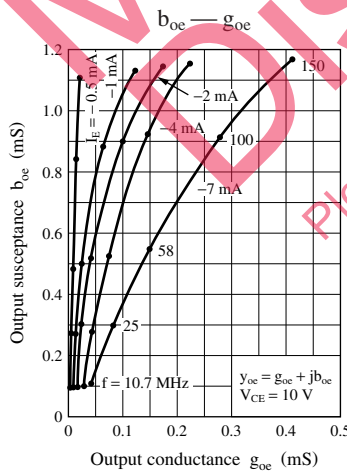
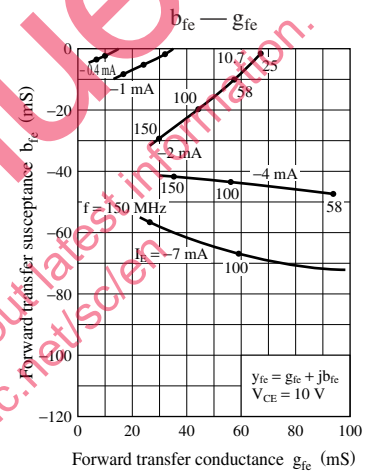
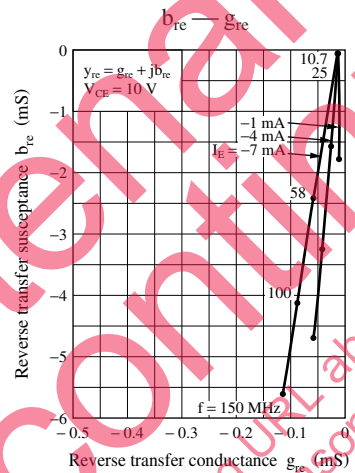
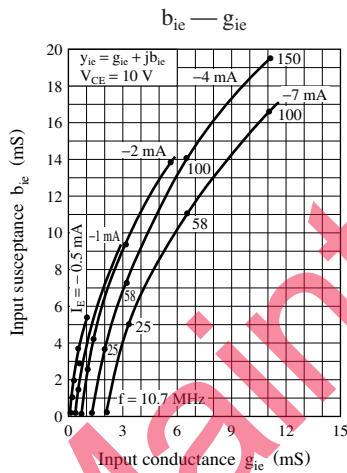
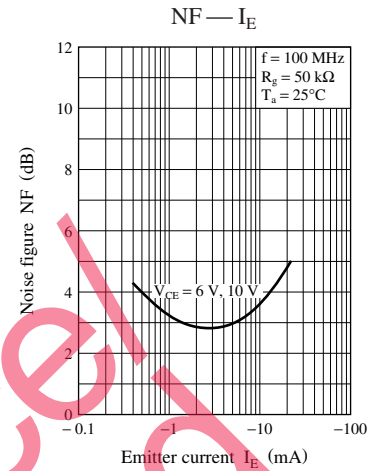
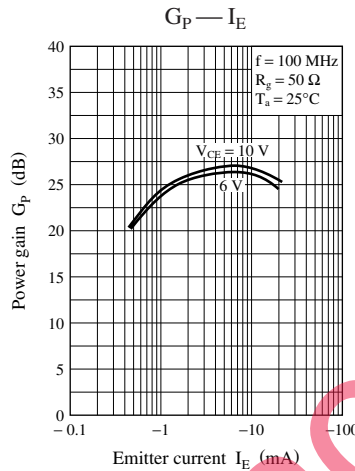
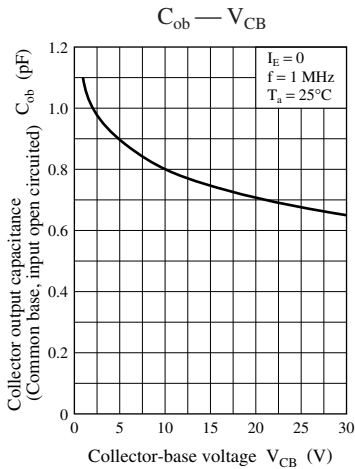
| Parameter                                     | Symbol    | Conditions   | Min | Typ | Max | Unit          |
|---|-----------|--|-----|-----|-----|---------------|
| Base-emitter voltage                          | $V_{BE}$  | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}$                      |     | 720 |     | mV            |
| Collector-base cutoff current (Emitter open)  | $I_{CBO}$ | $V_{CB} = 10\text{ V}, I_E = 0$                                |     |     | 100 | nA            |
| Collector-emitter cutoff current (Base open)  | $I_{CEO}$ | $V_{CE} = 20\text{ V}, I_B = 0$                                |     |     | 10  | $\mu\text{A}$ |
| Emitter-base cutoff current (Collector open)  | $I_{EBO}$ | $V_{EB} = 3\text{ V}, I_C = 0$                                 |     |     | 1   | $\mu\text{A}$ |
| Forward current transfer ratio *              | $h_{FE}$  | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}$                      | 65  |     | 260 | —             |
| Transition frequency                          | $f_T$     | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}, f = 100\text{ MHz}$  | 450 | 650 |     | MHz           |
| Noise figure                                  | NF        | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}, f = 100\text{ MHz}$  |     | 3.3 | 5.0 | dB            |
| Power gain                                    | $G_P$     | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}, f = 100\text{ MHz}$  | 20  | 24  |     | dB            |
| Reverse transfer capacitance (Common emitter) | $C_{re}$  | $V_{CB} = 6\text{ V}, I_E = -1\text{ mA}, f = 10.7\text{ MHz}$ |     | 0.8 | 1.0 | pF            |

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

2. \*: Rank classification

| Rank     | C         | D          |
|----------|-----------|------------|
| $h_{FE}$ | 65 to 160 | 100 to 260 |





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