

# 2SC6050

## Silicon NPN epitaxial planar type

For high frequency amplification, oscillation and mixing

### ■ Features

- High transition frequency  $f_T$
- Small collector output capacitance (Common base, input open circuited)  $C_{ob}$  and reverse transfer capacitance (Common base)  $C_{rb}$
- Optimum for high-density mounting and downsizing of the equipment for Ultraminiature leadless package  
0.6 mm × 1.0 mm (height 0.39 mm)

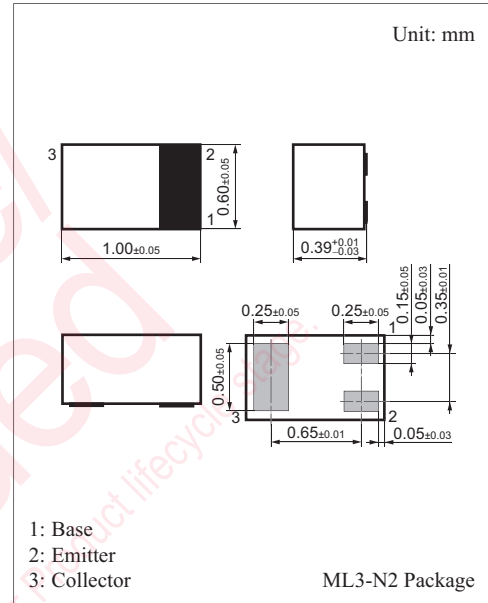
### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | 15          | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | 10          | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | 3           | V                |
| Collector current                     | $I_C$     | 50          | mA               |
| Collector power dissipation           | $P_C$     | 100         | mW               |
| Junction temperature                  | $T_j$     | 125         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +125 | $^\circ\text{C}$ |

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

| Parameter  | Symbol              | Conditions   | Min  | Typ  | Max | Unit          |
|--|---------------------|--|------|------|-----|---------------|
| Collector-emitter voltage (Base open)                            | $V_{CEO}$           | $I_C = 2 \text{ mA}, I_B = 0$  | 10   |      |     | V             |
| Emitter-base voltage (Collector open)                            | $V_{EBO}$           | $I_E = 10 \mu\text{A}, I_C = 0$  | 3    |      |     | V             |
| Collector-base cutoff current (Emitter open)                     | $I_{CBO}$           | $V_{CB} = 10 \text{ V}, I_E = 0$   |      |      | 1   | $\mu\text{A}$ |
| Forward current transfer ratio                                   | $h_{FE}$            | $V_{CE} = 4 \text{ V}, I_C = 5 \text{ mA}$   | 75   |      | 400 | —             |
| Collector-emitter saturation voltage                             | $V_{CE(sat)}$       | $I_C = 20 \text{ mA}, I_B = 4 \text{ mA}$  |      |      | 0.5 | V             |
| Transition frequency   | $f_T$               | $V_{CB} = 4 \text{ V}, I_E = -5 \text{ mA}, f = 200 \text{ MHz}$                         | 1.4  | 1.9  | 2.7 | GHz           |
| Collector output capacitance (Common base, input open circuited) | $C_{ob}$            | $V_{CB} = 4 \text{ V}, I_E = 0, f = 1 \text{ MHz}$                                       |      | 1.4  |     | pF            |
| Reverse transfer capacitance (Common base)                       | $C_{rb}$            | $V_{CB} = 4 \text{ V}, I_E = 0, f = 1 \text{ MHz}$                                       |      | 0.45 |     | pF            |
| Collector-base parameter   | $r_{bb'} \cdot c_c$ | $V_{CB} = 4 \text{ V}, I_E = -5 \text{ mA}, f = 31.9 \text{ MHz}$                        |      | 11   |     | ps            |
| $h_{FE}$ ratio   | $\Delta h_{FE}$     | $V_{CE} = 4 \text{ V}, I_C = 100 \mu\text{A} / V_{CE} = 4 \text{ V}, I_C = 5 \text{ mA}$ | 0.75 |      | 1.6 | —             |

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



Marking Symbol: 6N

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