

# 2SC5053

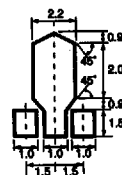
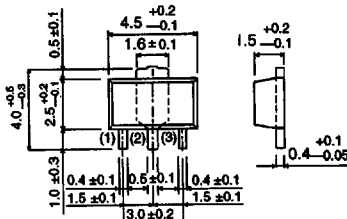
## Transistor, NPN

### Features

- available in MPT3 (MPT, SC-62) package
- package marking: 2SC5053; CG★, where ★ is  $h_{FE}$  code
- $P_C = 2\text{ W}$  when mounted on a  $40 \times 40 \times 0.7\text{ mm}$  ceramic substrate
- low collector saturation voltage, typically  $V_{CE(sat)} = 0.12\text{ V}$  for  $I_C/I_B = 500\text{ mA}/50\text{ mA}$
- complementary pair with 2SA1900

### Dimensions (Units : mm)

2SC5053 (MPT3)



- (1) Base  
(2) Collector  
(3) Emitter

### Absolute maximum ratings ( $T_a = 25^\circ\text{C}$ )

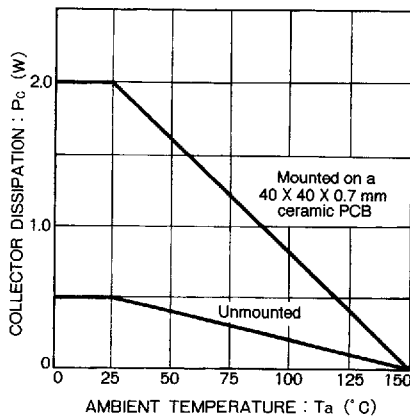
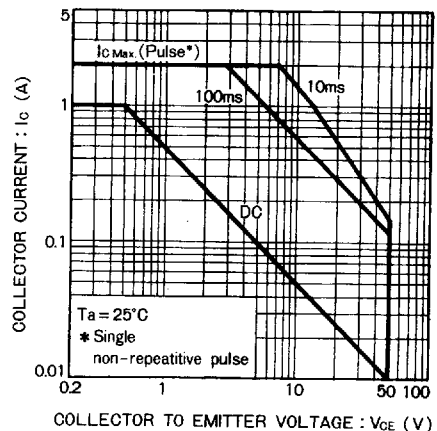
| Parameter                    | Symbol    | Limits          | Unit             | Conditions                                                       |
|------------------------------|-----------|-----------------|------------------|------------------------------------------------------------------|
| Collector-to-base voltage    | $V_{CBO}$ | 60              | V                |                                                                  |
| Collector-to-emitter voltage | $V_{CEO}$ | 50              | V                |                                                                  |
| Emitter-to-base voltage      | $V_{EBO}$ | 5               | V                |                                                                  |
| Collector current            | $I_C$     | 1               | A                | DC                                                               |
|                              | $I_{CP}$  | 2               |                  | $P_W = 20\text{ ms}$ , Duty = 50%                                |
| Collector dissipation        | $P_C$     | 0.5             | W                | Mounted on $40 \times 40 \times 0.7\text{ mm}$ ceramic substrate |
|                              |           | 2               |                  |                                                                  |
| Junction temperature         | $T_j$     | 150             | $^\circ\text{C}$ |                                                                  |
| Storage temperature          | $T_{stg}$ | $-55 \sim +150$ | $^\circ\text{C}$ |                                                                  |

**Electrical characteristics (unless otherwise noted,  $T_a = 25^\circ\text{C}$ )**

| Parameter                               | Symbol        | Min | Typical | Max | Unit          | Conditions                                                              |
|-----------------------------------------|---------------|-----|---------|-----|---------------|-------------------------------------------------------------------------|
| Collector-to-base breakdown voltage     | $BV_{CBO}$    | 60  |         |     | V             | $I_C = 50\ \mu\text{A}$                                                 |
| Collector-to-emitter breakdown voltage  | $BV_{CEO}$    | 50  |         |     | V             | $I_C = 1\ \text{mA}$                                                    |
| Emitter-to-base breakdown voltage       | $BV_{EBO}$    | 5   |         |     | V             | $I_E = 50\ \mu\text{A}$                                                 |
| Collector cutoff current                | $I_{CBO}$     |     |         | 0.1 | $\mu\text{A}$ | $V_{CB} = 40\ \text{V}$                                                 |
| Emitter cutoff current                  | $I_{EBO}$     |     |         | 0.1 | $\mu\text{A}$ | $V_{EB} = 4\ \text{V}$                                                  |
| DC current gain                         | $h_{FE}$      | 82  |         | 390 |               | $V_{CE} = 3\ \text{V}$ , $I_C = 500\ \text{mA}$                         |
| Collector-to-emitter saturation voltage | $V_{CE(sat)}$ |     |         | 0.4 | V             | $I_C/I_B = 500\ \text{mA}/50\ \text{mA}$                                |
| Transition frequency                    | $f_T$         |     | 150     |     | MHz           | $V_{CE} = 5\ \text{V}$ , $I_E = -50\ \text{mA}$ , $f = 100\ \text{MHz}$ |
| Collector output capacitance            | $C_{ob}$      |     | 20      |     | pF            | $V_{CB} = 10\ \text{V}$ , $I_E = 0\ \text{A}$ , $f = 1\ \text{MHz}$     |

 **$h_{FE}$  rankings**

| Item     | P        | Q         | R         |
|----------|----------|-----------|-----------|
| $h_{FE}$ | 82 ~ 180 | 120 ~ 270 | 180 ~ 390 |

**Electrical characteristic curves****Figure 1****Figure 2**

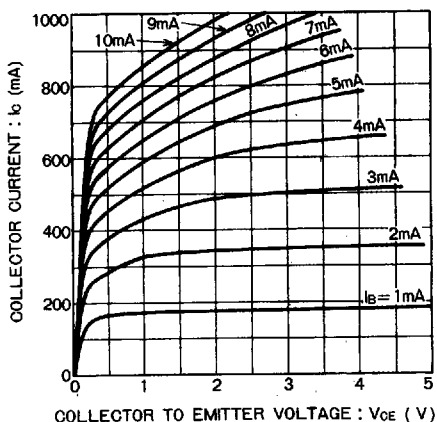


Figure 3

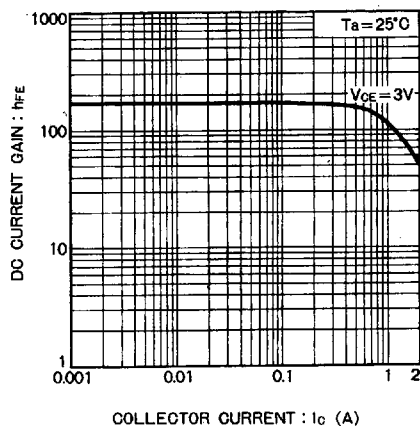


Figure 4

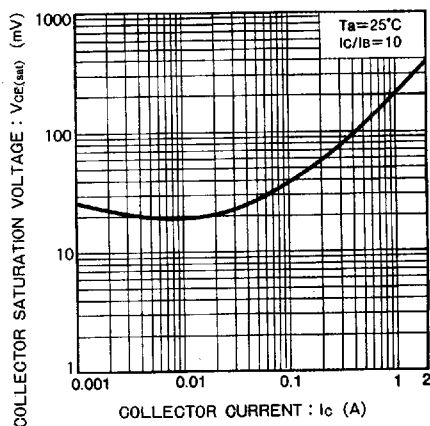


Figure 5

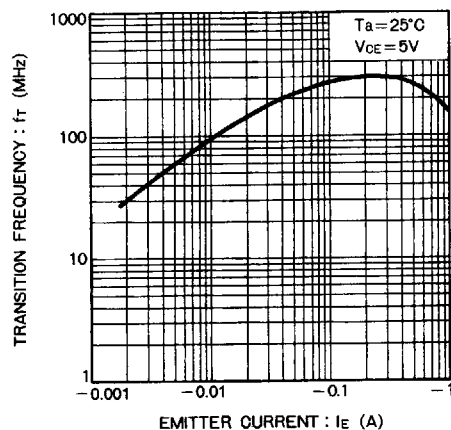


Figure 6

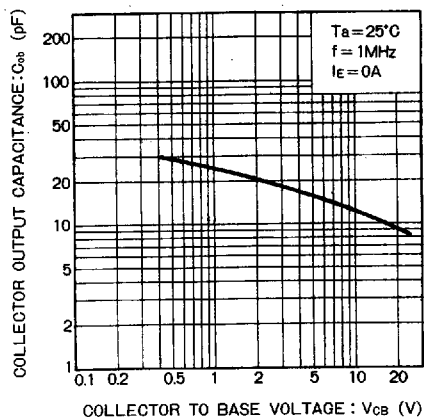


Figure 7

### Ordering information

|                                                    |      |
|----------------------------------------------------|------|
| Package                                            | Tape |
| Code                                               | T100 |
| Basic order quantity                               | 1000 |
| 2SC5053                                            | ★    |
| ★ = Standard, ☆ = Semi-standard, * = Special order |      |