

# Midium Power Transistors (30V / 2A)

## 2SCR512P

### ● Structure

NPN Silicon epitaxial planar transistor

### ● Features

- 1) Low saturation voltage, typically  
 $V_{CE(sat)} = 0.4V$  (Max.) ( $I_C / I_B = 700mA / 35mA$ )
- 2) High speed switching

### ● Applications

Driver

### ● Packaging specifications

| Type     | Package                      | Taping |
|----------|------------------------------|--------|
|          | Code                         | T100   |
|          | Basic ordering unit (pieces) | 1000   |
| 2SCR512P |                              | ○      |

### ● Absolute maximum ratings (Ta = 25°C)

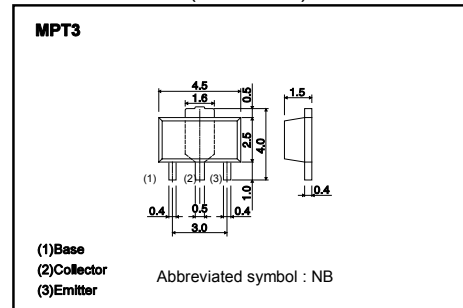
| Parameter                    | Symbol    | Limits        | Unit |
|------------------------------|-----------|---------------|------|
| Collector-base voltage       | $V_{CBO}$ | 30            | V    |
| Collector-emitter voltage    | $V_{CEO}$ | 30            | V    |
| Emitter-base voltage         | $V_{EBO}$ | 6             | V    |
| Collector current            | DC        | $I_C$         | 2    |
|                              | Pulsed    | $I_{CP}^{*1}$ | 4    |
| Power dissipation            |           | $P_D^{*2}$    | 0.5  |
|                              |           | $P_D^{*3}$    | 2    |
| Junction temperature         | $T_j$     | 150           | °C   |
| Range of storage temperature | $T_{stg}$ | -55 to 150    | °C   |

\*1  $P_w=10ms$ , Single Pulse

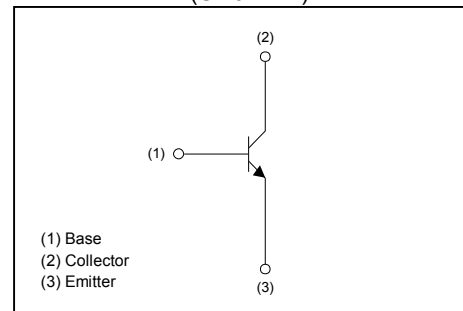
\*2 Each terminal mounted on a recommended land.

\*3 Mounted on a ceramic board. (40x40x0.7mm<sup>3</sup>)

### ● Dimensions (Unit : mm)



### ● Inner circuit (Unit : mm)



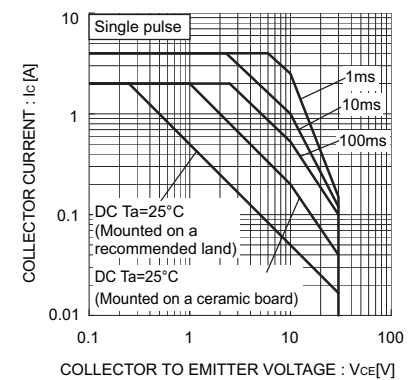
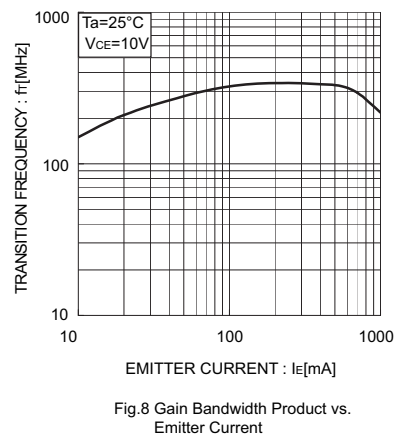
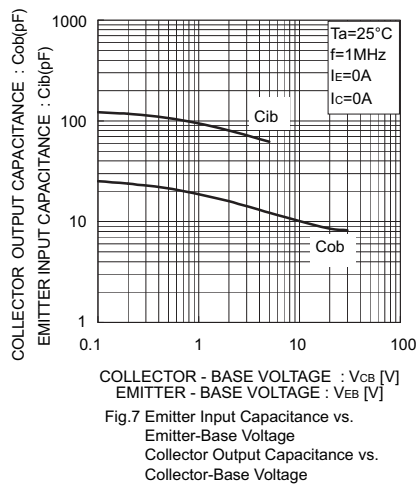
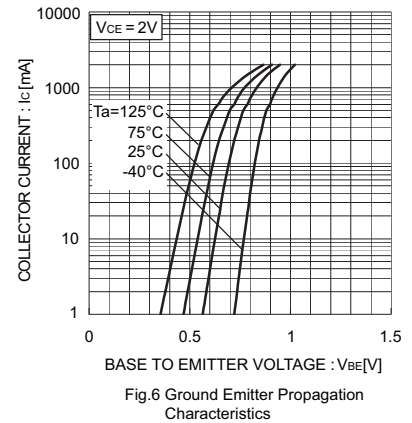
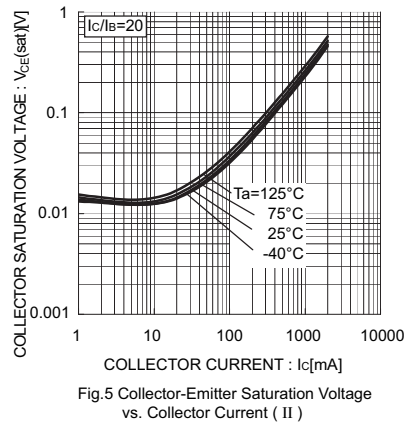
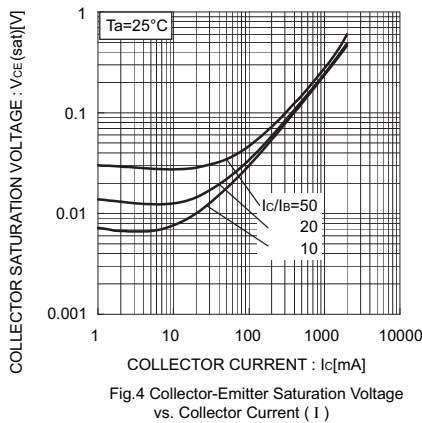
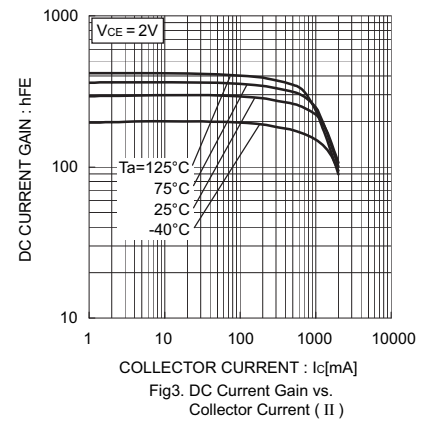
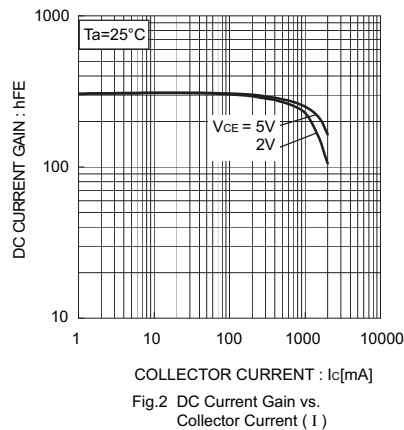
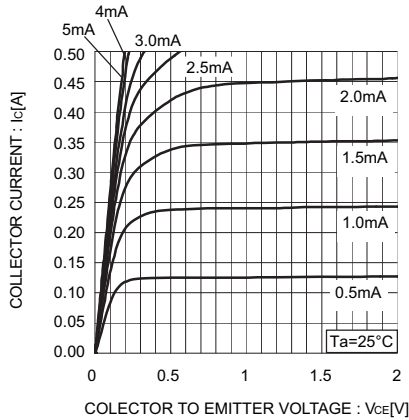
## ●Electrical characteristic (Ta = 25°C)

| Parameter                            | Symbol             | Min. | Typ. | Max. | Unit          | Conditions                                                                                              |
|--------------------------------------|--------------------|------|------|------|---------------|---------------------------------------------------------------------------------------------------------|
| Collector-emitter breakdown voltage  | $BV_{CEO}$         | 30   | -    | -    | V             | $I_C = 1\text{mA}$                                                                                      |
| Collector-base breakdown voltage     | $BV_{CBO}$         | 30   | -    | -    | V             | $I_C = 100\mu\text{A}$                                                                                  |
| Emitter-base breakdown voltage       | $BV_{EBO}$         | 6    | -    | -    | V             | $I_E = 100\mu\text{A}$                                                                                  |
| Collector cut-off current            | $I_{CBO}$          | -    | -    | 1    | $\mu\text{A}$ | $V_{CB} = 30\text{V}$                                                                                   |
| Emitter cut-off current              | $I_{EBO}$          | -    | -    | 1    | $\mu\text{A}$ | $V_{EB} = 4\text{V}$                                                                                    |
| Collector-emitter saturation voltage | $V_{CE(sat)}^{*1}$ | -    | 200  | 400  | mV            | $I_C = 700\text{mA}$ , $I_B = 35\text{mA}$                                                              |
| DC current gain                      | $h_{FE}$           | 200  | -    | 500  | -             | $V_{CE} = 2\text{V}$ , $I_C = 100\text{mA}$                                                             |
| Transition frequency                 | $f_T^{*1}$         | -    | 320  | -    | MHz           | $V_{CE} = 10\text{V}$<br>$I_E = -100\text{mA}$ , $f = 100\text{MHz}$                                    |
| Collector output capacitance         | $C_{ob}$           | -    | 10   | -    | pF            | $V_{CB} = 10\text{V}$ , $I_E = 0\text{A}$<br>$f = 1\text{MHz}$                                          |
| Turn-on time                         | $t_{on}^{*2}$      | -    | 25   | -    | ns            | $I_C = 1\text{A}$ , $I_{B1} = 100\text{mA}$ ,<br>$I_{B2} = -100\text{mA}$ , $V_{CC} \approx 10\text{V}$ |
| Storage time                         | $t_{stg}^{*2}$     | -    | 240  | -    | ns            |                                                                                                         |
| Fall time                            | $t_f^{*2}$         | -    | 20   | -    | ns            |                                                                                                         |

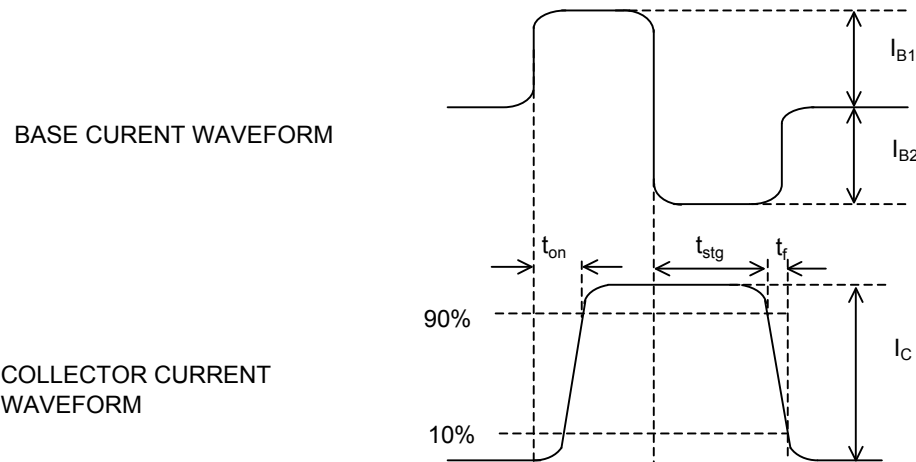
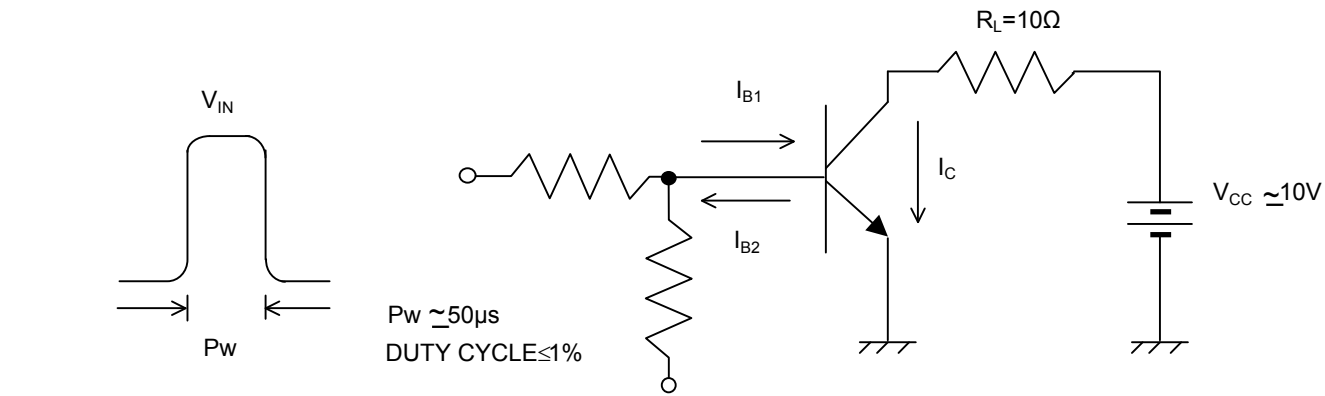
\*1 Pulsed

\*2 See switching time test circuit

## ●Electrical characteristic curves



●Switching time test circuit



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