

TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT process)

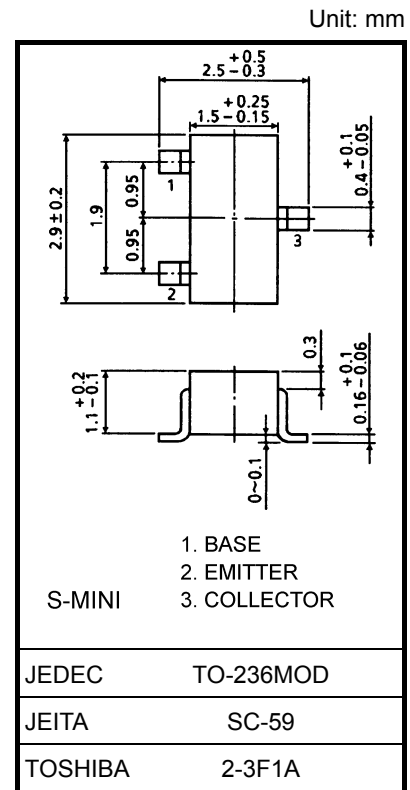
# 2SC6105

## High Voltage Switching Applications

- High voltage:  $V_{CE0} = 600\text{ V (max)}$
- Low saturation voltage:  $V_{CE(sat)}(1) = 1.0\text{ V (max)}$   
 $@I_C = 20\text{ mA}, I_B = 0.5\text{ mA}$

## Absolute Maximum Ratings (Ta = 25°C)

| Characteristics             |       | Symbol    | Rating     | Unit |
|-----------------------------|-------|-----------|------------|------|
| Collector-base voltage      |       | $V_{CBO}$ | 600        | V    |
| Collector-emitter voltage   |       | $V_{CEO}$ | 600        | V    |
| Emitter-base voltage        |       | $V_{EBO}$ | 7          | V    |
| Collector current           | DC    | $I_C$     | 50         | mA   |
|                             | PULSE | $I_{CP}$  | 100        |      |
| Base current                |       | $I_B$     | 25         | mA   |
| Collector power dissipation |       | $P_C$     | 200        | mW   |
| Junction temperature        |       | $T_j$     | 150        | °C   |
| Storage temperature range   |       | $T_{stg}$ | -55 to 150 | °C   |

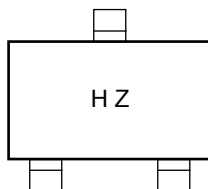


Weight: 12 mg (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

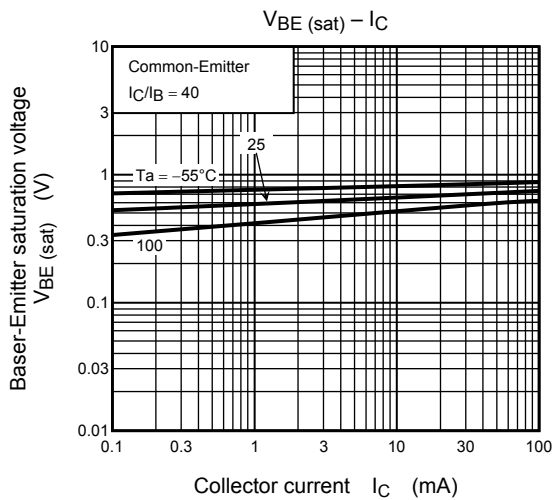
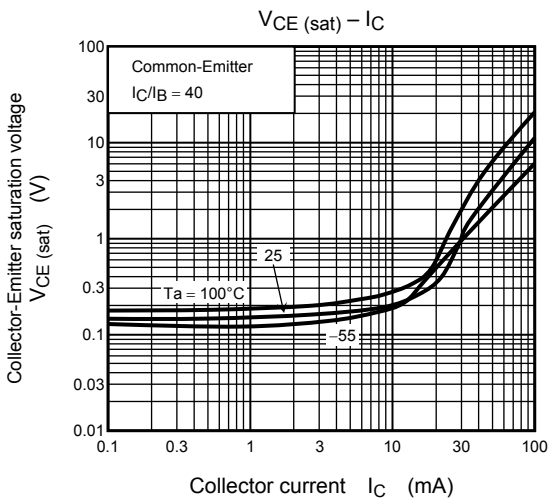
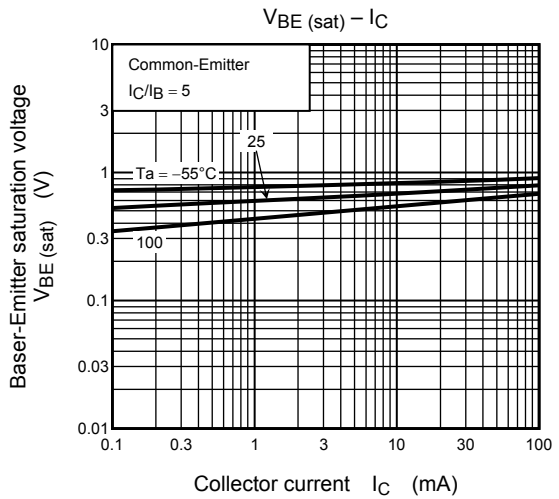
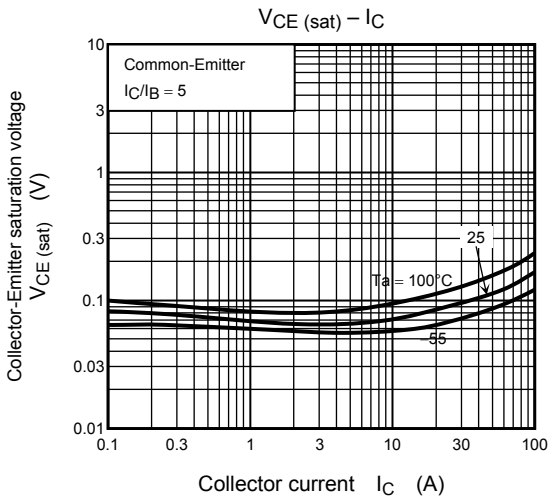
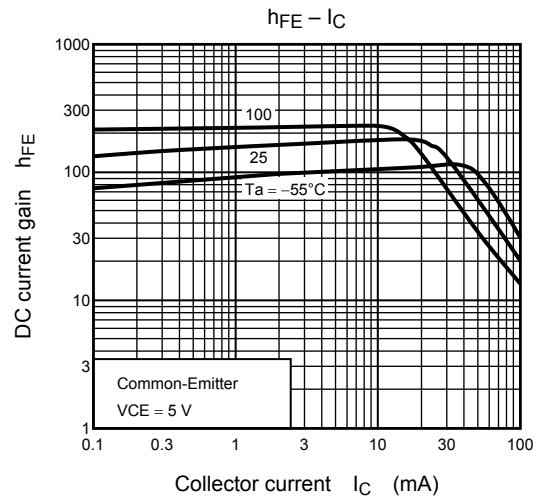
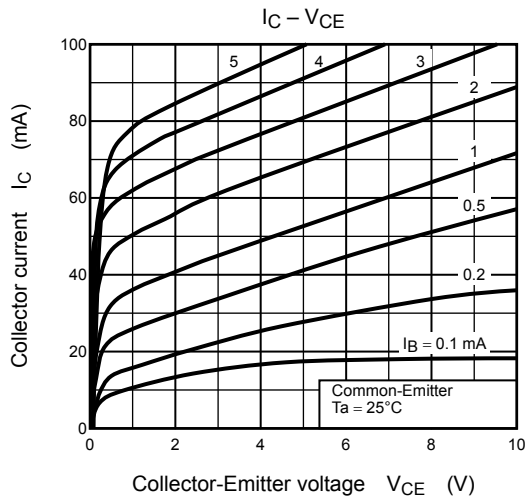
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

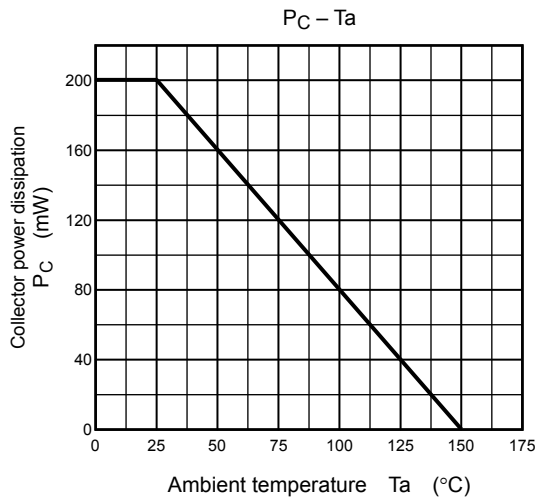
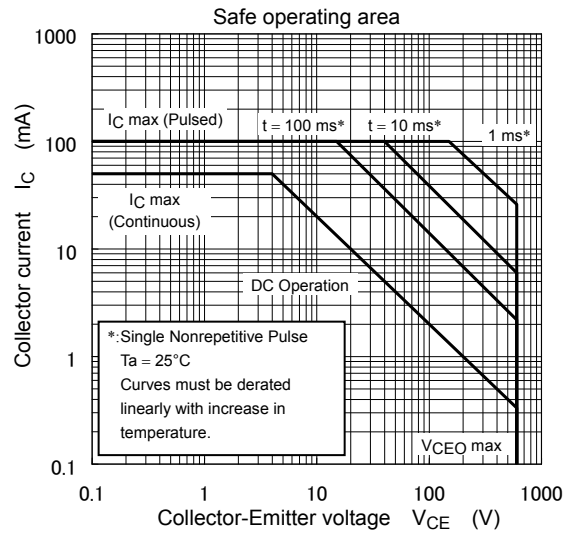
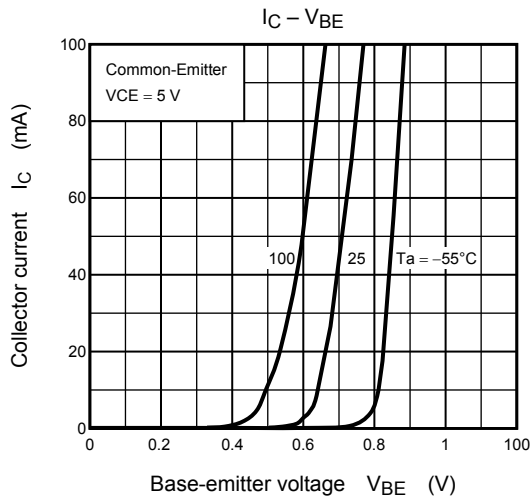
## Marking



## Electrical Characteristics (Ta = 25°C)

| Characteristics                      | Symbol                | Test Condition                                    | Min | Typ. | Max  | Unit          |
|--------------------------------------|-----------------------|---|-----|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$             | $V_{CB} = 600\text{ V}, I_E = 0$                  | —   | —    | 0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$             | $V_{EB} = 7\text{ V}, I_C = 0$                    | —   | —    | 0.1  | $\mu\text{A}$ |
| Collector-emitter breakdown voltage  | $V_{CEO}$             | $I_C = 1\text{ mA}, I_B = 0$                      | 600 | —    | —    | V             |
| DC current gain                      | $h_{FE} (1)$          | $V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$          | 80  | —    | —    |               |
|                                      | $h_{FE} (2)$          | $V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$         | 100 | —    | 300  |               |
| Collector-emitter saturation voltage | $V_{CE} (\text{sat})$ | $I_C = 20\text{ mA}, I_B = 0.5\text{ mA}$         | —   | —    | 1.0  | V             |
| Base-emitter voltage                 | $V_{BE}$              | $V_{CE} = 5\text{ V}, I_C = 20\text{ mA}$         | —   | 0.66 | 0.85 | V             |
| Collector output capacitance         | $C_{ob}$              | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —   | 6.5  | —    | pF            |





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