TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

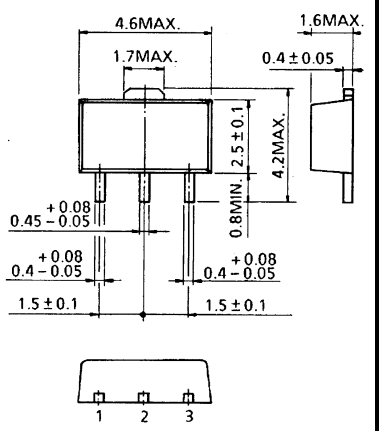
# 2SC2982

Storobo Flash Applications

Medium Power Amplifier Applications

- High DC current gain and excellent linearity
  : $h_{FE\ (1)}$ = 140 to 600 ($V_{CE}$ = 1 V, $I_C$ = 0.5 A)
  : $h_{FE\ (2)}$ = 70 (min), 140 (typ.), ($V_{CE}$ = 1 V, $I_C$ = 2 A)
- Low saturation voltage
  : $V_{CE\ (sat)}$ = 0.5 V (max) ($I_C$ = 2 A, $I_B$ = 50 mA)
- Small flat package
- $P_C$ = 1.0 to 2.0 W (mounted on ceramic substrate)
- Complementary to 2SA1314

Unit: mm




1. Base
2. Collector (heat sink)
3. Emitter

| | |
|---|---|
| JEDEC | — |
| JEITA | SC-62 |
| TOSHIBA | 2-5K1A |

Weight: 0.05 g (typ.)

## Maximum Ratings (Ta = 25°C)

| Characteristics | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Collector-base voltage | | $V_{CBO}$ | 30 | V |
| Collector-emitter voltage | | $V_{CES}$ | 30 | V |
| | | $V_{CEO}$ | 10 | |
| Emitter-base voltage | | $V_{EBO}$ | 6 | V |
| Collector current | DC | $I_C$ | 2 | A |
| | Pulse (Note 1) | $I_{CP}$ | 4 | |
| Base current | DC | $I_B$ | 0.4 | A |
| | Pulse (Note 1) | $I_{BP}$ | 0.8 | |
| Collector power dissipation | | $P_C$ | 500 | mW |
| | | $P_C$ (Note 2) | 1000 | |
| Junction temperature | | $T_j$ | 150 | °C |
| Storage temperature range | | $T_{stg}$ | −55 to 150 | °C |

Note 1: Pulse test: Pulse width = 10 ms (max), duty cycle = 30% (max)

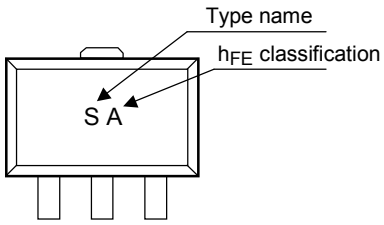
Note 2: 2SC2982 mounted on ceramic substrate (250 $mm^2$ × 0.8 t)

## Electrical Characteristics (Ta = 25°C)

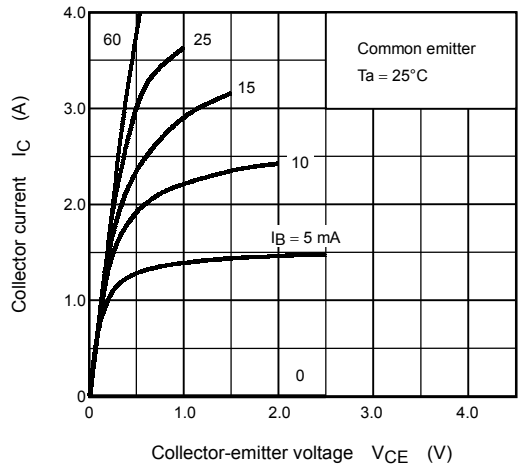
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$ = 30 V, $I_E$ = 0 | — | — | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$ = 6 V, $I_C$ = 0 | — | — | 0.1 | μA |
| Collector-emitter breakdown voltage | $V_{(BR)\ CEO}$ | $I_C$ = 10 mA, $I_B$ = 0 | 10 | — | — | V |
| Emitter-base breakdown voltage | $V_{(BR)\ EBO}$ | $I_E$ = 1 mA, $I_C$ = 0 | 6 | — | — | V |
| DC current gain | $h_{FE\ (1)}$ (Note 3) | $V_{CE}$ = 1 V, $I_C$ = 0.5 A | 140 | — | 600 | — |
| | $h_{FE\ (2)}$ | $V_{CE}$ = 1 V, $I_C$ = 2 A | 70 | 140 | — | |
| Collector-emitter saturation voltage | $V_{CE\ (sat)}$ | $I_C$ = 2 A, $I_B$ = 50 mA | — | 0.2 | 0.5 | V |
| Base-emitter voltage | $V_{BE}$ | $V_{CE}$ = 1 V, $I_C$ = 2 A | — | 0.86 | 1.5 | V |
| Transition frequency | $f_T$ | $V_{CE}$ = 1 V, $I_C$ = 0.5 A | — | 150 | — | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = 10 V, $I_E$ = 0, f = 1 MHz | — | 27 | — | pF |

Note 3: $h_{FE\ (1)}$ classification A: 140 to 240, B: 200 to 330, C: 300 to 450, D: 420 to 600

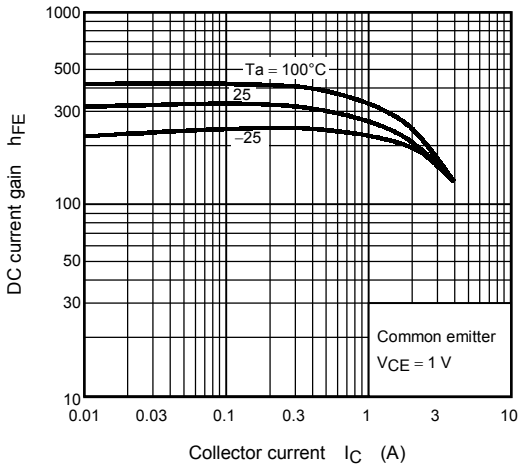
## Marking



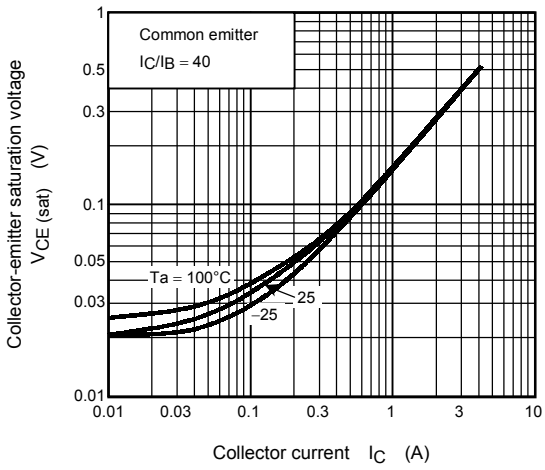
$I_C - V_{CE}$



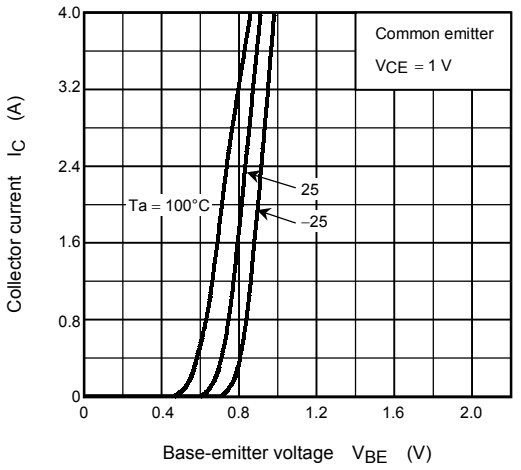

$h_{FE} - I_C$



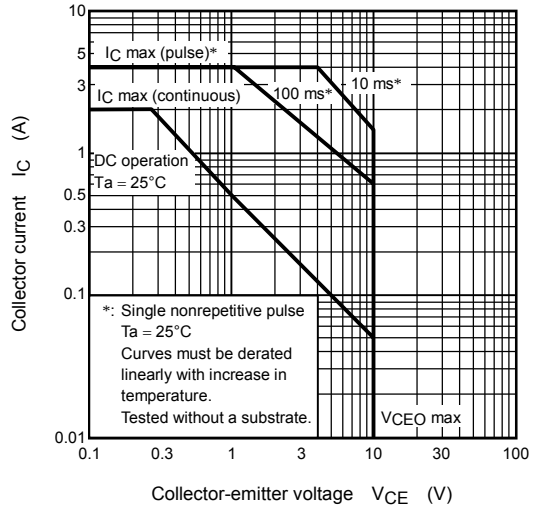

$V_{CE\ (sat)} - I_C$



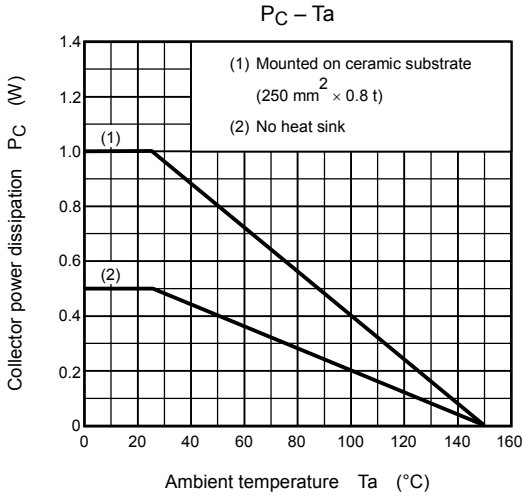

$I_C - V_{BE}$




Safe Operating Area




$P_C - Ta$



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