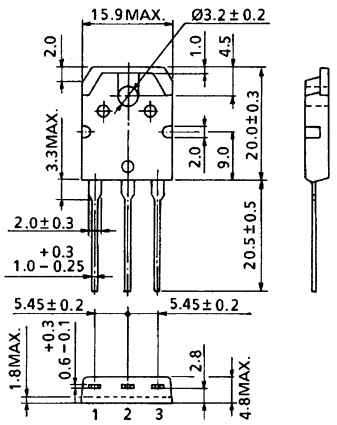
TOSHIBA Transistor Silicon PNP Triple Diffused Type

# 2SA1940

Power Amplifier Applications

- Complementary to 2SC5197
- Recommended for 55-W high-fidelity audio frequency amplifier output stage

Unit: mm




1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

| | |
|---|---|
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 2-16C1A |

Weight: 4.7 g (typ.)

## Maximum Ratings (Tc = 25°C)

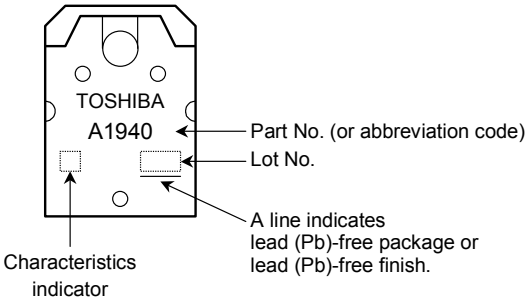
| Characteristics | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | −120 | V |
| Collector-emitter voltage | $V_{CEO}$ | −120 | V |
| Emitter-base voltage | $V_{EBO}$ | −5 | V |
| Collector current | $I_C$ | −8 | A |
| Base current | $I_B$ | −0.8 | A |
| Collector power dissipation (Tc = 25°C) | $P_C$ | 80 | W |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature range | $T_{stg}$ | −55 to 150 | °C |

## Electrical Characteristics (Tc = 25°C)

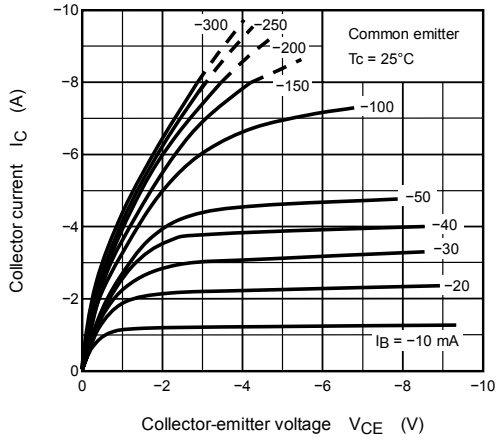
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$ = −120 V, $I_E$ = 0 | — | — | −5.0 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$ = −5 V, $I_C$ = 0 | — | — | −5.0 | μA |
| Collector-emitter breakdown voltage | $V_{(BR)\ CEO}$ | $I_C$ = −50 mA, $I_B$ = 0 | −120 | — | — | V |
| DC current gain | $h_{FE\ (1)}$ (Note) | $V_{CE}$ = −5 V, $I_C$ = −1 A | 55 | — | 160 | |
| | $h_{FE\ (2)}$ | $V_{CE}$ = −5 V, $I_C$ = −4 A | 35 | 75 | — | |
| Collector-emitter saturation voltage | $V_{CE\ (sat)}$ | $I_C$ = −6 A, $I_B$ = −0.6 A | — | −0.80 | −2.0 | V |
| Base-emitter voltage | $V_{BE}$ | $V_{CE}$ = −5 V, $I_C$ = −4 A | — | −0.97 | −1.5 | V |
| Transition frequency | $f_T$ | $V_{CE}$ = −5 V, $I_C$ = −1 A | — | 30 | — | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = −10 V, $I_E$ = 0, f = 1 MHz | — | 260 | — | pF |

Note: $h_{FE\ (1)}$ classification R: 55 to 110, O: 80 to 160

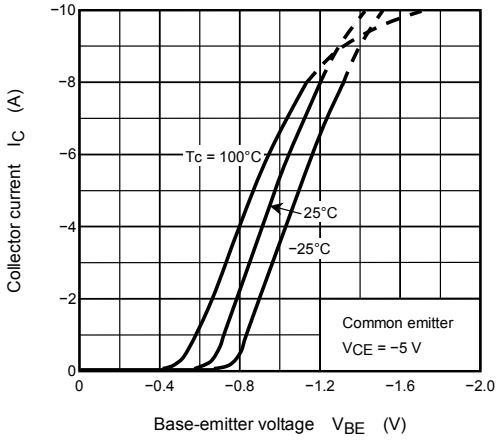
**Marking**


TOSHIBA
A1940
Part No. (or abbreviation code)
Lot No.
A line indicates
lead (Pb)-free package or
lead (Pb)-free finish.
Characteristics
indicator

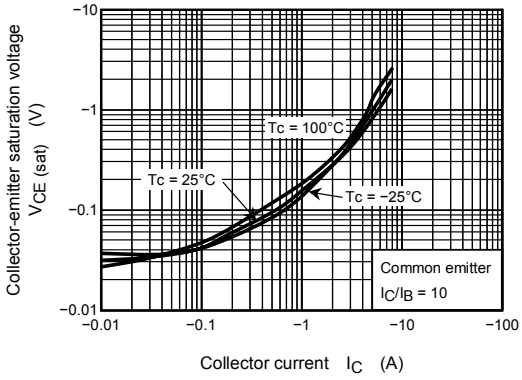
$I_C - V_{CE}$



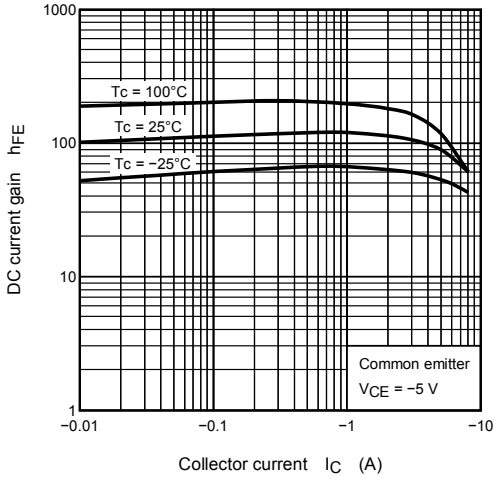

$I_C - V_{BE}$



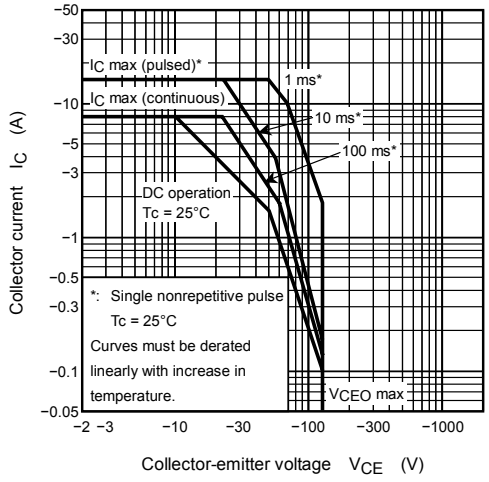

$V_{CE\ (sat)} - I_C$




$h_{FE} - I_C$




Safe Operating Area



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