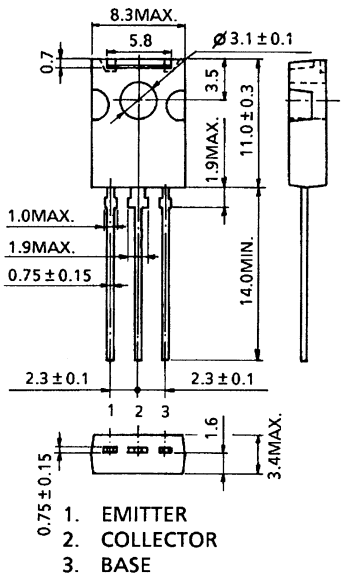
TOSHIBA Transistor Silicon NPN Triple Diffused Type (PCT Process)

# 2SC3619

High-Voltage Switching and Amplifier Applications
Color TV Horizontal Driver Applications
Color TV Chroma Output Applications

- High breakdown voltage: $V_{CEO}$ = 300 V
- Small collector output capacitance: $C_{ob}$ = 3.0 pF (typ.)

Unit: mm




| | |
|---|---|
| JEDEC | — |
| JEITA | — |
| TOSHIBA | 2-8H1A |

Weight: 0.82 g (typ.)

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

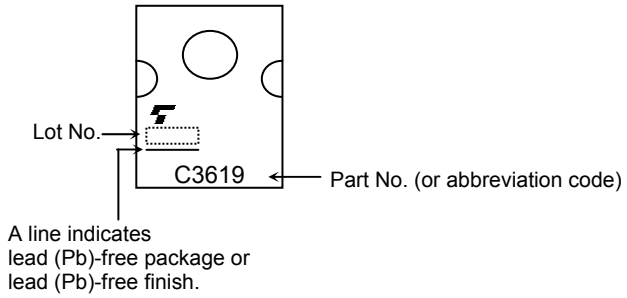
| Characteristics | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | 300 | V |
| Collector-emitter voltage | $V_{CEO}$ | 300 | V |
| Emitter-base voltage | $V_{EBO}$ | 7 | V |
| Collector current | $I_C$ | 100 | mA |
| Base current | $I_B$ | 50 | mA |
| Collector power dissipation (Ta = 25°C) | $P_C$ | 1.5 | W |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature range | $T_{stg}$ | −55 to 150 | °C |

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).

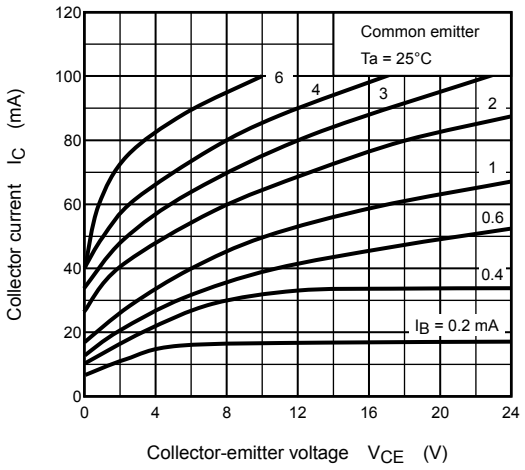
## Electrical Characteristics (Tc = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$ = 240 V, $I_E$ = 0 | — | — | 1.0 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$ = 7 V, $I_C$ = 0 | — | — | 1.0 | μA |
| DC current gain | $h_{FE\ (1)}$ | $V_{CE}$ = 10 V, $I_C$ = 4 mA | 20 | — | — | |
| | $h_{FE\ (2)}$ | $V_{CE}$ = 10 V, $I_C$ = 20 mA | 30 | — | 200 | |
| Collector-emitter saturation voltage | $V_{CE\ (sat)}$ | $I_C$ = 10 mA, $I_B$ = 1 mA | — | — | 1.0 | V |
| Base-emitter saturation voltage | $V_{BE\ (sat)}$ | $I_C$ = 10 mA, $I_B$ = 1 mA | — | — | 1.0 | V |
| Transition frequency | $f_T$ | $V_{CE}$ = 10 V, $I_C$ = 20 mA | 50 | — | — | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$ = 20 V, $I_E$ = 0, f = 1 MHz | — | 3.0 | — | pF |

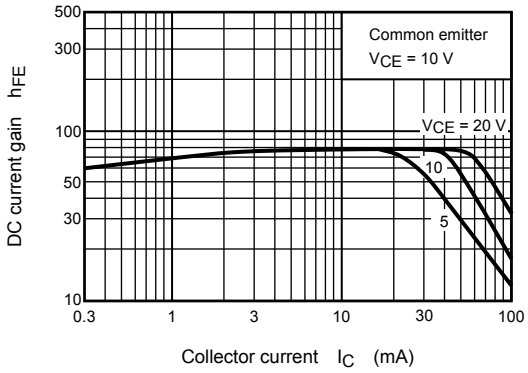
## Marking



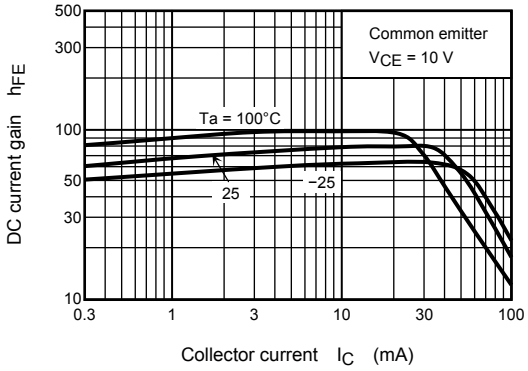
$I_C - V_{CE}$



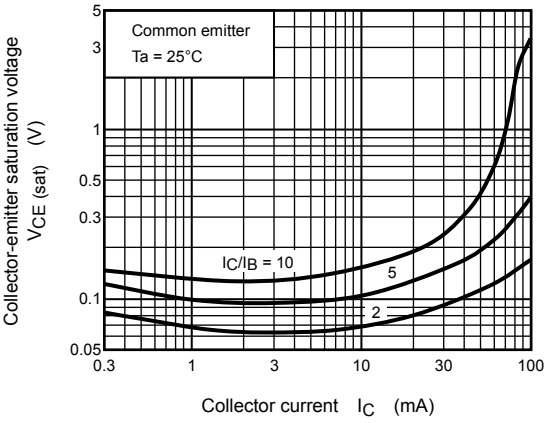

$h_{FE} - I_C$



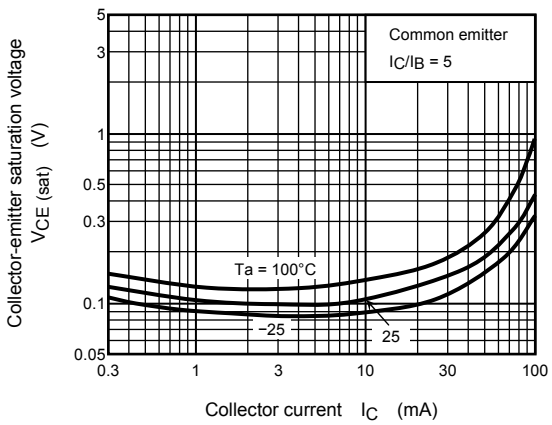

$h_{FE} - I_C$



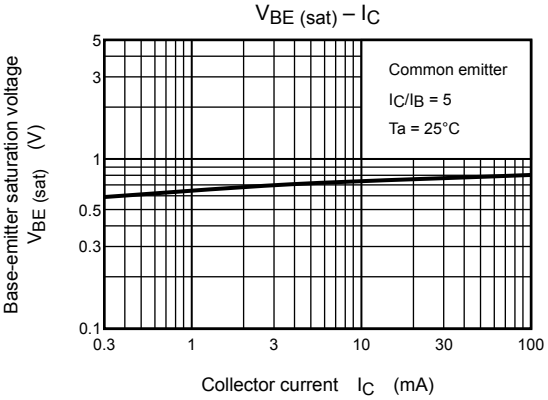

$V_{CE\ (sat)} - I_C$



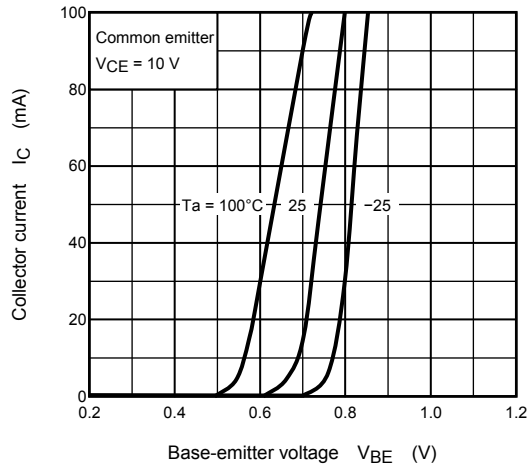

$V_{CE\ (sat)} - I_C$



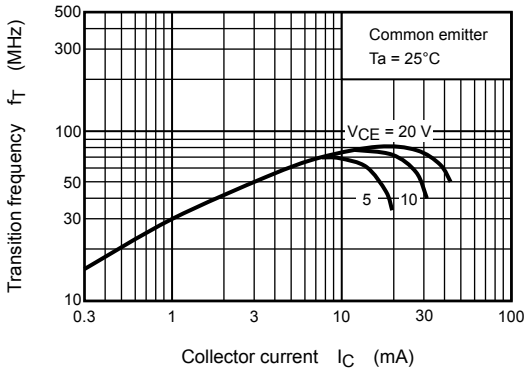

$V_{BE\ (sat)} - I_C$



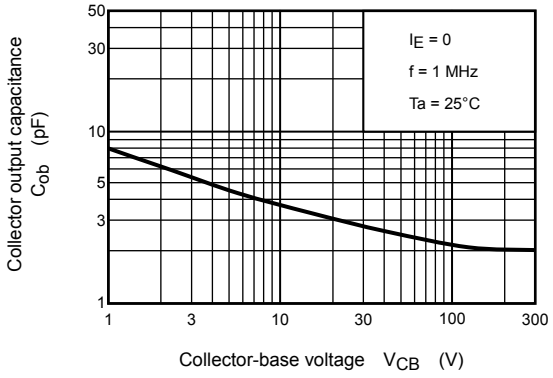
$I_C - V_{BE}$



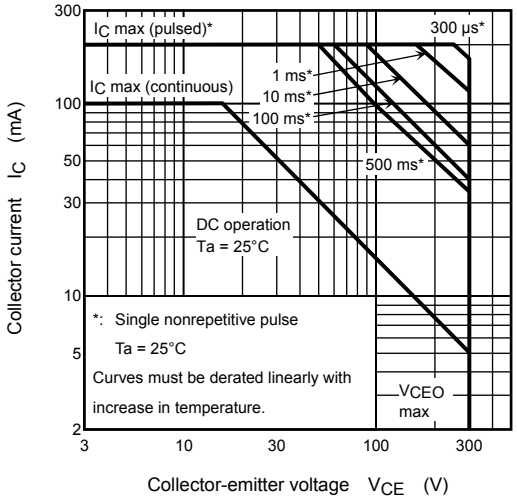

$f_T - I_C$




$C_{ob} - V_{CB}$




Safe Operating Area



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