

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

2SD1220

Power Amplifier Applications

- Complementary to 2SB905

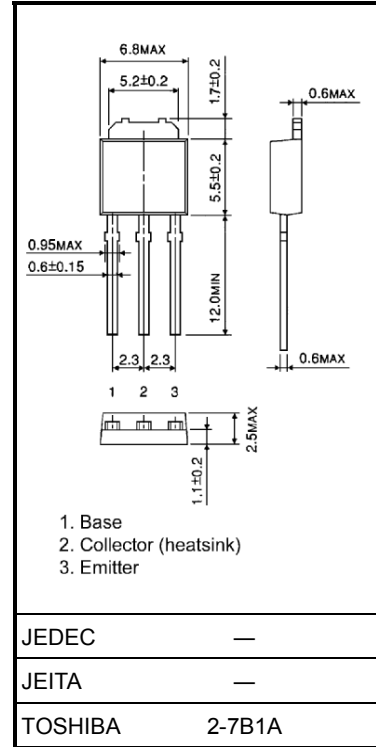
Absolute Maximum Ratings (Ta = 25°C)

| Characteristics | | Symbol | Rating | Unit |
|-----------------------------|-----------|------------------|------------|------|
| Collector-base voltage | | V _{CBO} | 150 | V |
| Collector-emitter voltage | | V _{CEO} | 150 | V |
| Emitter-base voltage | | V _{EBO} | 6 | V |
| Collector current | | I _C | 1.5 | A |
| Base current | | I _B | 1.0 | A |
| Collector power dissipation | Ta = 25°C | P _C | 1.0 | W |
| | Tc = 25°C | | 10 | |
| Junction temperature | | T _j | 150 | °C |
| Storage temperature range | | T _{stg} | -55 to 150 | °C |

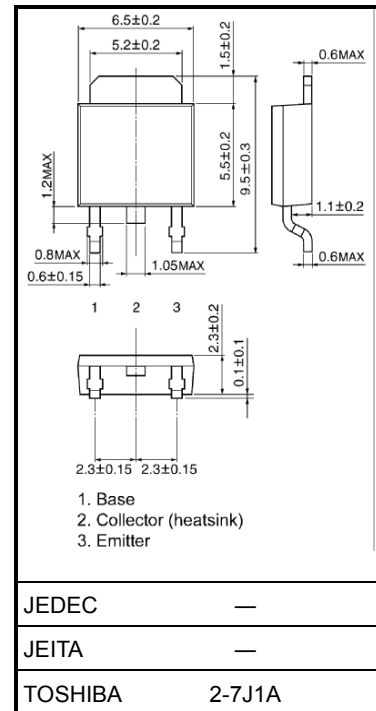
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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

Unit: mm



Weight: 0.36 g (typ.)



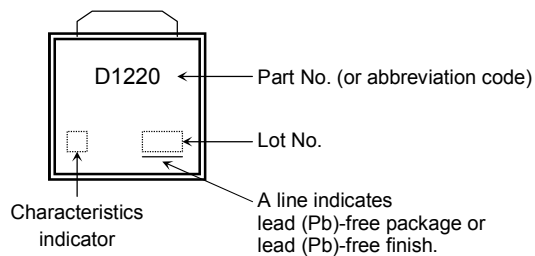
Weight: 0.36 g (typ.)

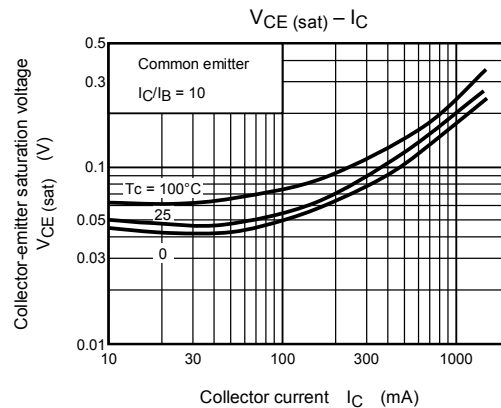
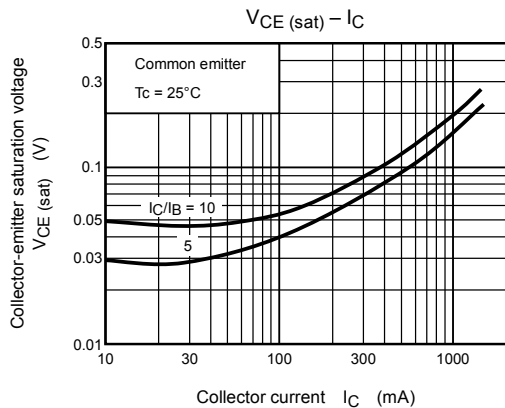
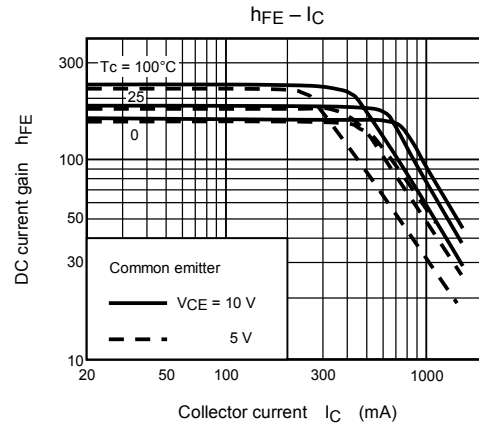
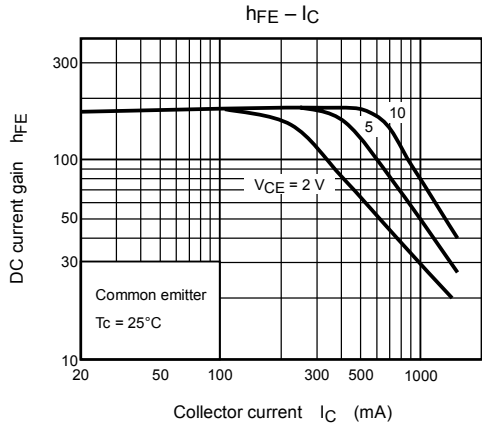
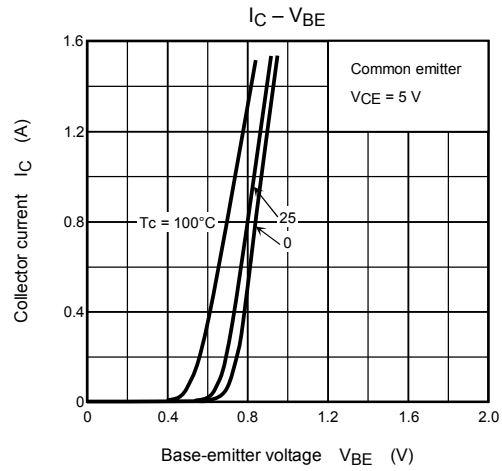
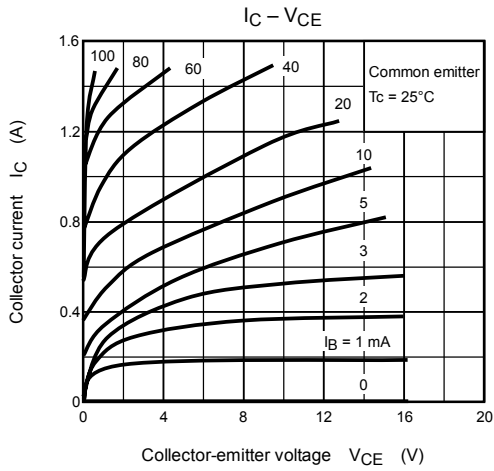
Electrical Characteristics (Ta = 25°C)

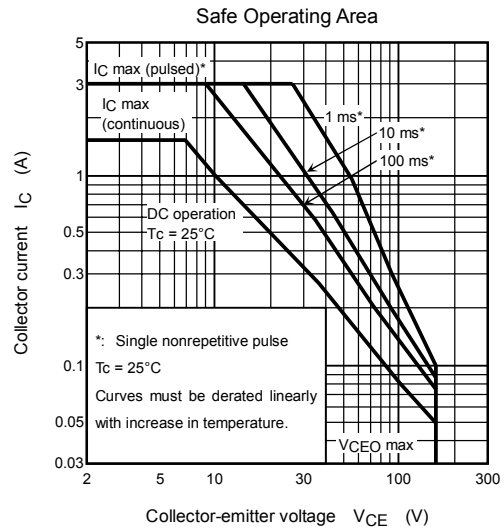
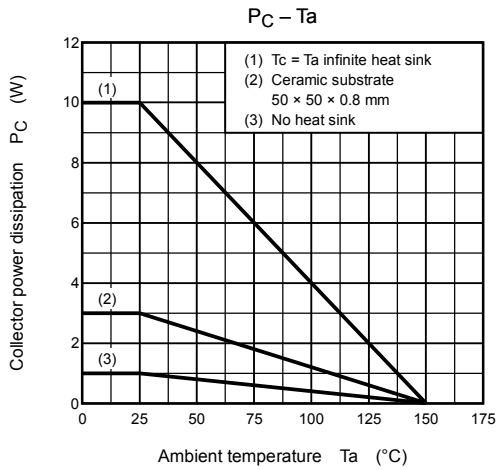
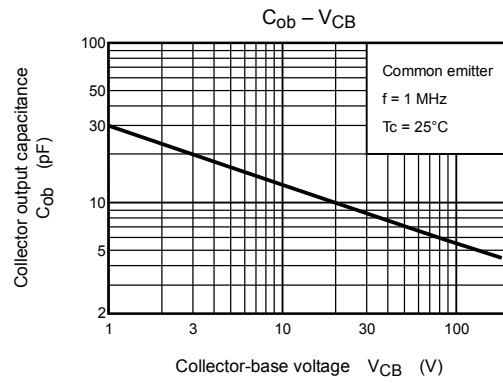
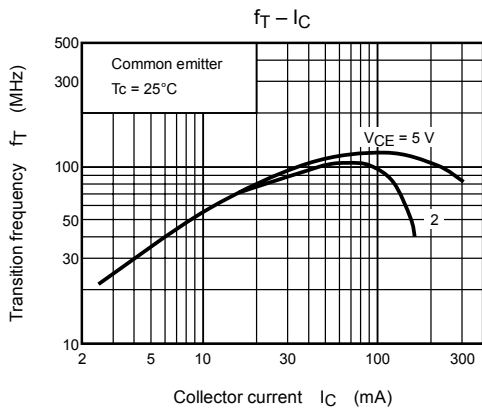
| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|--------------------|---|-----|------|-----|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 150\text{ V}, I_E = 0$ | — | — | 1.0 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 6\text{ V}, I_C = 0$ | — | — | 1.0 | μA |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C = 10\text{ mA}, I_B = 0$ | 150 | — | — | V |
| DC current gain | h_{FE} (Note) | $V_{CE} = 5\text{ V}, I_C = 200\text{ mA}$ | 60 | — | 320 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ | — | — | 1.5 | V |
| Base-emitter voltage | V_{BE} | $V_{CE} = 5\text{ V}, I_C = 5\text{ mA}$ | 0.5 | — | 0.8 | V |
| Transition frequency | f_T | $V_{CE} = 5\text{ V}, I_C = 200\text{ mA}$ | 20 | 100 | — | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 13 | 20 | pF |

Note: h_{FE} classification R: 60 to 120, O: 100 to 200, Y: 160 to 320

Marking







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