

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

2SD1220

Power Amplifier Applications

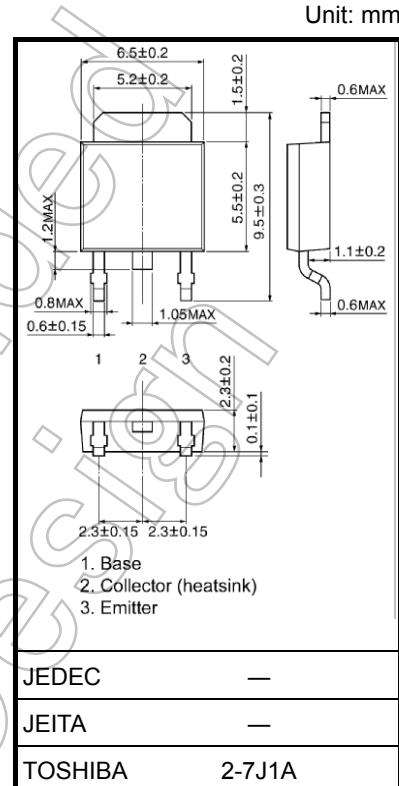
- Complementary to 2SB905

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 | $T_A = 25^\circ\text{C}$ | P_C | 1.0 |
| | $T_C = 25^\circ\text{C}$ | | 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).



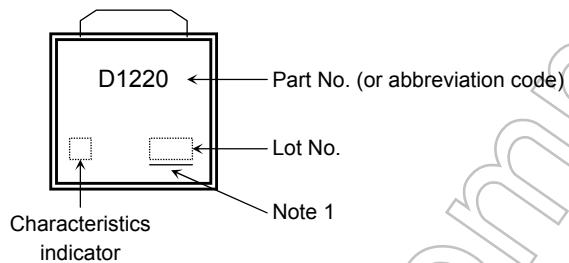
Weight: 0.36 g (typ.)

Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|---------------------------|---|-----|------|-----|------|
| Collector cut-off current | I _{CBO} | V _{CB} = 150 V, I _E = 0 | — | — | 1.0 | μA |
| Emitter cut-off current | I _{EBO} | V _{EB} = 6 V, I _C = 0 | — | — | 1.0 | μA |
| Collector-emitter breakdown voltage | V _{(BR) CEO} | I _C = 10 mA, I _B = 0 | 150 | — | — | V |
| DC current gain | h _{FE} (Note) | V _{CE} = 5 V, I _C = 200 mA | 60 | — | 320 | |
| Collector-emitter saturation voltage | V _{CE (sat)} | I _C = 500 mA, I _B = 50 mA | — | — | 1.5 | V |
| Base-emitter voltage | V _{BE} | V _{CE} = 5 V, I _C = 5 mA | 0.5 | — | 0.8 | V |
| Transition frequency | f _T | V _{CE} = 5 V, I _C = 200 mA | 20 | 100 | — | MHz |
| Collector output capacitance | C _{ob} | V _{CB} = 10 V, I _E = 0, f = 1 MHz | — | 13 | 20 | pF |

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

Marking

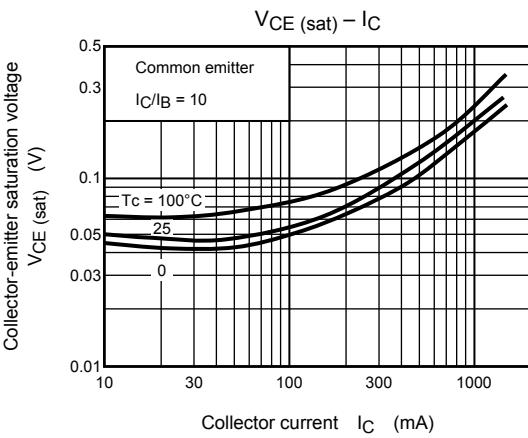
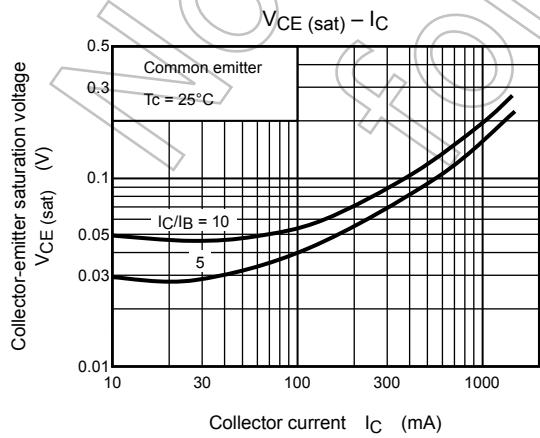
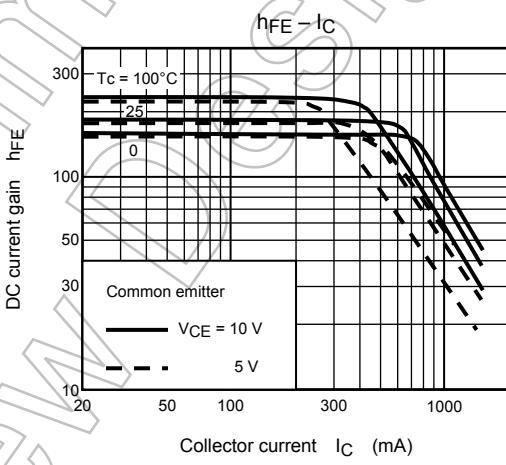
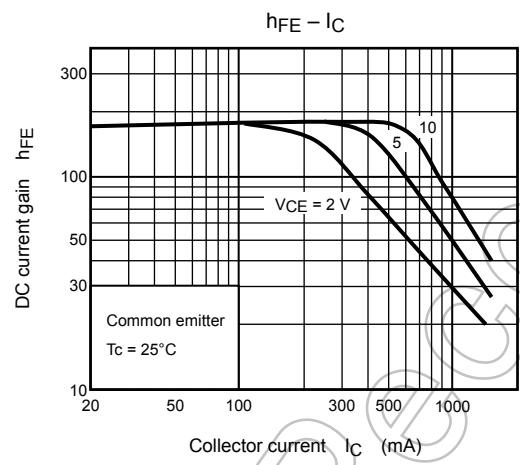
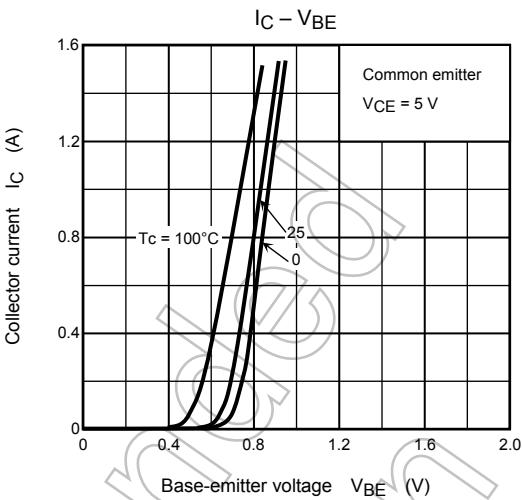
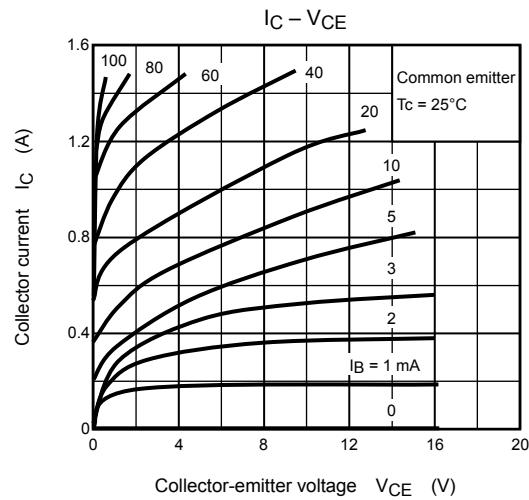


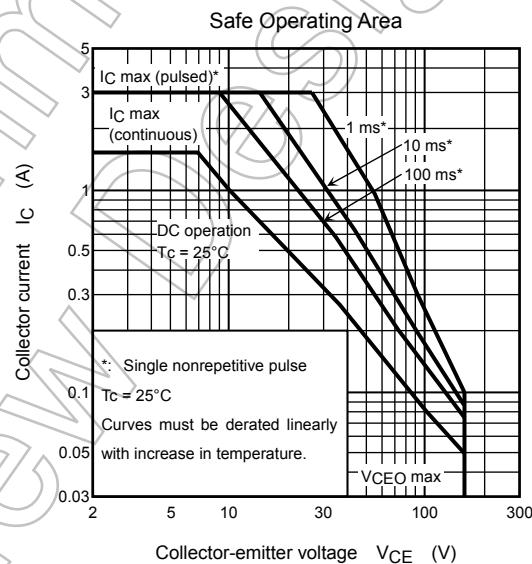
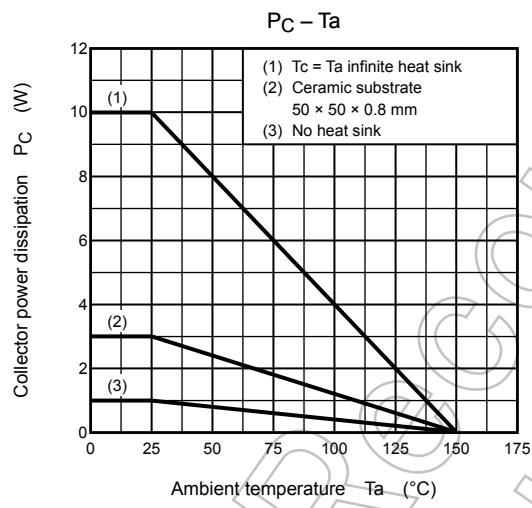
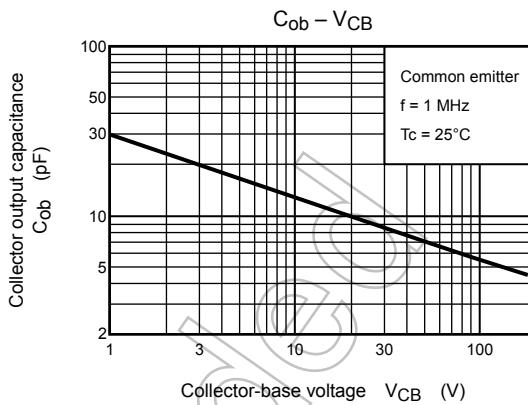
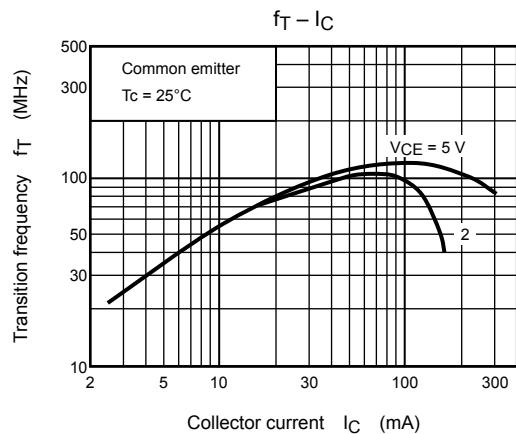
Note 1: A line under a Lot No. identifies the indication of product Labels.

Not underlined: [[Pb]]/INCLUDES > MCV

Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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