

TOSHIBA Transistor    Silicon PNP Epitaxial Type (PCT process)

2SA1225

Power Amplifier Applications  
Driver Stage Amplifier Applications

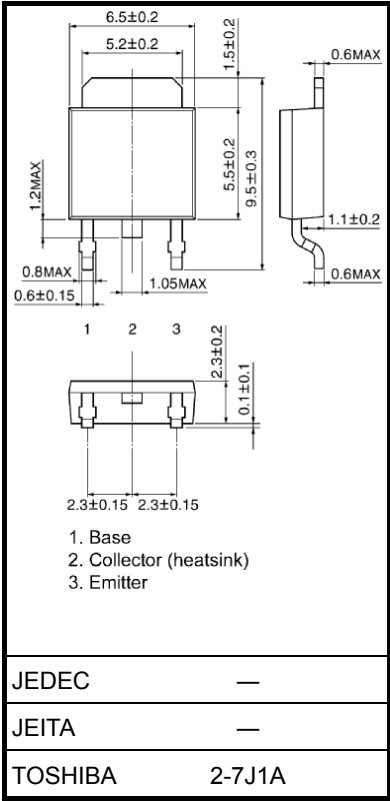
- High transition frequency:  $f_T = 100\text{ MHz (typ.)}$
- Complementary to 2SC2983

Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Characteristics             |                          | Symbol    | Rating     | Unit             |
|-----------------------------|--------------------------|-----------|------------|------------------|
| Collector-base voltage      |                          | $V_{CBO}$ | -160       | V                |
| Collector-emitter voltage   |                          | $V_{CEO}$ | -160       | V                |
| Emitter-base voltage        |                          | $V_{EBO}$ | -5         | V                |
| Collector current           |                          | $I_C$     | -1.5       | A                |
| Base current                |                          | $I_B$     | -0.3       | A                |
| Collector power dissipation | $T_a = 25^\circ\text{C}$ | $P_C$     | 1.0        | W                |
|                             | $T_c = 25^\circ\text{C}$ |           | 15         |                  |
| Junction temperature        |                          | $T_j$     | 150        | $^\circ\text{C}$ |
| Storage temperature range   |                          | $T_{stg}$ | -55 to 150 | $^\circ\text{C}$ |

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



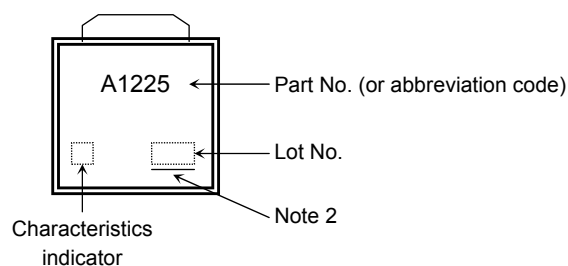
Weight: 0.36 g (typ.)

## Electrical Characteristics (Ta = 25°C)

| Characteristics                      | Symbol               | Test Condition                                     | Min  | Typ. | Max  | Unit          |
|--------------------------------------|----------------------|----------------------------------------------------|------|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$            | $V_{CB} = -160\text{ V}, I_E = 0$                  | —    | —    | -1.0 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$            | $V_{EB} = -5\text{ V}, I_C = 0$                    | —    | —    | -1.0 | $\mu\text{A}$ |
| Collector-emitter breakdown voltage  | $V_{(BR) CEO}$       | $I_C = -10\text{ mA}, I_B = 0$                     | -160 | —    | —    | V             |
| Emitter-base breakdown voltage       | $V_{(BR) EBO}$       | $I_E = -1\text{ mA}, I_C = 0$                      | -5   | —    | —    | V             |
| DC current gain                      | $h_{FE}$<br>(Note 1) | $V_{CE} = -5\text{ V}, I_C = -100\text{ mA}$       | 70   | —    | 240  |               |
| Collector emitter saturation voltage | $V_{CE(sat)}$        | $I_C = -500\text{ mA}, I_B = -50\text{ mA}$        | —    | —    | -1.5 | V             |
| Base-emitter voltage                 | $V_{BE}$             | $V_{CE} = -5\text{ V}, I_C = -500\text{ mA}$       | —    | —    | -1.0 | V             |
| Transition frequency                 | $f_T$                | $V_{CE} = -10\text{ V}, I_C = -100\text{ mA}$      | —    | 100  | —    | MHz           |
| Collector output capacitance         | $C_{ob}$             | $V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —    | 30   | —    | pF            |

Note1:  $h_{FE}$  classification O: 70 to 140, Y: 120 to 240

## Marking

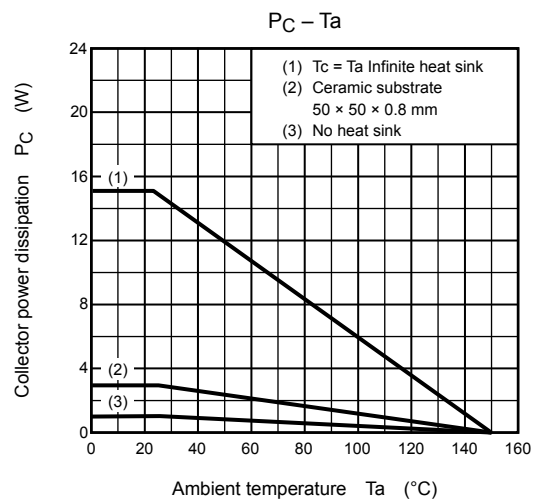
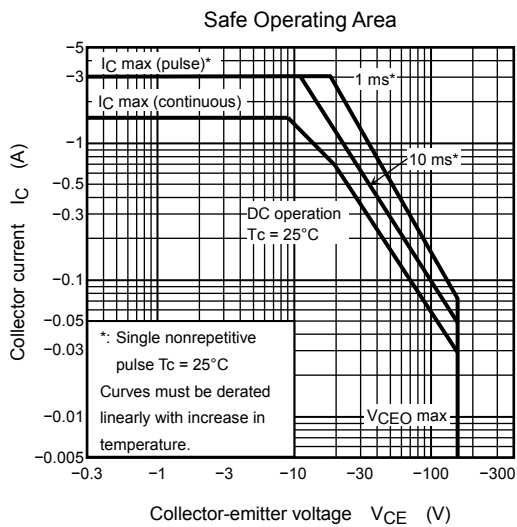
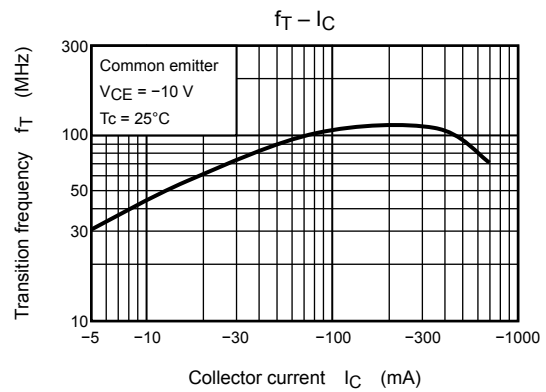
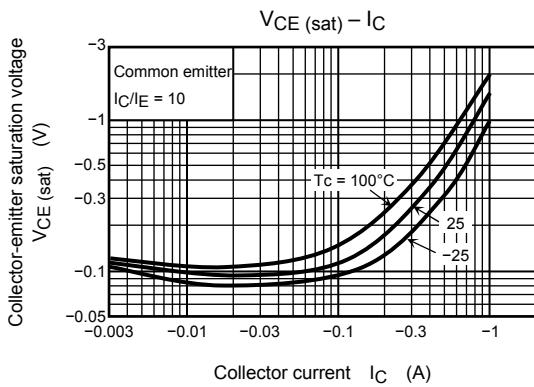
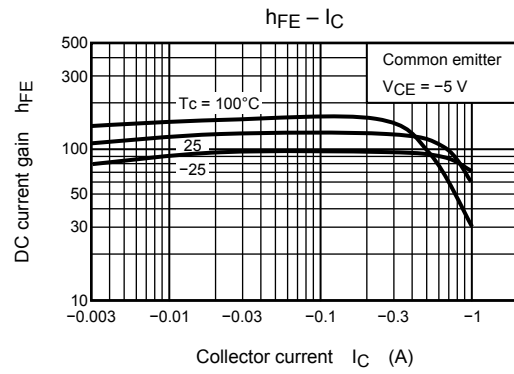
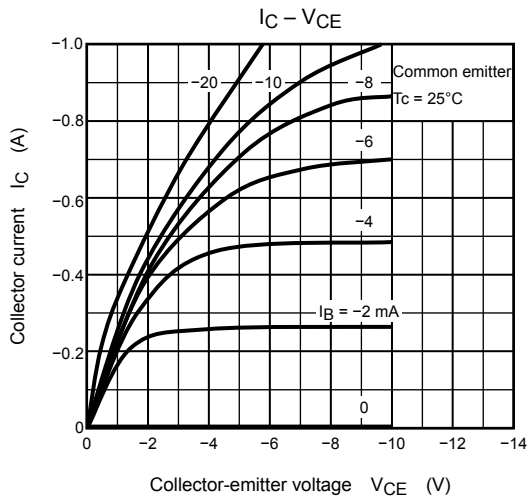


Note 2: A line under a Lot No. identifies the indication of product Labels.

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

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

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



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