

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SB908

SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

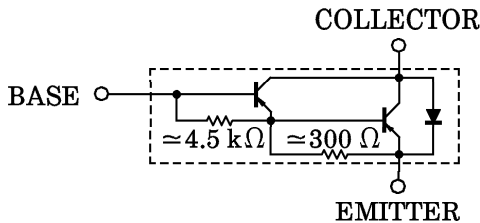
POWER AMPLIFIER APPLICATIONS

- High DC Current Gain  
:  $h_{FE}(1) = 2000$  (Min.) ( $V_{CE} = -2\text{ V}$ ,  $I_C = -1\text{ A}$ )
- Low Saturation Voltage :  $V_{CE(sat)} = -1.5\text{ V}$  (Max.) ( $I_C = -3\text{ A}$ )
- Complementary to 2SD1223.

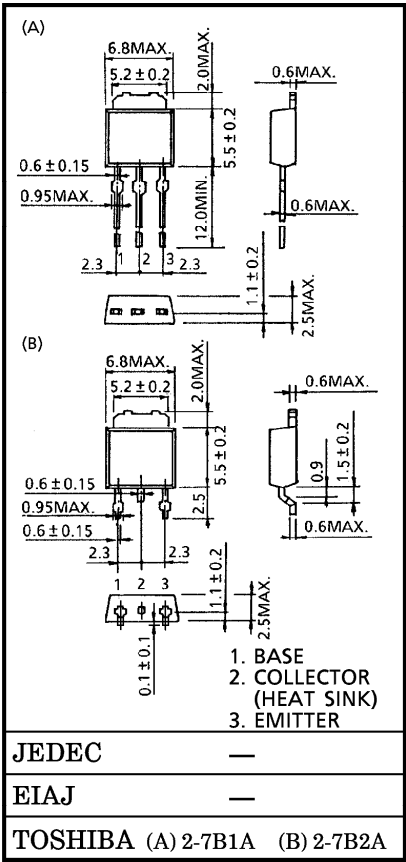
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC                 | SYMBOL                   | RATING  | UNIT             |
|--------------------------------|--------------------------|---------|------------------|
| Collector-Base Voltage         | $V_{CBO}$                | -100    | V                |
| Collector-Emitter Voltage      | $V_{CEO}$                | -80     | V                |
| Emitter-Base Voltage           | $V_{EBO}$                | -5      | V                |
| Collector Current              | $I_C$                    | -4      | A                |
| Base Current                   | $I_B$                    | -0.4    | A                |
| Collector Power<br>Dissipation | $T_a = 25^\circ\text{C}$ | 1.0     | W                |
|                                | $T_c = 25^\circ\text{C}$ | 15      |                  |
| Junction Temperature           | $T_j$                    | 150     | $^\circ\text{C}$ |
| Storage Temperature Range      | $T_{stg}$                | -55~150 | $^\circ\text{C}$ |

EQUIVALENT CIRCUIT



Unit in mm

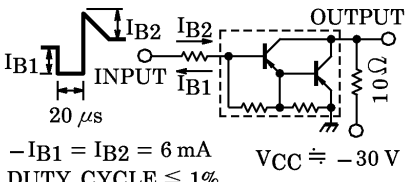


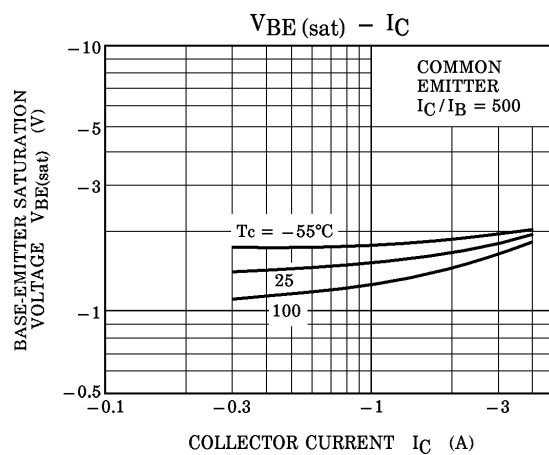
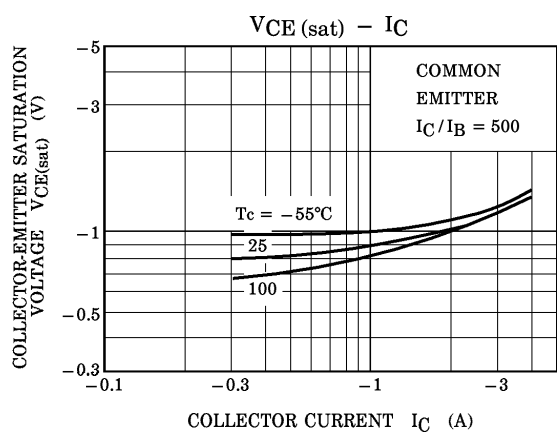
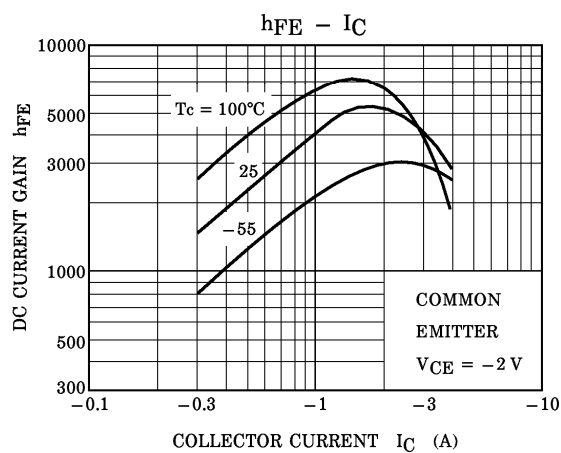
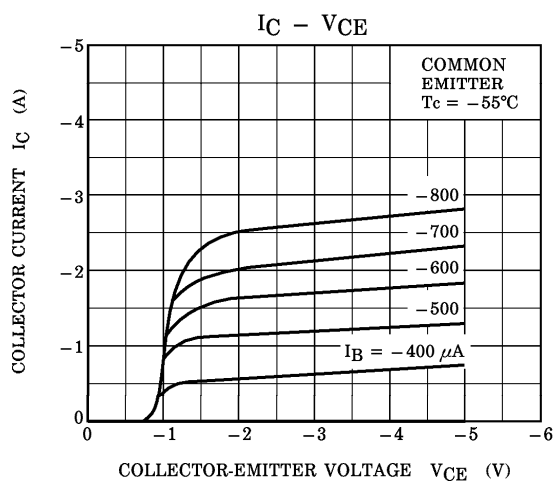
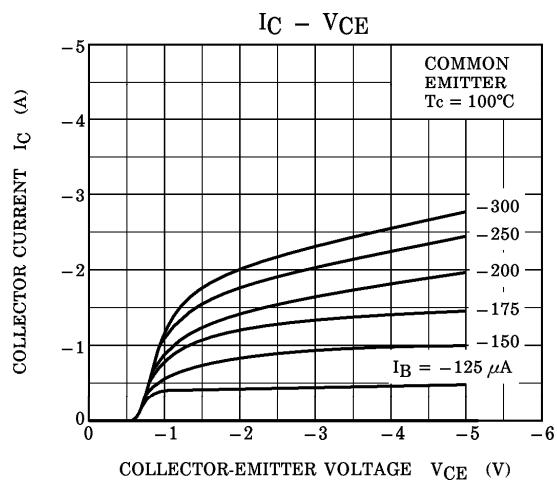
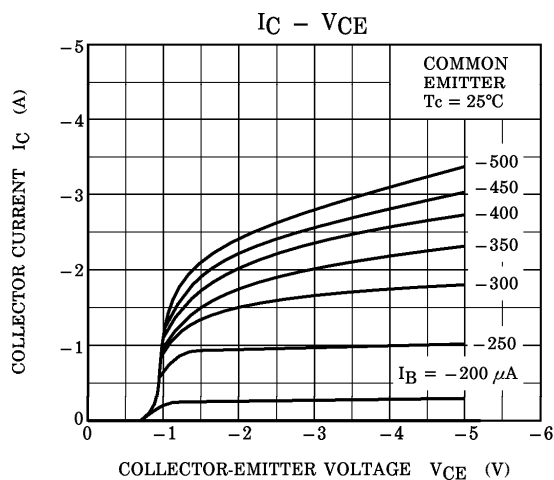
Weight : 0.36 g

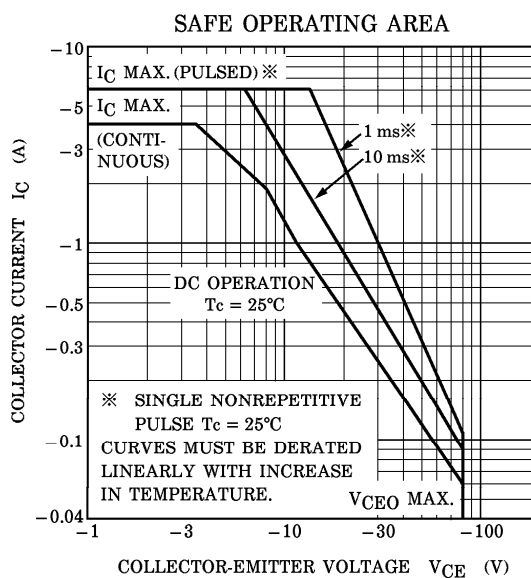
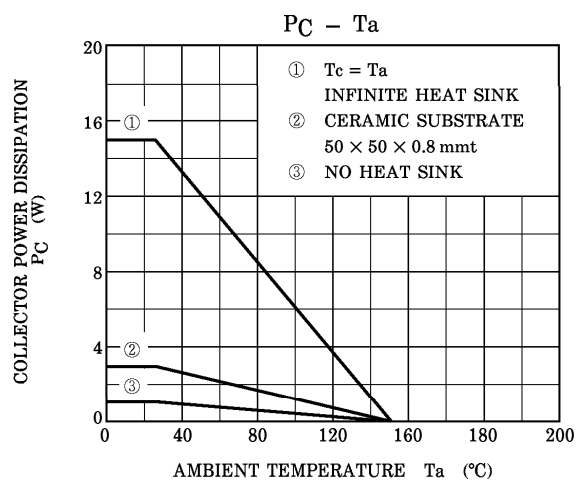
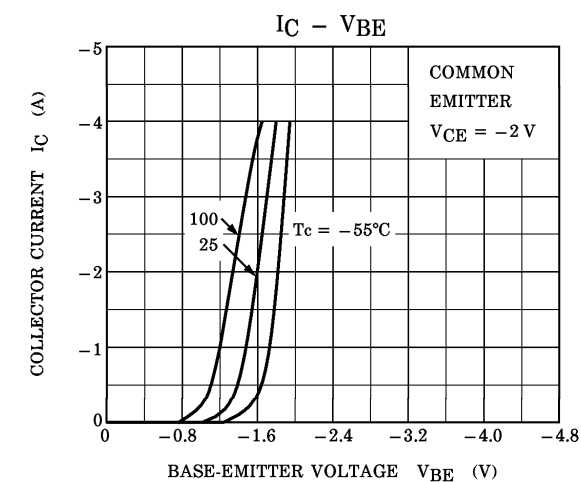
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ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC                      |                   | SYMBOL        | TEST CONDITION                                                                                                                                                                                                               | MIN. | TYP. | MAX. | UNIT          |
|-------------------------------------|-------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|---------------|
| Collector Cut-off Current           |                   | $I_{CBO}$     | $V_{CB} = -100\text{ V}, I_E = 0$                                                                                                                                                                                            | —    | —    | -20  | $\mu\text{A}$ |
| Emitter Cut-off Current             |                   | $I_{EBO}$     | $V_{EB} = -5\text{ V}, I_C = 0$                                                                                                                                                                                              | —    | —    | -2.5 | mA            |
| Collector-Emitter Breakdown Voltage |                   | $V_{(BR)CEO}$ | $I_C = -10\text{ mA}, I_B = 0$                                                                                                                                                                                               | -80  | —    | —    | V             |
| DC Current Gain                     |                   | $h_{FE(1)}$   | $V_{CE} = -2\text{ V}, I_C = -1\text{ A}$                                                                                                                                                                                    | 2000 | —    | —    |               |
|                                     |                   | $h_{FE(2)}$   | $V_{CE} = -2\text{ V}, I_C = -3\text{ A}$                                                                                                                                                                                    | 1000 | —    | —    |               |
| Saturation Voltage                  | Collector-Emitter | $V_{CE(sat)}$ | $I_C = -3\text{ A}, I_B = -6\text{ mA}$                                                                                                                                                                                      | —    | —    | -1.5 | V             |
|                                     | Base-Emitter      | $V_{BE(sat)}$ | $I_C = -3\text{ A}, I_B = -6\text{ mA}$                                                                                                                                                                                      | —    | —    | -2.0 |               |
| Switching Time                      | Turn-on Time      | $t_{on}$      |  <p> <math>-I_{B1} = I_{B2} = 6\text{ mA}</math><br/> <math>V_{CC} = -30\text{ V}</math><br/> <math>\text{DUTY CYCLE} \leq 1\%</math> </p> | —    | 0.15 | —    | $\mu\text{s}$ |
|                                     | Storage Time      | $t_{stg}$     |                                                                                                                                                                                                                              | —    | 0.80 | —    |               |
|                                     | Fall Time         | $t_f$         |                                                                                                                                                                                                                              | —    | 0.40 | —    |               |





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