

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

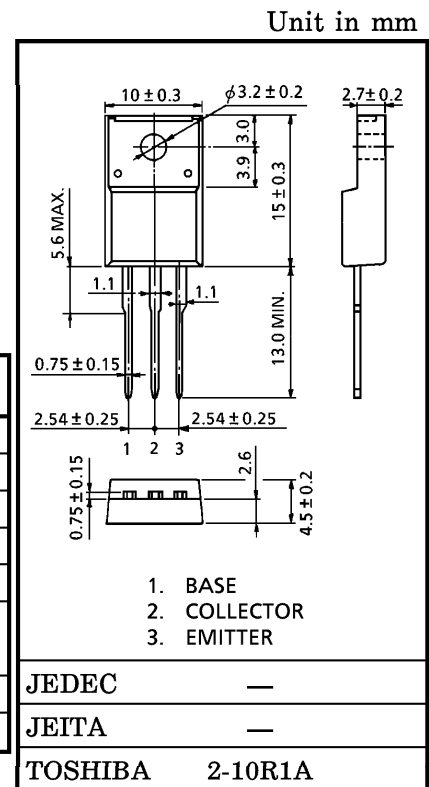
# 2SD2012

AUDIO FREQUENCY POWER AMPLIFIER APPLICATIONS

- High DC Current Gain :  $h_{FE(1)} = 100$  (Min.)
- Low Saturation Voltage :  $V_{CE(sat)} = 1.0$  V (Max.)
- High Power Dissipation :  $P_C = 25$  W ( $T_c = 25^\circ\text{C}$ )

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

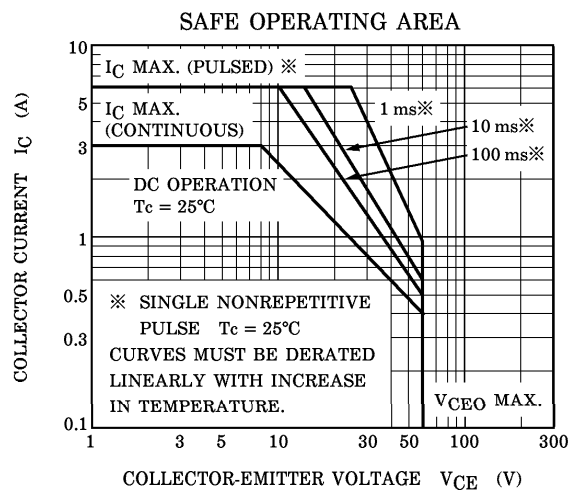
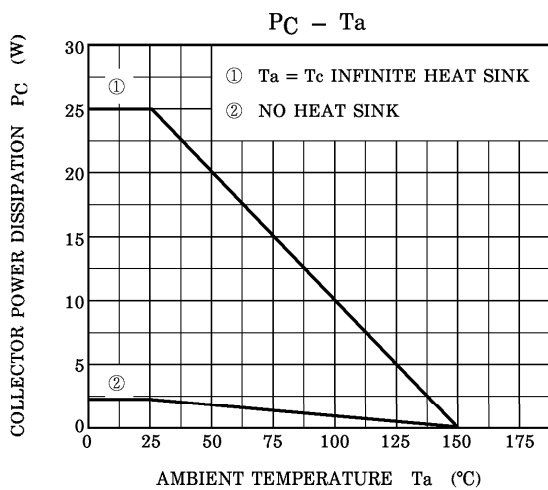
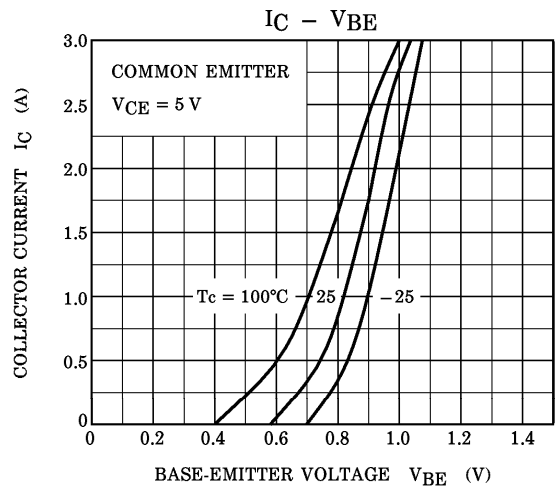
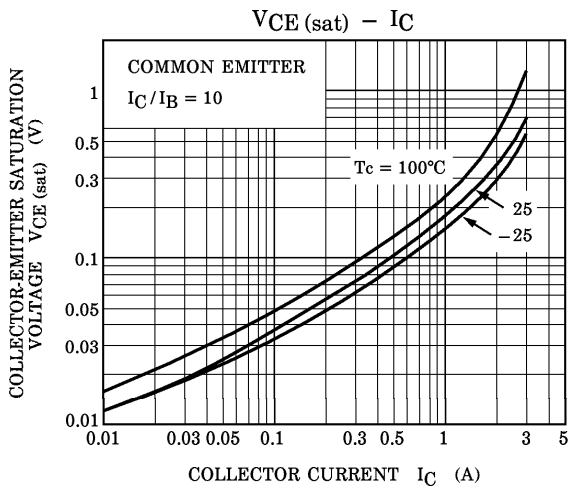
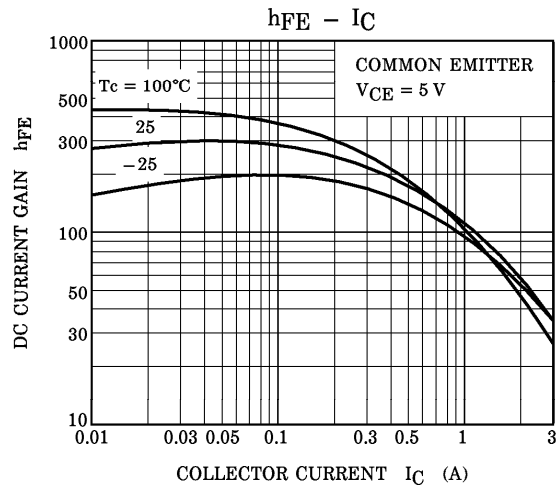
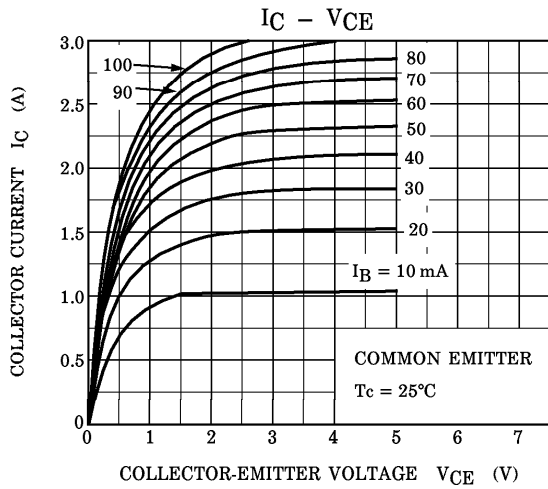
| CHARACTERISTIC              | SYMBOL    | RATING                   | UNIT             |
|-----------------------------|-----------|--------------------------|------------------|
| Collector-Base Voltage      | $V_{CBO}$ | 60                       | V                |
| Collector-Emitter Voltage   | $V_{CEO}$ | 60                       | V                |
| Emitter-Base Voltage        | $V_{EBO}$ | 7                        | V                |
| Collector Current           | $I_C$     | 3                        | A                |
| Base Current                | $I_B$     | 0.5                      | A                |
| Collector Power Dissipation | $P_C$     | $T_a = 25^\circ\text{C}$ | 2.0              |
|                             |           | $T_c = 25^\circ\text{C}$ | 25               |
| Junction Temperature        | $T_j$     | 150                      | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ | -55~150                  | $^\circ\text{C}$ |

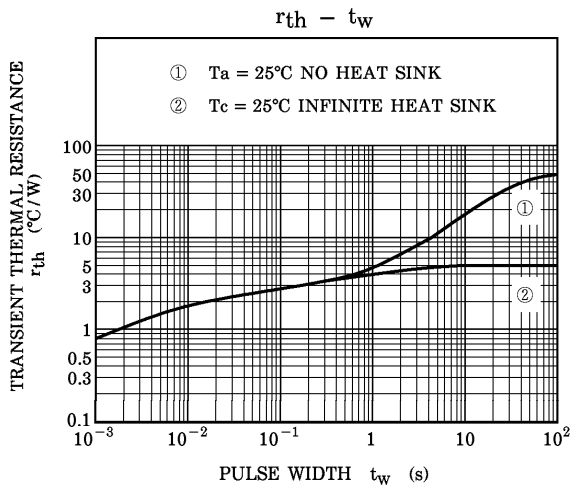


Weight : 1.7 g (Typ.)

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

| CHARACTERISTIC                       | SYMBOL        | TEST CONDITION                              | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|---------------|---|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = 60$ V, $I_E = 0$                  | —    | —    | 100  | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = 7$ V, $I_C = 0$                   | —    | —    | 100  | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 50$ mA, $I_B = 0$                    | 60   | —    | —    | V             |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE} = 5$ V, $I_C = 0.5$ A               | 100  | —    | 320  |               |
|                                      | $h_{FE(2)}$   | $V_{CE} = 5$ V, $I_C = 2$ A                 | 20   | —    | —    |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 2$ A, $I_B = 0.2$ A                  | —    | 0.4  | 1.0  | V             |
| Base-Emitter Voltage                 | $V_{BE}$      | $V_{CE} = 5$ V, $I_C = 0.5$ A               | —    | 0.75 | 1.0  | V             |
| Transition Frequency                 | $f_T$         | $V_{CE} = 5$ V, $I_C = 0.5$ A               | —    | 3    | —    | MHz           |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB} = 10$ V, $I_E = 0$ ,<br>$f = 1$ MHz | —    | 35   | —    | pF            |





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