

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

# 2SA1242

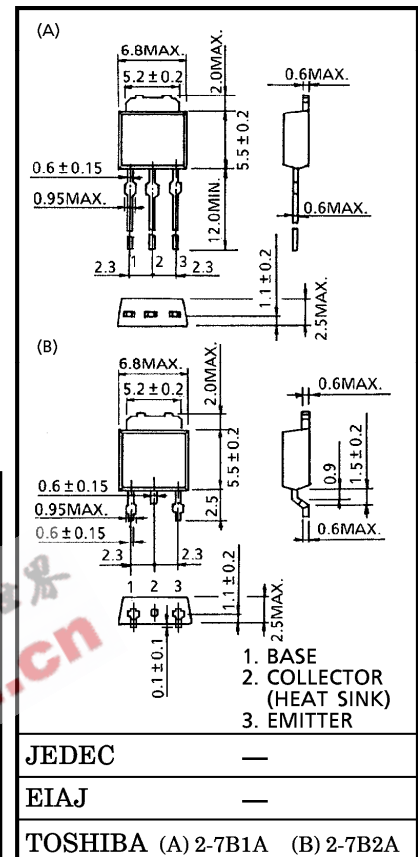
STROBE FLASH APPLICATIONS  
MEDIUM POWER AMPLIFIER APPLICATIONS

Unit in mm

- $h_{FE} = 100 \sim 320$  ( $V_{CE} = -2\text{ V}$ ,  $I_C = -0.5\text{ A}$ )
- $h_{FE} = 70$  (Min.) ( $V_{CE} = -2\text{ V}$ ,  $I_C = -4\text{ A}$ )
- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = -1.0\text{ V}$  (Max.) ( $I_C = -4\text{ A}$ ,  $I_B = -0.1\text{ A}$ )
- High Power Dissipation  
:  $P_C = 10\text{ W}$  ( $T_c = 25^\circ\text{C}$ ),  $P_C = 1.0\text{ W}$  ( $T_a = 25^\circ\text{C}$ )

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

| CHARACTERISTIC              | SYMBOL                   | RATING   | UNIT             |
|-----------------------------|--------------------------|----------|------------------|
| Collector-Base Voltage      | $V_{CB0}$                | -35      | V                |
| Collector-Emitter Voltage   | $V_{CEO}$                | -20      | V                |
| Emitter-Base Voltage        | $V_{EB0}$                | -8       | V                |
| Collector Current           | DC                       | $I_C$    | -5 A             |
|                             | Pulsed (Note 1)          | $I_{CP}$ | -8 A             |
| Base Current                | $I_B$                    | -0.5     | A                |
| Collector Power Dissipation | $T_a = 25^\circ\text{C}$ | $P_C$    | 1.0 W            |
|                             | $T_c = 25^\circ\text{C}$ |          | 10               |
| Junction Temperature        | $T_j$                    | 150      | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$                | -55~150  | $^\circ\text{C}$ |



Weight : 0.36 g

Note 1 : Pulse Test : Pulse width = 10 ms (Max.), Duty cycle = 30% (Max.)

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       | SYMBOL                   | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|--------------------------|---|------|------|------|------|
| Collector Cut-off Current            | $I_{CBO}$                | $V_{CB} = -35\text{ V}, I_E = 0$                        | —    | —    | -100 | nA   |
| Emitter Cut-off Current              | $I_{EBO}$                | $V_{EB} = -8\text{ V}, I_C = 0$                         | —    | —    | -100 | nA   |
| Collector-Emitter Breakdown Voltage  | $V_{CEO}$                | $I_C = -10\text{ mA}, I_B = 0$                          | -20  | —    | —    | V    |
| Emitter-Base Breakdown Voltage       | $V_{EBO}$                | $I_E = -1\text{ mA}, I_C = 0$                           | -8   | —    | —    | V    |
| DC Current Gain                      | $h_{FE} (1)$<br>(Note 2) | $V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$             | 100  | —    | 320  |      |
|                                      | $h_{FE} (2)$             | $V_{CE} = -2\text{ V}, I_C = -4\text{ A}$               | 70   | —    | —    |      |
| Collector-Emitter Saturation Voltage | $V_{CE} (\text{sat})$    | $I_C = -4\text{ A}, I_B = -0.1\text{ A}$                | —    | —    | -1.0 | V    |
| Base-Emitter Voltage                 | $V_{BE}$                 | $V_{CE} = -2\text{ V}, I_C = -4\text{ A}$               | —    | —    | -1.5 | V    |
| Transition Frequency                 | $f_T$                    | $V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$             | —    | 170  | —    | MHz  |
| Collector Output Capacitance         | $C_{ob}$                 | $V_{CB} = -10\text{ V}, I_E = 0,$<br>$f = 1\text{ MHz}$ | —    | 62   | —    | pF   |

Note 2 :  $h_{FE} (1)$  Classification    O : 100~200,    Y : 160~320



