

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE

# 2SA1923

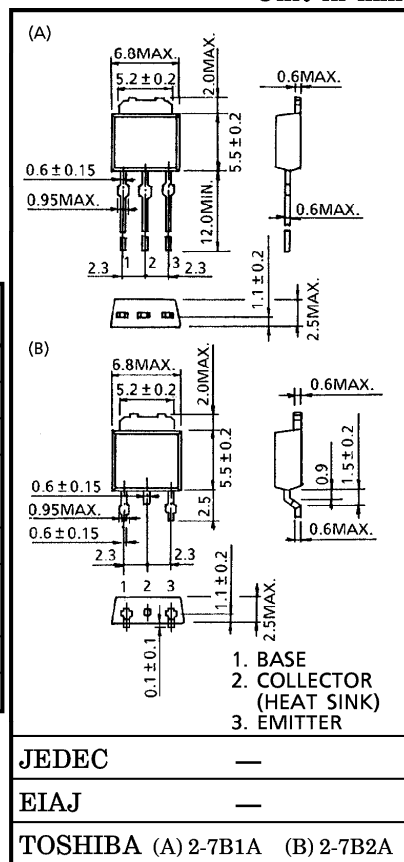
HIGH VOLTAGE SWITCHING APPLICATIONS

Unit in mm

- High Voltage :  $V_{CB0} = -400\text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = -1\text{ V (Max.)}$   
( $I_C = -100\text{ mA}$ ,  $I_B = -10\text{ mA}$ )

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

| CHARACTERISTIC              | SYMBOL                   | RATING   | UNIT             |
|-----------------------------|--------------------------|----------|------------------|
| Collector-Base Voltage      | $V_{CB0}$                | -400     | V                |
| Collector-Emitter Voltage   | $V_{CEO}$                | -400     | V                |
| Emitter-Base Voltage        | $V_{EB0}$                | -7       | V                |
| Collector Current           | DC                       | $I_C$    | -0.5             |
|                             | Pulse                    | $I_{CP}$ | -1               |
| Base Current                | $I_B$                    | -0.25    | A                |
| Collector Power Dissipation | $T_a = 25^\circ\text{C}$ | $P_C$    | 1                |
|                             | $T_c = 25^\circ\text{C}$ |          | 10               |
| Junction Temperature        | $T_j$                    | 150      | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$                | -55~150  | $^\circ\text{C}$ |

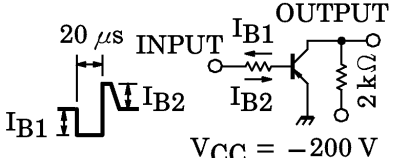


Weight : 0.36 g

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       |              | SYMBOL        | TEST CONDITION   | MIN. | TYP.  | MAX. | UNIT          |
|--------------------------------------|--------------|---------------|--|------|-------|------|---------------|
| Collector Cut-off Current            |              | $I_{CBO}$     | $V_{CB} = -400\text{ V}, I_E = 0$  | —    | —     | -10  | $\mu\text{A}$ |
| Emitter Cut-off Current              |              | $I_{EBO}$     | $V_{EB} = -7\text{ V}, I_C = 0$  | —    | —     | -1   | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  |              | $V_{(BR)CEO}$ | $I_C = -10\text{ mA}, I_B = 0$   | -400 | —     | —    | V             |
| DC Current Gain                      |              | $h_{FE(1)}$   | $V_{CE} = -5\text{ V}, I_C = -20\text{ mA}$  | 140  | —     | 450  |               |
|                                      |              | $h_{FE(2)}$   | $V_{CE} = -5\text{ V}, I_C = -100\text{ mA}$   | 140  | —     | 400  |               |
| Collector-Emitter Saturation Voltage |              | $V_{CE(sat)}$ | $I_C = -100\text{ mA}, I_B = -10\text{ mA}$  | —    | -0.4  | -1.0 | V             |
| Base-Emitter Saturation Voltage      |              | $V_{BE(sat)}$ | $I_C = -100\text{ mA}, I_B = -10\text{ mA}$  | —    | -0.76 | -0.9 | V             |
| Transition Frequency                 |              | $f_T$         | $V_{CE} = -5\text{ V}, I_C = -50\text{ mA}$  | —    | 35    | —    | MHz           |
| Collector Output Capacitance         |              | $C_{ob}$      | $V_{CB} = -10\text{ V}, I_E = 0,$<br>$f = 1\text{ MHz}$  | —    | 18    | —    | pF            |
| Switching Time                       | Turn-on Time | $t_{on}$      |  <p><math>V_{CC} = -200\text{ V}</math></p> <p><math>I_{B1} = 10\text{ mA}, I_{B2} = 20\text{ mA},</math><br/><math>DUTY\ CYCLE \leq 1\%</math></p> | —    | 0.2   | —    | $\mu\text{s}$ |
|                                      | Storage Time | $t_{stg}$     |  | —    | 2.3   | —    | $\mu\text{s}$ |
|                                      | Fall Time    | $t_f$         |  | —    | —     | 0.2  | —             |

