

## TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

**2 S C 5 3 8 7**

## HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION DISPLAY, COLOR TV

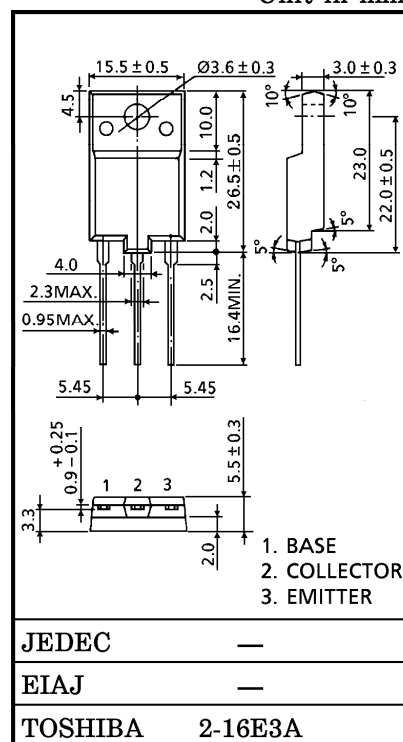
## HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CBO} = 1500 \text{ V}$
- Low Saturation Voltage :  $V_{CE(sat)} = 3 \text{ V (Max.)}$
- High Speed :  $t_f = 0.15 \mu\text{s (Typ.)}$
- Collector Metal (Fin) is Fully Covered with Mold Resin.

MAXIMUM RATINGS (T<sub>a</sub> = 25°C)

| CHARACTERISTIC                                              |       | SYMBOL    | RATING        | UNIT             |
|-------------------------------------------------------------|-------|-----------|---------------|------------------|
| Collector-Base Voltage                                      |       | $V_{CB0}$ | 1500          | V                |
| Collector-Emitter Voltage                                   |       | $V_{CEO}$ | 600           | V                |
| Emitter-Base Voltage                                        |       | $V_{EB0}$ | 5             | V                |
| Collector Current                                           | DC    | $I_C$     | 10            | A                |
|                                                             | Pulse | $I_{CP}$  | 20            |                  |
| Base Current                                                |       | $I_B$     | 5             | A                |
| Collector Power Dissipation<br>( $T_c = 25^\circ\text{C}$ ) |       | $P_C$     | 50            | W                |
| Junction Temperature                                        |       | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range                                   |       | $T_{stg}$ | $-55\sim 150$ | $^\circ\text{C}$ |

Unit in mm



Weight : 5.5 g (Typ.)

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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       |              | SYMBOL        | TEST CONDITION                                                                    | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|--------------|---------------|-----------------------------------------------------------------------------------|------|------|------|---------------|
| Collector Cut-off Current            |              | $I_{CBO}$     | $V_{CB} = 1500\text{ V}, I_E = 0$                                                 | —    | —    | 1    | mA            |
| Emitter Cut-off Current              |              | $I_{EBO}$     | $V_{EB} = 5\text{ V}, I_C = 0$                                                    | —    | —    | 10   | $\mu\text{A}$ |
| Emitter-Base Breakdown Voltage       |              | $V_{(BR)CEO}$ | $I_C = 10\text{ mA}, I_B = 0$                                                     | 600  | —    | —    | V             |
| DC Current Gain                      |              | $h_{FE(1)}$   | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$                                           | 15   | —    | 35   |               |
|                                      |              | $h_{FE(2)}$   | $V_{CE} = 5\text{ V}, I_C = 8\text{ A}$                                           | 4.3  | —    | 7.8  |               |
| Collector-Emitter Saturation Voltage |              | $V_{CE(sat)}$ | $I_C = 8\text{ A}, I_B = 2\text{ A}$                                              | —    | —    | 3    | V             |
| Base-Emitter Saturation Voltage      |              | $V_{BE(sat)}$ | $I_C = 8\text{ A}, I_B = 2\text{ A}$                                              | —    | —    | 1.5  | V             |
| Transition Frequency                 |              | $f_T$         | $V_{CE} = 10\text{ V}, I_C = 0.1\text{ A}$                                        | —    | 1.7  | —    | MHz           |
| Collector Output Capacitance         |              | $C_{ob}$      | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$                                 | —    | 130  | —    | pF            |
| Switching Time                       | Storage Time | $t_{stg}$     | $I_{CP} = 6\text{ A}, I_{B1}(\text{end}) = 1.2\text{ A}$<br>$f_H = 64\text{ kHz}$ | —    | 2.5  | 3.5  | $\mu\text{s}$ |
|                                      | Fall Time    | $t_f$         |                                                                                   | —    | 0.15 | 0.3  |               |

