

**TOSHIBA**

**2SC5150**

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

# 2SC5150

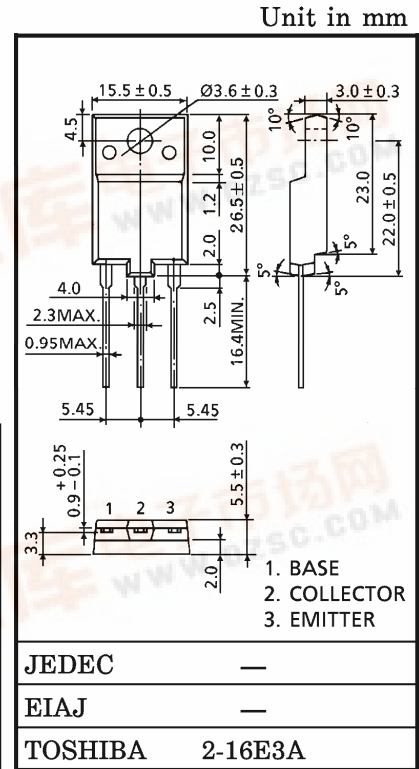
HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION DISPLAY, COLOR TV

HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CBO} = 1700\text{ V}$
- 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 ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC   | SYMBOL    | RATING   | UNIT             |
|--|-----------|----------|------------------|
| Collector-Base Voltage                                   | $V_{CBO}$ | 1700     | V                |
| Collector-Emitter Voltage                                | $V_{CEO}$ | 700      | V                |
| Emitter-Base Voltage                                     | $V_{EBO}$ | 5        | V                |
| Collector Current  | DC        | $I_C$    | 10               |
|  | Pulse     | $I_{CP}$ | 20               |
| Base Current   | $I_B$     | 5        | A                |
| Collector Power Dissipation ( $T_c = 25^\circ\text{C}$ ) | $P_C$     | 50       | W                |
| Junction Temperature                                     | $T_j$     | 150      | $^\circ\text{C}$ |
| Storage Temperature Range                                | $T_{stg}$ | -55~150  | $^\circ\text{C}$ |



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

| CHARACTERISTIC                       | SYMBOL        | TEST CONDITION                                    | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|---------------|---|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = 1700\text{ V}, I_E = 0$                 | —    | —    | 1    | mA            |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = 5\text{ V}, I_C = 0$                    | —    | —    | 10   | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 10\text{ mA}, I_B = 0$                     | 700  | —    | —    | V             |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$           | 10   | —    | 28   | —             |
|                                      | $h_{FE(2)}$   | $V_{CE} = 5\text{ V}, I_C = 6\text{ A}$           | 4    | —    | 8.5  |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 6\text{ A}, I_B = 1.5\text{ A}$            | —    | —    | 3    | V             |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = 6\text{ A}, I_B = 1.5\text{ A}$            | —    | 0.9  | 1.2  | V             |
| Transition Frequency                 | $f_T$         | $V_{CE} = 10\text{ V}, I_E = 0.1\text{ A}$        | —    | 2    | —    | MHz           |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —    | 185  | —    | pF            |
| Switching Time (Fig.1)               | Storage Time  | $t_{stg}$   | —    | 2.5  | 4.0  | $\mu\text{s}$ |
|                                      | Fall Time     | $t_f$   | —    | 0.15 | 0.3  |               |

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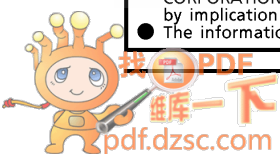
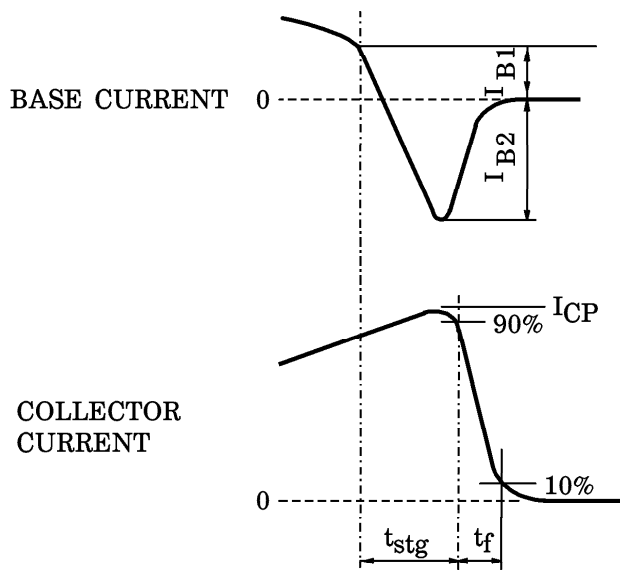
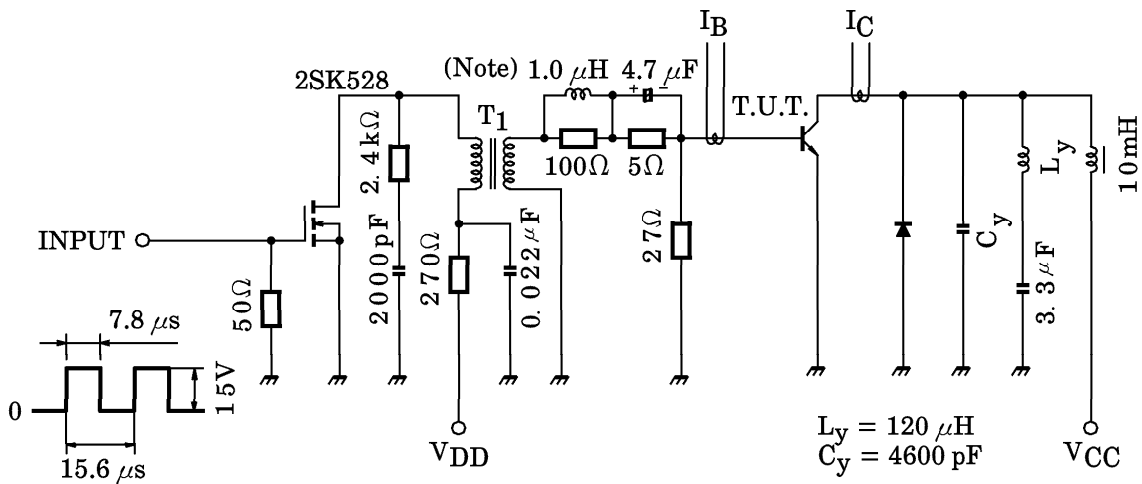


Fig.1 SWITCHING TIME TEST CIRCUIT



(Note) : Leakage Inductance of secondary winding  $L_B$  is  $1.2 \mu\text{H}$

