

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

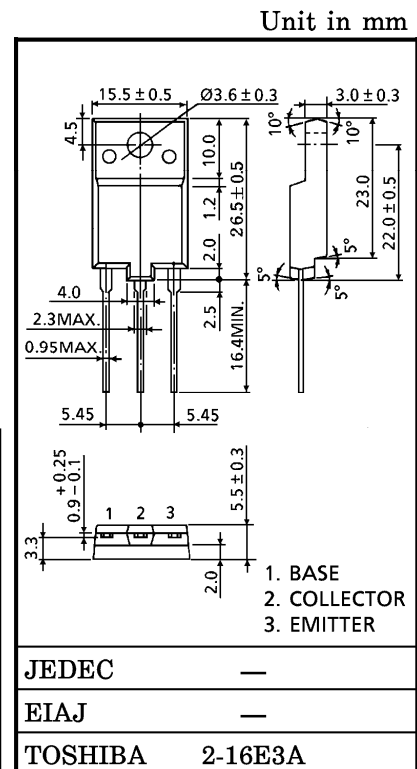
**2SC5048**HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION  
DISPLAY, COLOR TV

HIGH SPEED SWITCHING APPLICATIONS

- High Voltage :  $V_{CB0} = 1500\text{ V}$
- 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.  
(IS) Package

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

| CHARACTERISTIC  | SYMBOL    | RATING   | UNIT             |
|---|-----------|----------|------------------|
| Collector-Base Voltage                                      | $V_{CB0}$ | 1500     | V                |
| Collector-Emitter Voltage                                   | $V_{CEO}$ | 600      | V                |
| Emitter-Base Voltage  | $V_{EBO}$ | 5        | V                |
| Collector Current   | DC        | $I_C$    | 12               |
|   | Pulse     | $I_{CP}$ | 24               |
| Base Current  | $I_B$     | 6        | 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                                   | $T_{stg}$ | -55~150  | $^\circ\text{C}$ |

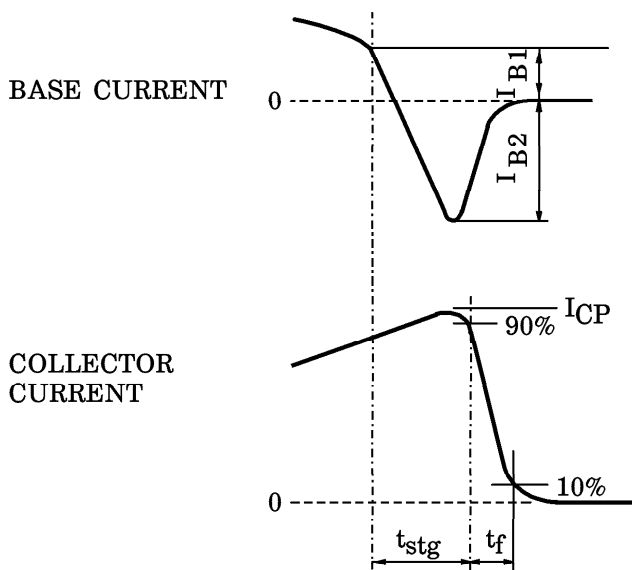
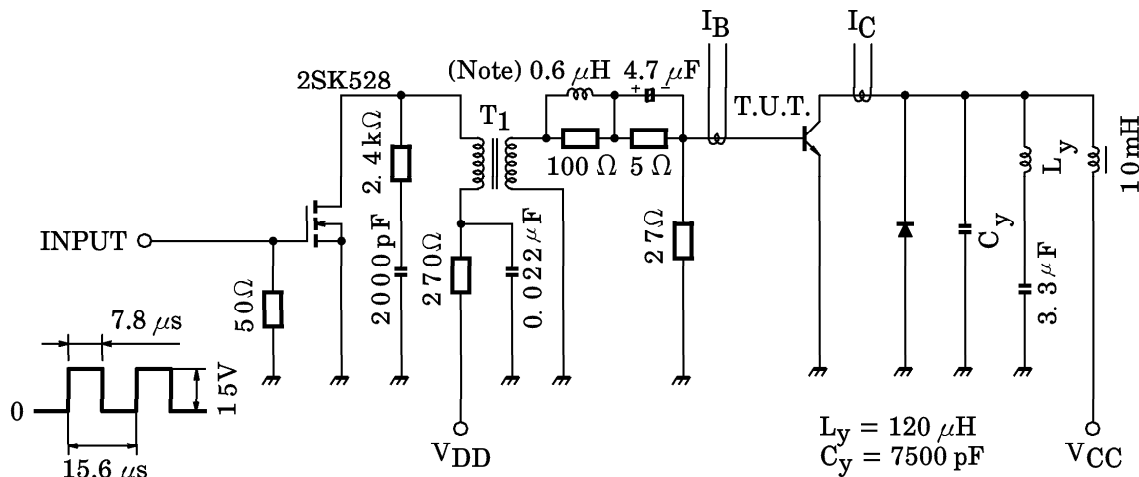
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

| CHARACTERISTIC                       | SYMBOL        | TEST CONDITION   | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|---------------|--|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = 1500\text{ V}, I_E = 0$  | —    | —    | 1    | mA            |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = 5\text{ V}, I_C = 0$   | —    | —    | 10   | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 10\text{ mA}, I_B = 0$  | 600  | —    | —    | V             |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE} = 5\text{ V}, I_C = 1\text{ A}$  | 10   | —    | 30   | —             |
|                                      | $h_{FE(2)}$   | $V_{CE} = 5\text{ V}, I_C = 8\text{ A}$  | 4    | —    | 8    |               |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 8\text{ A}, I_B = 2\text{ A}$   | —    | —    | 3    | V             |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = 8\text{ A}, I_B = 2\text{ A}$   | —    | 1.0  | 1.4  | V             |
| Transition Frequency                 | $f_T$         | $V_{CE} = 10\text{ V}, I_E = 0.1\text{ A}$   | —    | 1.7  | —    | MHz           |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$                                  | —    | 160  | —    | pF            |
| Switching Time (Fig.1)               | Storage Time  | $I_{CP} = 6\text{ A}, I_{B1}(\text{end}) = 1.15\text{ A}$<br>$f_H = 64\text{ kHz}$ | —    | 2.5  | 4.0  | $\mu\text{s}$ |
|                                      | Fall Time     |  | —    | 0.15 | 0.3  |               |

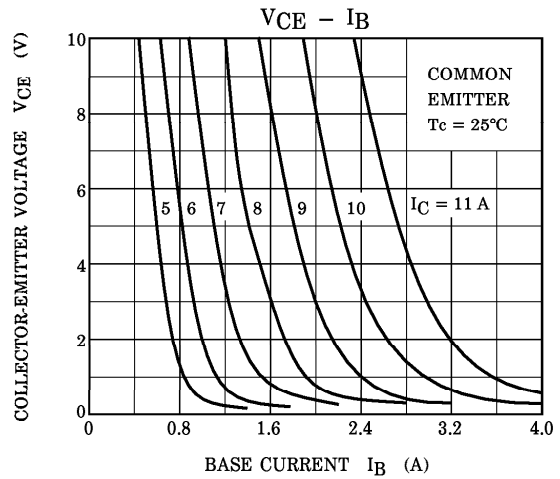
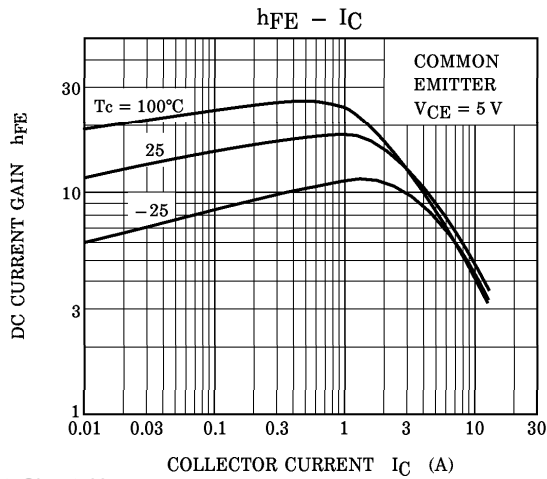
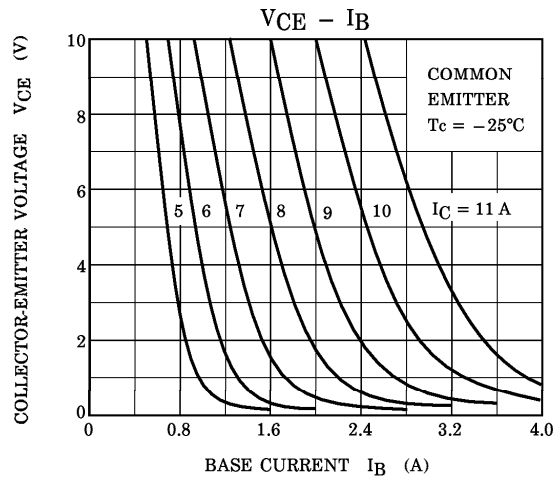
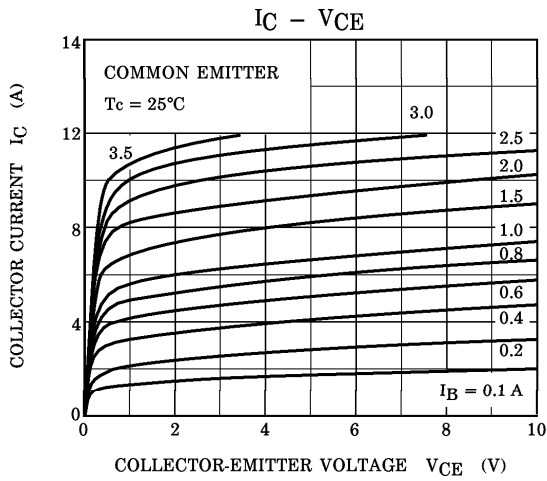
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Fig.1 SWITCHING TIME TEST CIRCUIT



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



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