

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED MESA TYPE

## 2SC5148

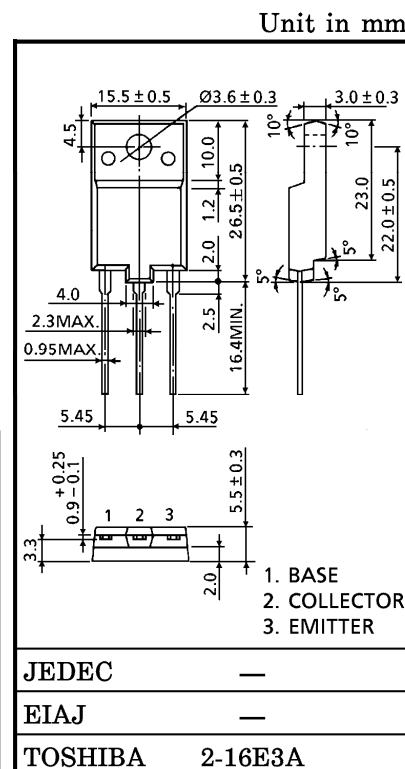
HORIZONTAL DEFLECTION OUTPUT FOR HIGH RESOLUTION  
DISPLAY, COLOR TV

HIGH SPEED SWITCHING APPLICATIONS

- High Speed :  $t_f = 0.15 \mu s$  (Typ.)
- High Voltage :  $V_{CBO} = 1500 V$
- Low Saturation Voltage :  $V_{CE(sat)} = 5 V$  (Max.)
- Collector Metal (Fin) is Fully Covered with Mold Resin

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

| CHARACTERISTIC                                        | SYMBOL    | RATING   | UNIT       |
|-------------------------------------------------------|-----------|----------|------------|
| Collector-Base Voltage                                | $V_{CBO}$ | 1500     | V          |
| Collector-Emitter Voltage                             | $V_{CEO}$ | 600      | V          |
| Emitter-Base Voltage                                  | $V_{EBO}$ | 5        | V          |
| Collector Current                                     | DC        | $I_C$    | 8          |
|                                                       | Pulse     | $I_{CP}$ | 16         |
| Base Current                                          | $I_B$     | 4        | A          |
| Collector Power Dissipation<br>( $T_c = 25^\circ C$ ) | $P_C$     | 50       | W          |
| Junction Temperature                                  | $T_j$     | 150      | $^\circ C$ |
| Storage Temperature Range                             | $T_{stg}$ | -55~150  | $^\circ C$ |



Weight : 5.5 g (Typ.)

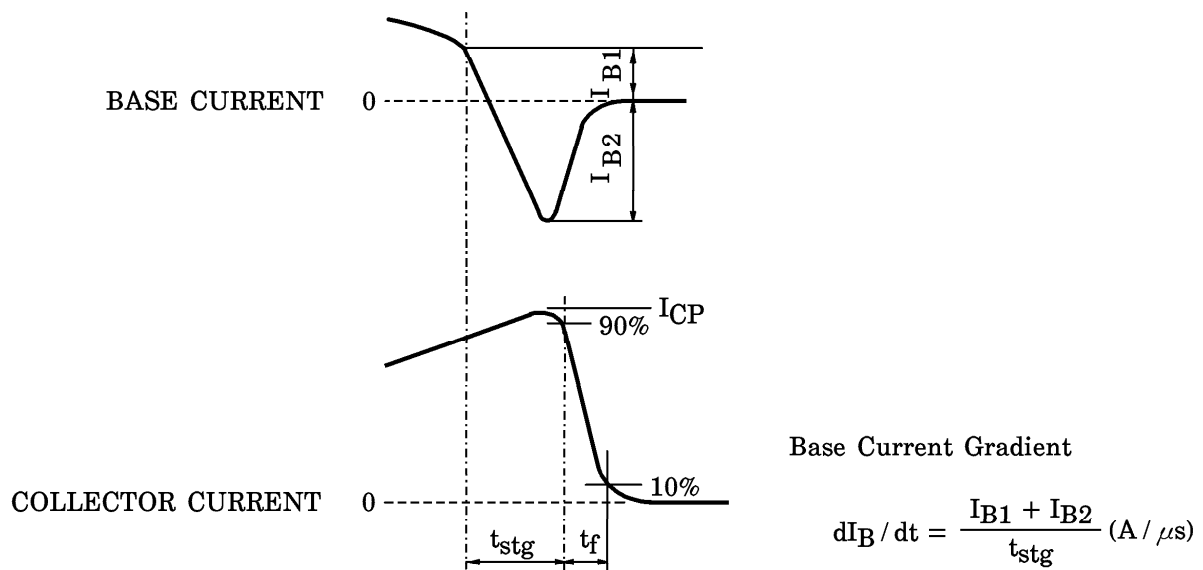
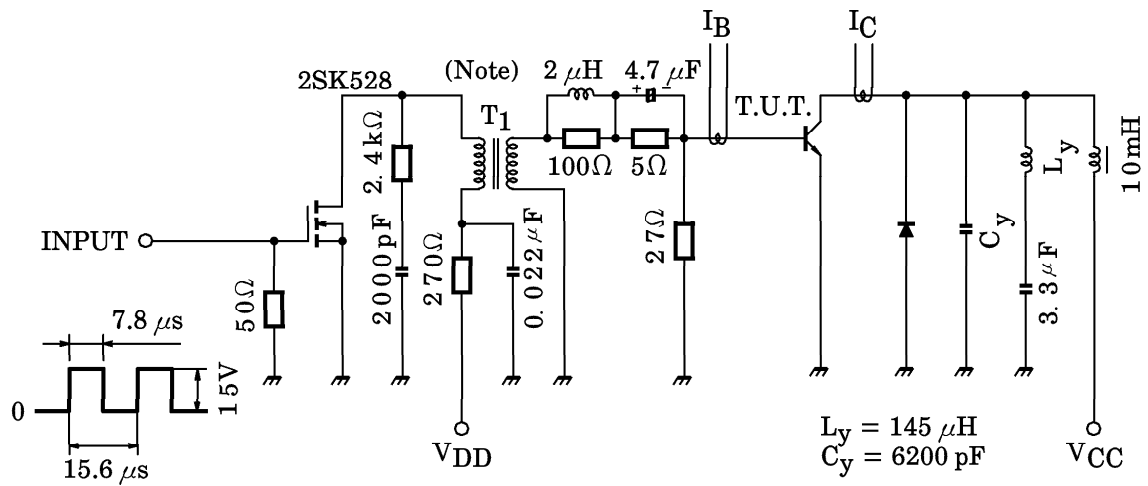
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

| CHARACTERISTIC                       | SYMBOL        | TEST CONDITION                                        | MIN. | TYP. | MAX. | UNIT    |
|--------------------------------------|---------------|-------------------------------------------------------|------|------|------|---------|
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = 1500 V, I_E = 0$                            | —    | —    | 1    | mA      |
| Emitter Cut-off Current              | $I_{EBO}$     | $V_{EB} = 5 V, I_C = 0$                               | —    | —    | 10   | $\mu A$ |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = 10 mA, I_B = 0$                                | 600  | —    | —    | V       |
| DC Current Gain                      | $h_{FE(1)}$   | $V_{CE} = 5 V, I_C = 1 A$                             | 8    | —    | 25   | —       |
|                                      | $h_{FE(2)}$   | $V_{CE} = 5 V, I_C = 5 A$                             | 3.8  | —    | 8.0  |         |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 5 A, I_B = 1.3 A$                              | —    | —    | 5    | V       |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = 5 A, I_B = 1.3 A$                              | —    | 1.0  | 1.3  | V       |
| Transition Frequency                 | $f_T$         | $V_{CE} = 10 V, I_C = 0.1 A$                          | —    | 2    | —    | MHz     |
| Collector Output Capacitance         | $C_{ob}$      | $V_{CB} = 10 V, I_E = 0, f = 1 MHz$                   | —    | 110  | —    | pF      |
| Switching Time (Fig.1)               | Storage Time  | $I_{CP} = 4 A, I_{B1}(end) = 0.8 A$<br>$f_H = 64 kHz$ | —    | 2.5  | 4    | $\mu s$ |
|                                      | 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  $\mu$ H

