

TENTATIVE

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE

# 2SA1801

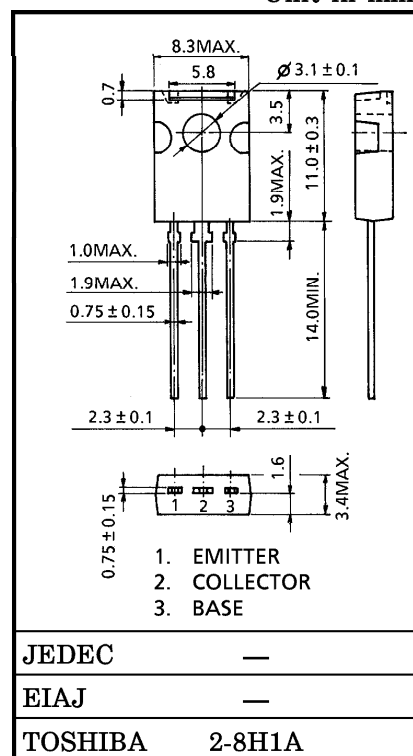
VIDEO OUTPUT STAGE IN HIGH RESOLUTION DISPLAY

Unit in mm

- High Transition Frequency :  $f_T = 600 \text{ MHz (Typ.)}$   
( $V_{CE} = 10 \text{ V}$ ,  
 $I_C = 50 \text{ mA}$ )
- Low Collector Output Capacitance :  $C_{ob} = 5.0 \text{ pF (Typ.)}$   
( $V_{CB} = -30 \text{ V}$ )

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

| CHARACTERISTIC              |                          | SYMBOL    | RATING  | UNIT             |
|-----------------------------|--------------------------|-----------|---------|------------------|
| Collector-Base Voltage      |                          | $V_{CBO}$ | -120    | V                |
| Collector-Emitter Voltage   |                          | $V_{CEO}$ | -120    | V                |
| Emitter-Base Voltage        |                          | $V_{EBO}$ | -5      | V                |
| Collector Current           | DC                       | $I_C$     | -300    | mA               |
|                             | Pulse                    | $I_{CP}$  | -500    |                  |
| Base Current                |                          | $I_B$     | -100    | mA               |
| Collector Power Dissipation | $T_a = 25^\circ\text{C}$ | $P_C$     | 1.5     | W                |
|                             | $T_c = 25^\circ\text{C}$ |           | 8       |                  |
| Junction Temperature        |                          | $T_j$     | 150     | $^\circ\text{C}$ |
| Storage Temperature Range   |                          | $T_{stg}$ | -55~150 | $^\circ\text{C}$ |

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

Weight : 0.82 g

| CHARACTERISTIC                       | SYMBOL         | TEST CONDITION  | MIN. | TYP. | MAX. | UNIT          |
|--------------------------------------|----------------|---|------|------|------|---------------|
| Collector Cut-off Current            | $I_{CBO}$      | $V_{CB} = -120 \text{ V}$ , $I_E = 0$                         | —    | —    | -1   | $\mu\text{A}$ |
| Emitter Cut-off Current              | $I_{EBO}$      | $V_{EB} = -5 \text{ V}$ , $I_C = 0$                           | —    | —    | -10  | $\mu\text{A}$ |
| Collector-Base Breakdown Voltage     | $V_{(BR) CBO}$ | $I_C = -1 \text{ mA}$ , $I_B = 0$                             | -120 | —    | —    | V             |
| Collector-Emitter Breakdown Voltage  | $V_{(BR) CEO}$ | $I_C = -10 \text{ mA}$ , $I_B = 0$                            | -120 | —    | —    | V             |
| DC Current Gain                      | $h_{FE} (1)$   | $V_{CE} = -10 \text{ V}$ , $I_C = -50 \text{ mA}$             | 40   | —    | 240  |               |
|                                      | $h_{FE} (2)$   | $V_{CE} = -10 \text{ V}$ , $I_C = -200 \text{ mA}$            | 25   | —    | —    |               |
| Collector-Emitter Saturation Voltage | $V_{CE (sat)}$ | $I_C = -50 \text{ mA}$ , $I_B = -5 \text{ mA}$                | —    | —    | -1.0 | V             |
| Base-Emitter Saturation Voltage      | $V_{BE (sat)}$ | $I_C = -50 \text{ mA}$ , $I_B = -5 \text{ mA}$                | —    | —    | -1.5 | V             |
| Transition Frequency                 | $f_T$          | $V_{CE} = -10 \text{ V}$ , $I_C = -50 \text{ mA}$             | —    | 600  | —    | MHz           |
| Collector Output Capacitance         | $C_{ob}$       | $V_{CB} = -30 \text{ V}$ , $f = 1 \text{ MHz}$ ,<br>$I_E = 0$ | —    | 4.0  | 5.0  | pF            |

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