

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON)

# 2SD1525

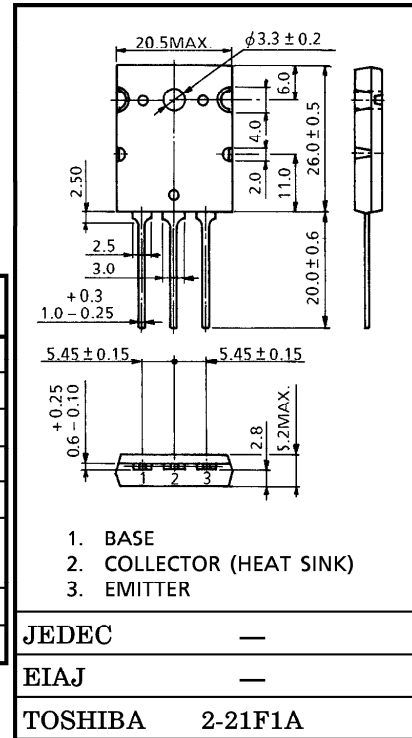
HIGH CURRENT SWITCHING APPLICATIONS

Unit in mm

- High Collector Current :  $I_C=30A$
- High DC Current Gain :  $h_{FE}(1)=1000$  (Min.)
- Monolithic Construction with Built-In Base-Emitter Shunt Resistor.

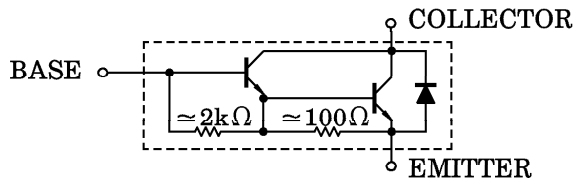
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

| CHARACTERISTIC  | SYMBOL    | RATING  | UNIT       |
|---|-----------|---------|------------|
| Collector-Base Voltage                                | $V_{CBO}$ | 100     | V          |
| Collector-Emitter Voltage                             | $V_{CEO}$ | 100     | V          |
| Emitter-Base Voltage                                  | $V_{EBO}$ | 5       | V          |
| Collector Current                                     | $I_C$     | 30      | A          |
| Base Current  | $I_B$     | 5       | A          |
| Collector Power Dissipation<br>( $T_c = 25^\circ C$ ) | $P_C$     | 150     | W          |
| Junction Temperature                                  | $T_j$     | 150     | $^\circ C$ |
| Storage Temperature Range                             | $T_{stg}$ | -55~150 | $^\circ C$ |



Weight : 9.8g (Typ.)

EQUIVALENT CIRCUIT



961001EAA2

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       | SYMBOL         | TEST CONDITION                    | MIN. | TYP.   | MAX. | UNIT    |         |
|--------------------------------------|----------------|-----------------------------------|------|--|------|---------|---------|
| Collector Cut-off Current            | $I_{CBO}$      | $V_{CB} = 100V, I_E = 0$          | —    | —  | 100  | $\mu A$ |         |
| Emitter Cut-off Current              | $I_{EBO}$      | $V_{EB} = 5V, I_C = 0$            | —    | —  | 10   | mA      |         |
| Collector-Emitter Breakdown Voltage  | $V_{(BR) CEO}$ | $I_C = 50mA, I_B = 0$             | 100  | —  | —    | V       |         |
| DC Current Gain                      | $h_{FE (1)}$   | $V_{CE} = 5V, I_C = 20A$          | 1000 | —  | —    |         |         |
|                                      | $h_{FE (2)}$   | $V_{CE} = 5V, I_C = 30A$          | 200  | —  | —    |         |         |
| Collector-Emitter Saturation Voltage | $V_{CE (sat)}$ | $I_C = 20A, I_B = 0.2A$           | —    | —  | 1.5  | V       |         |
| Base-Emitter Saturation Voltage      | $V_{BE (sat)}$ |                                   | —    | —  | 2.5  | V       |         |
| Emitter-Collector Forward Voltage    | $V_{ECF}$      | $I_E = 10A, I_B = 0$              | —    | —  | 3    | V       |         |
| Transition Frequency                 | $f_T$          | $V_{CE} = 5V, I_C = 1A$           | —    | 10   | —    | MHz     |         |
| Collector Output Capacitance         | $C_{ob}$       | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | —    | 500  | —    | pF      |         |
| Switching Time                       | Turn-on Time   | $t_{on}$                          |      | —  | 1.5  | —       | $\mu s$ |
|                                      | Storage Time   | $t_{stg}$                         |      | —  | 10   | —       |         |
|                                      | Fall Time      | $t_f$                             |      | $I_{B1} = -I_{B2} = 0.01A,$<br>$DUTY CYCLE \leq 1\%$ | —    | 1.5     |         |

