

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE (DARLINGTON POWER)

2SB1020A

HIGH POWER SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

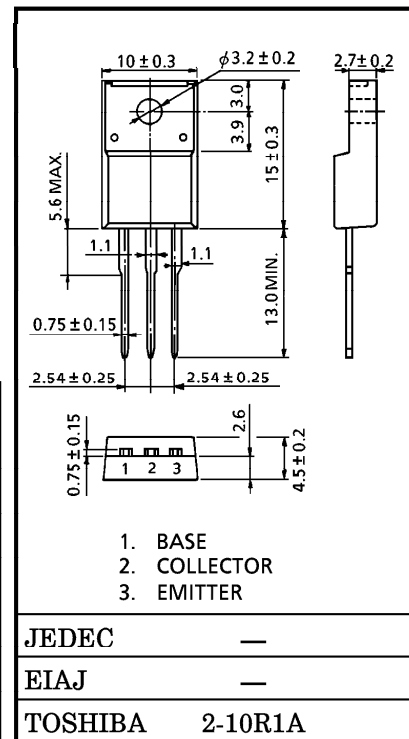
- High DC Current Gain
: $h_{FE} = 2000$ (Min.) (at $V_{CE} = -3V, I_C = -3A$)
- Low Saturation Voltage
: $V_{CE(sat)} = -1.5V$ (Max.) (at $I_C = -3A$)
- Complementary to 2SD1415A

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

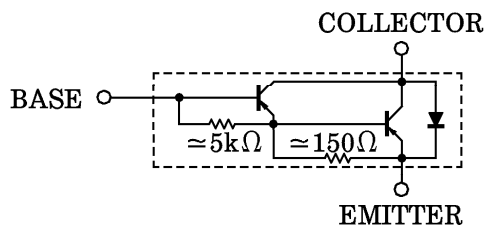
| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|-----------------------------|--------------------|-----------|---------|------------|
| Collector-Base Voltage | | V_{CBO} | -100 | V |
| Collector-Emitter Voltage | | V_{CEO} | -100 | V |
| Emitter-Base Voltage | | V_{EBO} | -5 | V |
| Collector Current | DC | I_C | -7 | A |
| | Pulse | I_{CP} | -10 | |
| Base Current | | I_B | -0.7 | A |
| Collector Power Dissipation | $T_a = 25^\circ C$ | P_C | 2.0 | W |
| | $T_c = 25^\circ C$ | | 30 | |
| Junction Temperature | | T_j | 150 | $^\circ C$ |
| Storage Temperature Range | | T_{stg} | -55~150 | $^\circ C$ |

INDUSTRIAL APPLICATIONS

Unit in mm



EQUIVALENT CIRCUIT



961001EAA1

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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 | μA |
| Emitter Cut-off Current | | I_{EBO} | $V_{EB} = -5V, I_C = 0$ | — | — | -4.0 | mA |
| Collector-Emitter Breakdown Voltage | | $V_{(BR) CEO}$ | $I_C = -50mA, I_B = 0$ | -100 | — | — | V |
| DC Current Gain | | $h_{FE(1)}$ | $V_{CE} = -3V, I_C = -3A$ | 2000 | — | 15000 | |
| | | $h_{FE(2)}$ | $V_{CE} = -3V, I_C = -7A$ | 1000 | — | — | |
| Collector-Emitter Saturation Voltage | | $V_{CE(sat)(1)}$ | $I_C = -3A, I_B = -6mA$ | — | -0.95 | -1.5 | V |
| | | $V_{CE(sat)(2)}$ | $I_C = -7A, I_B = -14mA$ | — | -1.3 | -2.0 | |
| Base-Emitter Saturation Voltage | | $V_{BE(sat)}$ | $I_C = -3A, I_B = -6mA$ | — | -1.55 | -2.5 | V |
| Switching Time | Turn-on Time | t_{on} | <p> $-I_{B1} = I_{B2} = 6mA,$ $DUTY\ CYCLE \leq 1\%$ </p> | — | 0.8 | — | μs |
| | Storage Time | t_{stg} | | — | 2.0 | — | |
| | Fall Time | t_f | | — | — | 2.5 | |

