

TOSHIBA TRANSISTOR SILICON PNP TRIPLE DIFFUSED TYPE (PCT PROCESS)

2SB1018A

HIGH CURRENT SWITCHING APPLICATIONS

POWER AMPLIFIER APPLICATIONS

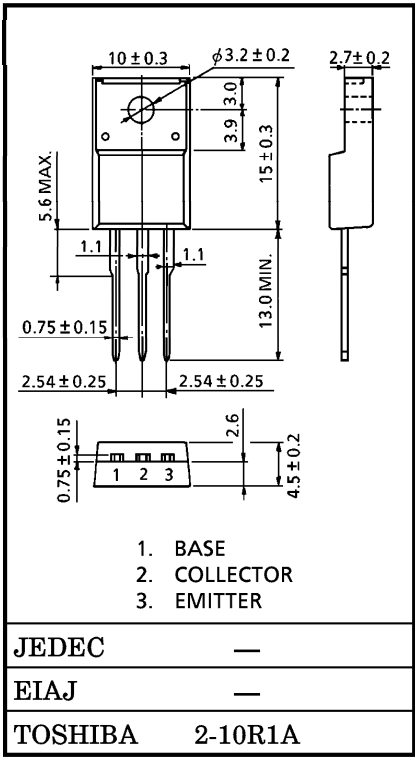
INDUSTRIAL APPLICATIONS

Unit in mm

- High Collector Current :  $I_C = -7\text{ A}$
- Low Collector Saturation Voltage :  $V_{CE(sat)} = -0.5\text{ V (Max.)}$  ( $I_C = -4\text{ A}$ )
- Complementary to 2SD1411A

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

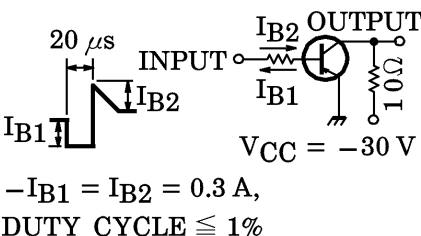
| CHARACTERISTIC              |                          | SYMBOL    | RATING  | UNIT             |
|-----------------------------|--------------------------|-----------|---------|------------------|
| Collector-Base Voltage      |                          | $V_{CBO}$ | -100    | V                |
| Collector-Emitter Voltage   |                          | $V_{CEO}$ | -80     | V                |
| Emitter-Base Voltage        |                          | $V_{EBO}$ | -5      | V                |
| Collector Current           |                          | $I_C$     | -7      | A                |
| Base Current                |                          | $I_B$     | -1      | A                |
| Collector Power Dissipation | $T_a = 25^\circ\text{C}$ | $P_C$     | 2.0     | W                |
|                             | $T_c = 25^\circ\text{C}$ |           | 30      |                  |
| Junction Temperature        |                          | $T_j$     | 150     | $^\circ\text{C}$ |
| Storage Temperature Range   |                          | $T_{stg}$ | -55~150 | $^\circ\text{C}$ |



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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                      |                   | SYMBOL                | TEST CONDITION                                                                                                                                                                                                                                                                                                       | MIN. | TYP. | MAX. | UNIT          |
|-------------------------------------|-------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|---------------|
| Collector Cut-off Current           |                   | $I_{CBO}$             | $V_{CB} = -100\text{ V}, I_E = 0$                                                                                                                                                                                                                                                                                    | —    | —    | -5   | $\mu\text{A}$ |
| Emitter Cut-off Current             |                   | $I_{EBO}$             | $V_{EB} = -5\text{ V}, I_C = 0$                                                                                                                                                                                                                                                                                      | —    | —    | -5   | $\mu\text{A}$ |
| Collector-Emitter Breakdown Voltage |                   | $V_{(BR)CEO}$         | $I_C = -50\text{ mA}, I_B = 0$                                                                                                                                                                                                                                                                                       | -80  | —    | —    | V             |
| DC Current Gain                     |                   | $h_{FE(1)}$<br>(Note) | $V_{CE} = -1\text{ V}, I_C = -1\text{ A}$                                                                                                                                                                                                                                                                            | 70   | —    | 240  |               |
|                                     |                   | $h_{FE(2)}$           | $V_{CE} = -1\text{ V}, I_C = -4\text{ A}$                                                                                                                                                                                                                                                                            | 30   | —    | —    |               |
| Saturation Voltage                  | Collector-Emitter | $V_{CE(sat)}$         | $I_C = -4\text{ A}, I_B = -0.4\text{ A}$                                                                                                                                                                                                                                                                             | —    | -0.3 | -0.5 | V             |
|                                     | Base-Emitter      | $V_{BE(sat)}$         | $I_C = -4\text{ A}, I_B = -0.4\text{ A}$                                                                                                                                                                                                                                                                             | —    | -0.9 | -1.4 |               |
| Transition Frequency                |                   | $f_T$                 | $V_{CE} = -4\text{ V}, I_C = -1\text{ A}$                                                                                                                                                                                                                                                                            | —    | 10   | —    | MHz           |
| Collector Output Capacitance        |                   | $C_{ob}$              | $V_{CB} = -10\text{ V}, I_E = 0,$<br>$f = 1\text{ MHz}$                                                                                                                                                                                                                                                              | —    | 250  | —    | pF            |
| Switching Time                      | Turn-on Time      | $t_{on}$              |  <p><math>20\text{ }\mu\text{s}</math><br/>INPUT <math>I_{B2}</math> <math>I_{B1}</math> OUTPUT<br/><math>V_{CC} = -30\text{ V}</math><br/><math>-I_{B1} = I_{B2} = 0.3\text{ A},</math><br/>DUTY CYCLE <math>\leq 1\%</math></p> | —    | 0.4  | —    | $\mu\text{s}$ |
|                                     | Storage Time      | $t_{stg}$             |                                                                                                                                                                                                                                                                                                                      | —    | 2.5  | —    |               |
|                                     | Fall Time         | $t_f$                 |                                                                                                                                                                                                                                                                                                                      | —    | 0.5  | —    |               |

(Note) :  $h_{FE(1)}$  Classification    O : 70~140,    Y : 120~240

