

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07693

D T-33-09

**2SC3310**

SILICON NPN TRIPLE DIFFUSED TYPE

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING  
APPLICATIONS:

HIGH SPEED DC-DC CONVERTER APPLICATION.

## FEATURES:

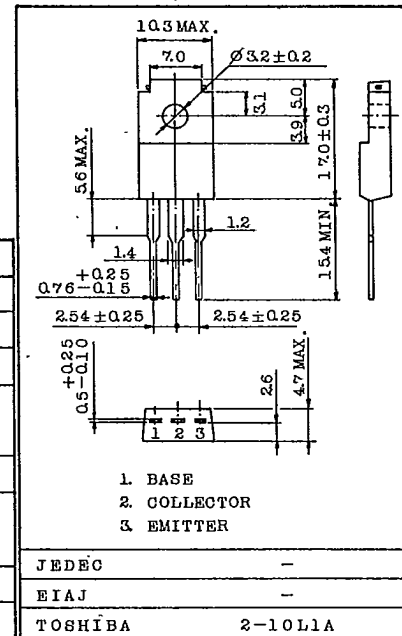
- Excellent Switching Times  
:  $t_r=1.0\mu s$ (Max.),  $t_f=1.0\mu s$ (Max.) at  $I_C=4A$
- High Collector Breakdown Voltage :  $V_{CEO}=400V$

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

| CHARACTERISTIC              |                  | SYMBOL    | RATING  | UNIT       |
|-----------------------------|------------------|-----------|---------|------------|
| Collector-Base Voltage      |                  | $V_{CBO}$ | 500     | V          |
| Collector-Emitter Voltage   |                  | $V_{CEO}$ | 400     | V          |
| Emitter-Base Voltage        |                  | $V_{EBO}$ | 7       | V          |
| Collector Current           | DC               | $I_C$     | 5       | A          |
|                             | Pulse            | $I_{CP}$  | 7       | A          |
| Base Current                |                  | $I_B$     | 1       | 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



Weight : 2.1g

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

| CHARACTERISTIC                       |              | SYMBOL        | TEST CONDITION       | MIN. | TYP. | MAX. | UNIT    |
|--------------------------------------|--------------|---------------|----------------------|------|------|------|---------|
| Collector Cut-off Current            |              | $I_{CBO}$     | $V_{CB}=400V, I_E=0$ | -    | -    | 100  | $\mu A$ |
| Emitter Cut-off Current              |              | $I_{EBO}$     | $V_{EB}=7V, I_C=0$   | -    | -    | 1    | mA      |
| Collector-Base Breakdown Voltage     |              | $V(BR)_{CBO}$ | $I_C=1mA, I_E=0$     | 500  | -    | -    | V       |
| Collector-Emitter Breakdown Voltage  |              | $V(BR)_{CEO}$ | $I_C=10mA, I_B=0$    | 400  | -    | -    | V       |
| DC Current Gain                      |              | $h_{FE}$      | $V_{CE}=5V, I_C=3A$  | 12   | -    | -    |         |
|                                      |              |               | $V_{CE}=5V, I_C=5A$  | 8    | -    | -    |         |
| Collector-Emitter Saturation Voltage |              | $V_{CE(sat)}$ | $I_C=5A, I_B=1A$     | -    | -    | 1.0  | V       |
| Base-Emitter Saturation Voltage      |              | $V_{BE(sat)}$ | $I_C=5A, I_B=1A$     | -    | -    | 1.5  | V       |
| Switching Time                       | Rise Time    | $t_r$         |                      | -    | -    | 1.0  | $\mu s$ |
|                                      | Storage Time | $t_{stg}$     |                      | -    | -    | 2.5  |         |
|                                      | Fall Time    | $t_f$         |                      | -    | -    | 1.0  |         |

TOSHIBA CORPORATION