

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07693

DT-33-09

**2SC3310**

SILICON NPN TRIPLE DIFFUSED TYPE

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING  
APPLICATIONS:

HIGH SPEED DC-DC CONVERTER APPLICATION.

## FEATURES:

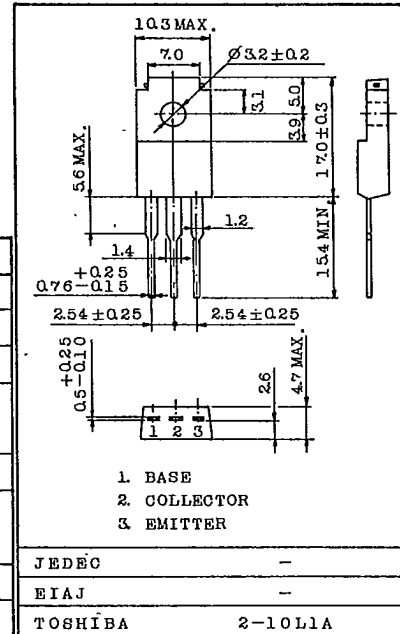
- Excellent Switching Times  
:  $t_r=1.0\mu s$ (Max.),  $t_f=1.0\mu s$ (Max.) at  $I_C=4A$
- High Collector Breakdown Voltage :  $V_{CEO}=400V$

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

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	$t_f$		$I_{B1}=-I_{B2}=0.4A$ DUTY CYCLE < 1%	-	-	

TOSHIBA CORPORATION