

9097250 TOSHIBA (DISCRETE/OPTO)

56C 07502 D T-33-11

SILICON NPN TRIPLE DIFFUSED TYPE

2SC2200

INDUSTRIAL APPLICATIONS

Unit in mm

SWITCHING REGULATOR AND HIGH VOLTAGE

SWITCHING APPLICATIONS.

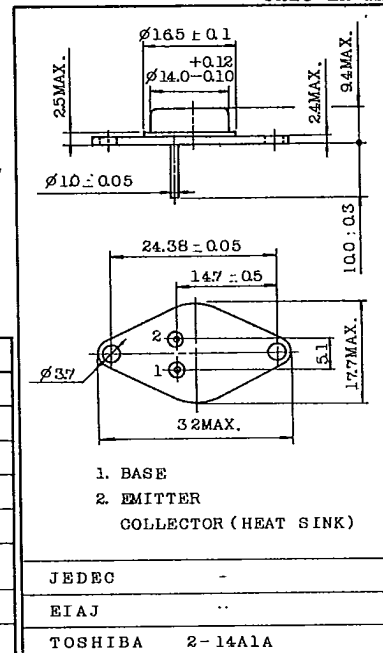
HIGH SPEED DC-DC CONVERTER APPLICATIONS.

FEATURES:

- Excellent Switching Time ($I_C=3A$)
: $t_r=1.0\mu s$ Max. $t_f=1.0\mu s$ Max.
- 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	I_C	7	A
Base Current	I_B	3	A
Collector Power Dissipation ($T_c=25^\circ C$)	P_C	40	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-65~150	$^\circ C$



Mounting Kit No. AC74
Weight : 7.6g

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	μA
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
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7	-	-	V
DC Current Gain	h_{FE}	$V_{CE}=5V, I_C=3A$	10	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.3A$	-	-	1.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=0.3A$	-	-	2.0	V
Switching Time	Rise Time		-	-	1.0	μs
	Storage Time		-	-	2.0	
	Fall Time		-	-	1.0	

TOSHIBA CORPORATION

DT-33-11

SWITCHING TIME (μ s)

COLLECTOR CURRENT I_C (A)

$I_C / I_B = 10$
 $I_B(1) = -I_B(2)$
 PULSE WIDTH = 20μ s
 DUTY CYCLE $\leq 1\%$ $T_c = 25^\circ\text{C}$

Curves shown: t_{stg} , t_r , t_f

Detailed description: This is a semi-logarithmic plot showing the switching times of a 2N3638 PNP transistor as a function of collector current. The y-axis represents switching time in microseconds on a log scale from 0.1 to 10. The x-axis represents collector current in amperes on a linear scale from 1 to 6. Three curves are plotted: storage time (t_stg), reverse recovery time (t_r), and fall time (t_f). t_stg decreases from ~3.5 to ~1.0 μs. t_r and t_f remain relatively constant around 0.4-0.5 μs.

Collector Current I_C (A)	t_{stg} (μ s)	t_r (μ s)	t_f (μ s)
1.0	3.5	0.45	0.35
2.0	2.2	0.42	0.32
3.0	1.6	0.40	0.30
4.0	1.1	0.40	0.28
5.0	0.8	0.45	0.28
6.0	0.6	0.60	0.30

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