

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

# 2SC3405

SWITCHING REGULATOR AND HIGH VOLTAGE SWITCHING APPLICATIONS

INDUSTRIAL APPLICATIONS

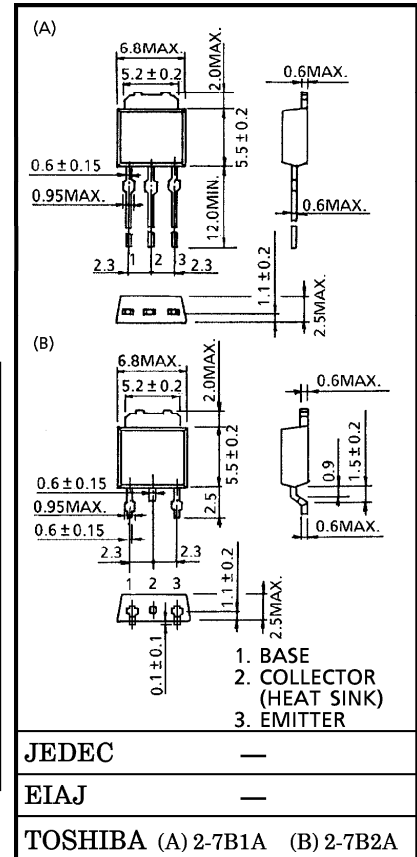
HIGH SPEED DC-DC CONVERTER APPLICATIONS

Unit in mm

- Excellent Switching Times ( $I_C = 0.3\text{ A}$ )  
:  $t_r = 1.0\ \mu\text{s}$  (Max.),  $t_f = 1.0\ \mu\text{s}$  (Max.)
- High Collector Breakdown Voltage :  $V_{CEO} = 800\text{ V}$

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	900	V
Collector-Emitter Voltage	$V_{CEO}$	800	V
Emitter-Base Voltage	$V_{EBO}$	8	V
Collector Current	DC	$I_C$	0.8
	Pulse	$I_{CP}$	1.5
Base Current	$I_B$	0.2	A
Collector Power Dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1.0
	$T_c = 25^\circ\text{C}$		20
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$



Weight : 0.36 g

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = 800 V, I <sub>E</sub> = 0	—	—	100	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = 8 V, I <sub>C</sub> = 0	—	—	1	mA
Collector-Base Breakdown Voltage		V <sub>(BR) CBO</sub>	I <sub>C</sub> = 1 mA, I <sub>E</sub> = 0	900	—	—	V
Collector-Emitter Breakdown Voltage		V <sub>(BR) CEO</sub>	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	800	—	—	V
DC Current Gain		h <sub>FE</sub> (1)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 mA	6	—	—	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 0.3 A	10	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE (sat)</sub>	I <sub>C</sub> = 0.3 A, I <sub>B</sub> = 0.06 A	—	—	0.5	V
Base-Emitter Saturation Voltage		V <sub>BE (sat)</sub>	I <sub>C</sub> = 0.3 A, I <sub>B</sub> = 0.06 A	—	—	1.2	V
Switching Time	Rise Time	t <sub>r</sub>	<p> <math>I_{B1} = -I_{B2} = 0.06 \text{ A}</math>,  DUTY CYCLE <math>\leq 1\%</math> </p>	—	—	1.0	μs
	Storage Time	t <sub>stg</sub>		—	—	4.0	
	Fall Time	t <sub>f</sub>		—	—	1.0	

