

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

# 2SC3303

HIGH CURRENT SWITCHING APPLICATIONS

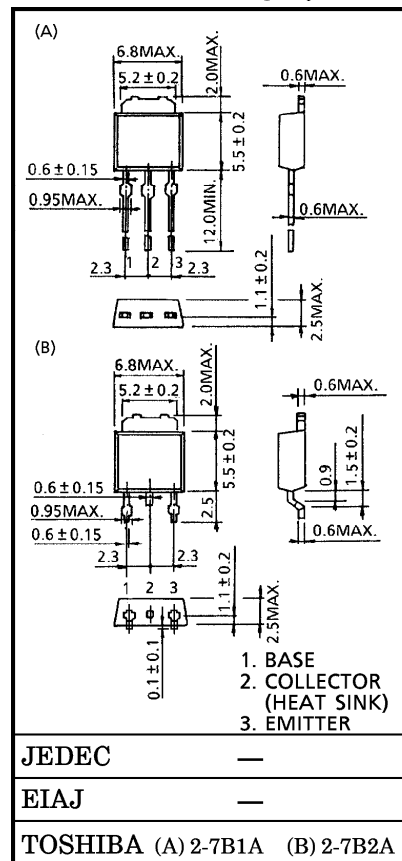
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage  
:  $V_{CE(sat)} = 0.4\text{ V (Max.) (at } I_C = 3\text{ A)}$
- High Speed Switching Time :  $t_{stg} = 1.0\ \mu\text{s (Typ.)}$

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	$V_{EBO}$	7	V
Collector Current	DC	$I_C$	5
	Pulse	$I_{CP}$	8
Base Current	$I_B$	1	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> = 100 V, I <sub>E</sub> = 0	—	—	1	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = 7 V, I <sub>C</sub> = 0	—	—	1	μA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	80	—	—	V
DC Current Gain		h <sub>FE</sub> (1) (Note)	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 1 A	70	—	240	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 1 V, I <sub>C</sub> = 3 A	40	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE</sub> (sat)	I <sub>C</sub> = 3 A, I <sub>B</sub> = 0.15 A	—	0.2	0.4	V
Base-Emitter Saturation Voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = 3 A, I <sub>B</sub> = 0.15 A	—	0.9	1.2	V
Transition Frequency		f <sub>T</sub>	V <sub>CE</sub> = 4 V, I <sub>C</sub> = 1 A	—	120	—	MHz
Collector Output Capacitance		C <sub>ob</sub>	V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz	—	80	—	pF
Switching Time	Turn-on Time	t <sub>on</sub>		—	0.2	—	μs
	Storage Time	t <sub>stg</sub>		—	1.0	—	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> = -I <sub>B2</sub> = 0.15 A, DUTY CYCLE ≤ 1%	—	0.1	

Note : h<sub>FE</sub> (1) Classification    O : 70~140,    Y : 120~240

