

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC3303

HIGH CURRENT SWITCHING APPLICATIONS

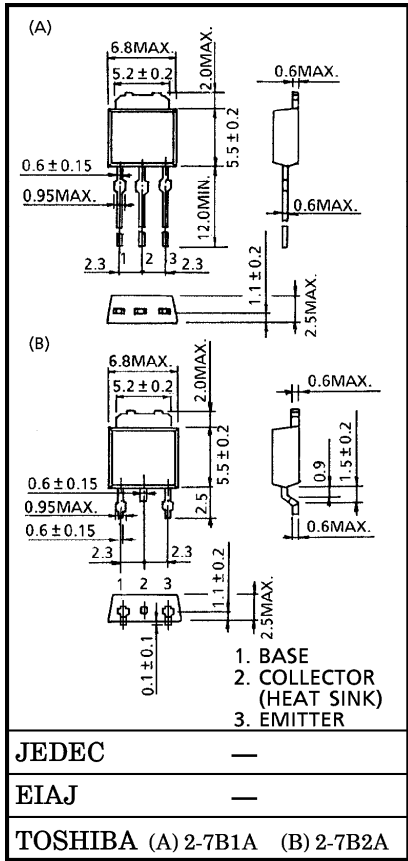
INDUSTRIAL APPLICATIONS

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 : $t_{stg} = 1.0\text{ }\mu\text{s (Typ.)}$

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	A
	Pulse	I_{CP}	8	
Base Current		I_B	1	A
Collector Power Dissipation	$T_a = 25^\circ\text{C}$	P_C	1.0	W
	$T_c = 25^\circ\text{C}$		20	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	$-55\sim 150$	$^\circ\text{C}$

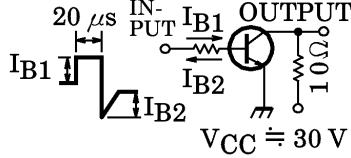


Weight : 0.36 g

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 100\text{ V}, I_E = 0$	—	—	1	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	1	μA
Collector-Emitter Breakdown Voltage		$V_{(BR) CEO}$	$I_C = 10\text{ mA}, I_B = 0$	80	—	—	V
DC Current Gain		$h_{FE(1)}$ (Note)	$V_{CE} = 1\text{ V}, I_C = 1\text{ A}$	70	—	240	
		$h_{FE(2)}$	$V_{CE} = 1\text{ V}, I_C = 3\text{ A}$	40	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 0.15\text{ A}$	—	0.2	0.4	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 3\text{ A}, I_B = 0.15\text{ A}$	—	0.9	1.2	V
Transition Frequency		f_T	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	—	120	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0,$ $f = 1\text{ MHz}$	—	80	—	pF
Switching Time	Turn-on Time	t_{on}	 $I_{B1} = -I_{B2} = 0.15\text{ A},$ DUTY CYCLE $\leq 1\%$	—	0.2	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.1	—	

Note : $h_{FE(1)}$ Classification O : 70~140, Y : 120~240

