

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

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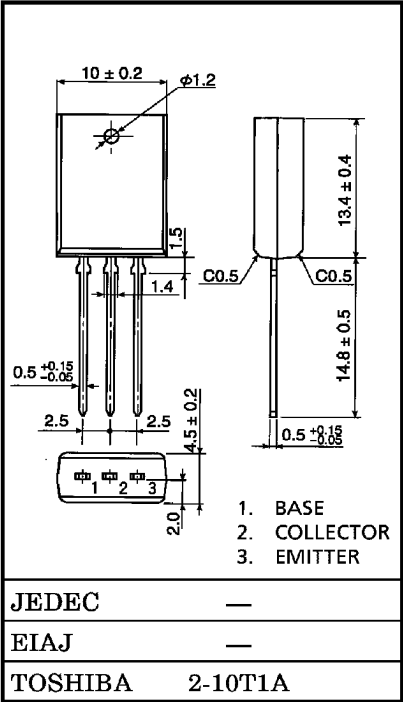
HIGH CURRENT SWITCHING APPLICATIONS
DC-DC CONVERTER APPLICATIONS

INDUSTRIAL APPLICATIONS

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

MAXIMUM RATINGS (Ta = 25°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		P_C	1.8	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C



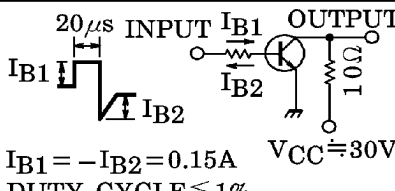
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V _{CB} = 100V, I _E = 0	—	—	1	μA
Emitter Cut-off Current		IEBO	V _{EB} = 7V, I _C = 0	—	—	1	μA
Collector-Emitter Breakdown Voltage		V _(BR) CEO	I _C = 10mA, I _B = 0	80	—	—	V
DC Current Gain		h _{FE} (1) (Note)	V _{CE} = 1V, I _C = 1A	70	—	240	
		h _{FE} (2)	V _{CE} = 1V, I _C = 3A	40	—	—	
Saturation Voltage	Collector-Emitter	V _{CE} (sat)	I _C = 3A, I _B = 0.15A	—	0.2	0.4	V
	Base-Emitter	V _{BE} (sat)	I _C = 3A, I _B = 0.15A	—	0.9	1.2	
Transition Frequency		f _T	V _{CE} = 4V, I _C = 1A	—	120	—	MHz
Collector Output Capacitance		C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	80	—	pF
Switching Time	Turn-on Time	t _{on}	 20μs INPUT I _{B1} I _{B2} I _C OUTPUT 10Ω 10V V _{CC} = 30V I _{B1} = -I _{B2} = 0.15A DUTY CYCLE ≤ 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

