

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (PCT PROCESS)

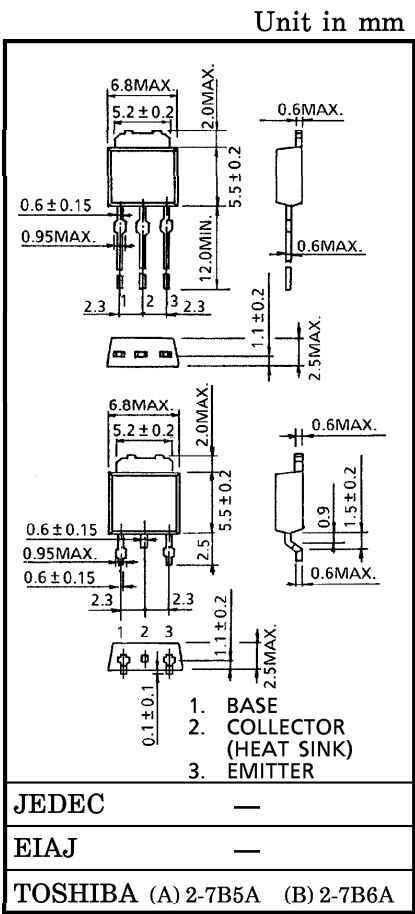
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SWITCHING REGULATOR APPLICATIONS
HIGH VOLTAGE SWITCHING APPLICATIONS
DC-DC CONVERTER APPLICATIONS

- Excellent Switching Times : $t_f = 0.5 \mu s$ (Max.) ($I_C = 1.2 A$)
- High Collectors Breakdown Voltage : $V_{CEO} = 800 V$
- High DC Current Gain : $h_{FE} = 15$ (Min.) ($I_C = 0.15 A$)

MAXIMUM RATINGS (Ta = 25°C)

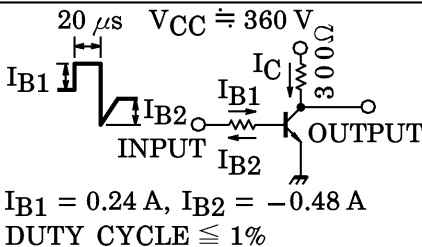
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	900	V
Collector-Emitter Voltage		V_{CEO}	800	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	3	A
	Pulse	I_{CP}	5	
Base Current		I_B	1	A
Collector Power Dissipation	Ta = 25°C	P_C	1.5	W
	Tc = 25°C		25	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C



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ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 720\text{ V}, I_E = 0$	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	10	μA
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$	$I_C = 1\text{ mA}, I_B = 0$	900	—	—	V
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	800	—	—	V
DC Current Gain	$h_{FE}(1)$		$V_{CE} = 5\text{ V}, I_C = 1\text{ mA}$	10	—	—	
	$h_{FE}(2)$		$V_{CE} = 5\text{ V}, I_C = 0.15\text{ A}$	15			
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 1.2\text{ A}, I_B = 0.24\text{ A}$	—	—	1.0	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 1.2\text{ A}, I_B = 0.24\text{ A}$	—	—	1.3	V
Switching Time	Rise Time	t_r	 <p> $20\ \mu\text{s}$ $V_{CC} = 360\text{ V}$ I_{B1} I_{B2} I_C $300\ \Omega$ INPUT OUTPUT $I_{B1} = 0.24\text{ A}, I_{B2} = -0.48\text{ A}$ DUTY CYCLE $\leq 1\%$ </p>	—	—	0.7	μs
	Storage Time	t_{stg}		—	—	4.0	
	Fall Time	t_f		—	—	0.5	

