

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SA1451A

HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

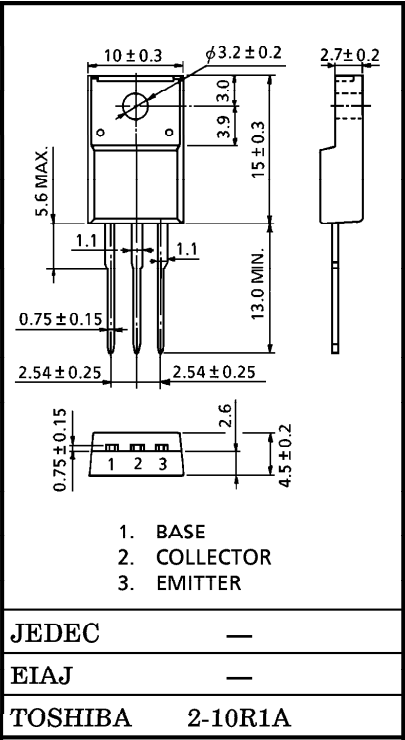
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage
: $V_{CE(sat)} = -0.4V$ (Max.) (at $I_C = -6A$)
- High Speed Switching Time : $t_{stg} = 1.0\mu s$ (Typ.)
- Complementary to 2SC3709A

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

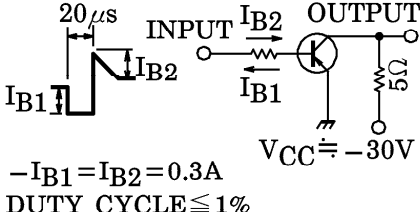
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	I_C	-12	A
Base Current	I_B	-2	A
Collector Power Dissipation ($T_c = 25^\circ C$)	P_C	30	W
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55~150	$^\circ C$



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = -60V, I_E = 0$	—	—	-10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -6V, I_C = 0$	—	—	-10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = -50mA, I_B = 0$	-50	—	—	V
DC Current Gain		$h_{FE(1)}$ (Note)	$V_{CE} = -1V, I_C = -1A$	70	—	240	
		$h_{FE(2)}$	$V_{CE} = -1V, I_C = -6A$	40	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE(sat)}$	$I_C = -6A, I_B = -0.3A$	—	-0.15	-0.4	V
	Base-Emitter	$V_{BE(sat)}$	$I_C = -6A, I_B = -0.3A$	—	-0.9	-1.2	
Transition Frequency		f_T	$V_{CE} = -5V, I_C = -1A$	—	70	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	320	—	pF
Switching Time	Turn-on Time	t_{on}	 $20\mu s$ INPUT I_{B2} OUTPUT I_{B1} I_{B1} 5Ω $V_{CC} = -30V$ $-I_{B1} = I_{B2} = 0.3A$ DUTY CYCLE $\leq 1\%$	—	0.3	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.2	—	

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

