

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC3709A

HIGH CURRENT SWITCHING APPLICATIONS

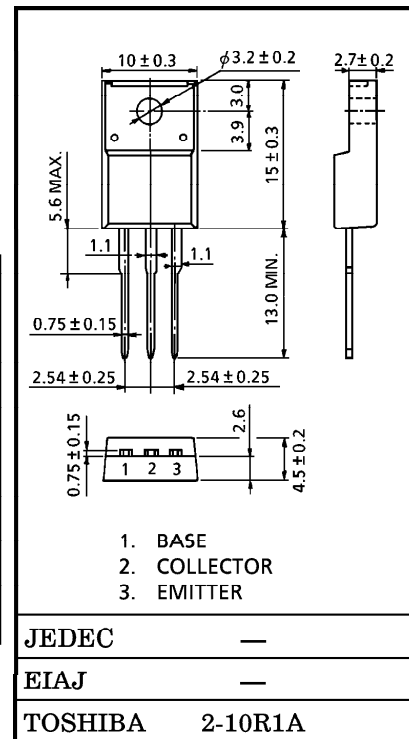
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage : $V_{CE(sat)} = 0.4V$ (Max.)
- High Speed Switching Time : $t_{stg} = 1.0\mu s$ (Typ.)
- Complementary to 2SA1451A

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	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	—	—		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 6A, I_B = 0.3A$	—	0.25	0.4	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 6A, I_B = 0.3A$	—	0.9	1.2	V	
Transition Frequency	f_T	$V_{CE} = 5V, I_C = 1A$	—	90	—	MHz	
Collector Output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	180	—	pF	
Switching Time	Turn-on Time	t_{on}		—	0.2	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		$I_{B1} = -I_{B2} = 0.3A,$ $DUTY\ CYCLE \leq 1\%$	—	0.2	

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

