

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

# 2SD2092

SWITCHING APPLICATIONS

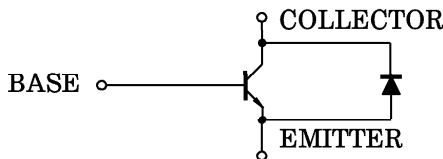
LAMP, SOLENOID DRIVE APPLICATIONS

- High DC Current Gain :  $h_{FE(1)} = 500 \sim 1500$
- Low Collector Saturation Voltage :  $V_{CE(sat)} = 0.3V$  (Max.)

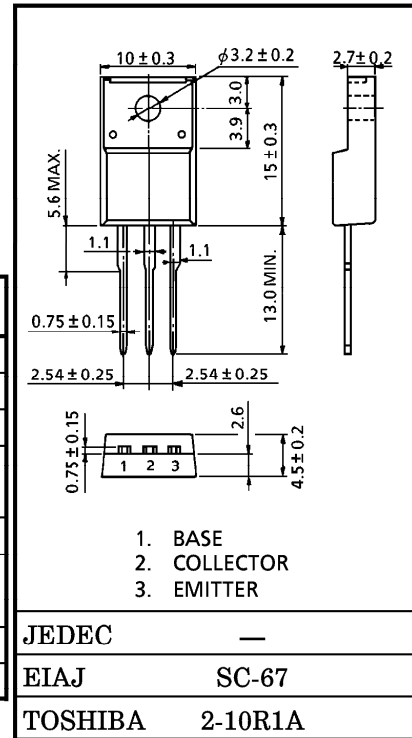
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	100	V
Collector-Emitter Voltage		$V_{CEO}$	100	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	$T_a = 25^\circ C$	$P_C$	2.0	W
	$T_c = 25^\circ C$		25	
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-55 ~ 150	$^\circ C$

EQUIVALENT CIRCUIT



Unit in mm

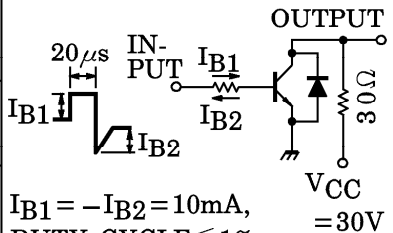


Weight : 1.7g (Typ.)

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	ICBO	V <sub>CB</sub> = 100V, I <sub>E</sub> = 0	—	—	10	μA	
Emitter Cut-off Current	IEBO	V <sub>EB</sub> = 7V, I <sub>C</sub> = 0	—	—	10	μA	
Collector-Emitter Breakdown Voltage	V <sub>(BR)</sub> CEO	I <sub>C</sub> = 50mA, I <sub>B</sub> = 0	100	—	—	V	
DC Current Gain	h <sub>FE</sub> (1)	V <sub>CE</sub> = 1V, I <sub>C</sub> = 0.5A	500	—	1500		
	h <sub>FE</sub> (2)	V <sub>CE</sub> = 1V, I <sub>C</sub> = 1A	150	—	—		
Collector-Emitter Saturation Voltage	V <sub>CE</sub> (sat)	I <sub>C</sub> = 1A, I <sub>B</sub> = 10mA	—	—	0.3	V	
Base-Emitter Saturation Voltage	V <sub>BE</sub> (sat)	I <sub>C</sub> = 1A, I <sub>B</sub> = 10mA	—	—	1.2	V	
Collector-Emitter Forward Voltage	V <sub>ECF</sub>	I <sub>E</sub> = 1A, I <sub>B</sub> = 0	—	—	2.0	V	
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 0.5A	—	140	—	MHz	
Collector Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	—	30	—	pF	
Switching Time	Turn-on Time	t <sub>on</sub>		—	0.5	—	μs
	Storage Time	t <sub>stg</sub>		—	5	—	
	Fall Time	t <sub>f</sub>		I <sub>B1</sub> = -I <sub>B2</sub> = 10mA, DUTY CYCLE ≤ 1%	—	0.7	

