

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

# 2SD2127

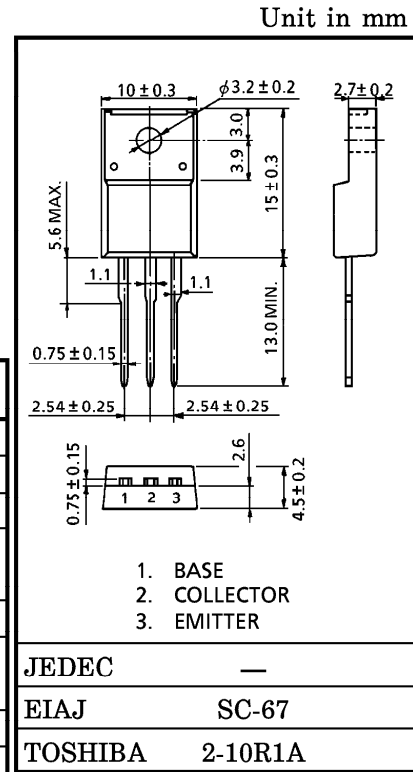
SWITCHING APPLICATIONS

LAMP, SOLENOID DRIVE APPLICATIONS.

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

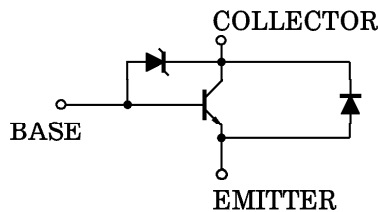
MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CBO}$	$60 \pm 10$	V
Collector-Emitter Voltage	$V_{CEO}$	$60 \pm 10$	V
Emitter-Base Voltage	$V_{EBO}$	7	V
Collector Current	DC	$I_C$	3
	Pulse	$I_{CP}$	5
Base Current	$I_B$	1	A
Collector Power Dissipation	$T_a = 25^\circ C$	$P_C$	2.0
	$T_c = 25^\circ C$		25
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	$-55 \sim 150$	$^\circ C$



Weight : 1.7g (Typ.)

EQUIVALENT CIRCUIT



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT				
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 45V, I_E = 0$	—	—	10	$\mu A$				
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 7V, I_C = 0$	—	—	10	$\mu A$				
Collector-Emitter Breakdown Voltage	$V_{(BR) CEO}$	$I_C = 50mA, I_B = 0$	50	60	70	V				
DC Current Gain	$h_{FE} (1)$	$V_{CE} = 1V, I_C = 0.5A$	500	—	1500					
	$h_{FE} (2)$	$V_{CE} = 1V, I_C = 1A$	150	—	—					
Collector-Emitter Saturation Voltage	$V_{CE} (sat)$	$I_C = 1A, I_B = 10mA$	—	—	0.3	V				
Base-Emitter Saturation Voltage	$V_{BE} (sat)$	$I_C = 1A, I_B = 10mA$	—	—	1.2	V				
Emitter-Collector Forward Voltage	$V_{ECF}$	$I_E = 1A, I_B = 0$	—	—	2.0	V				
Transition Frequency	$f_T$	$V_{CE} = 5V, I_C = 0.5A$	—	140	—	MHz				
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	30	—	pF				
Switching Time	Turn-on Time	$t_{on}$					—	0.6	—	$\mu s$
	Storage Time	$t_{stg}$					—	1.6	—	
	Fall Time	$t_f$					$I_{B1} = -I_{B2} = 10mA,$ $DUTY CYCLE \leq 1%$	—	0.4	

