

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

# 2SD2075A

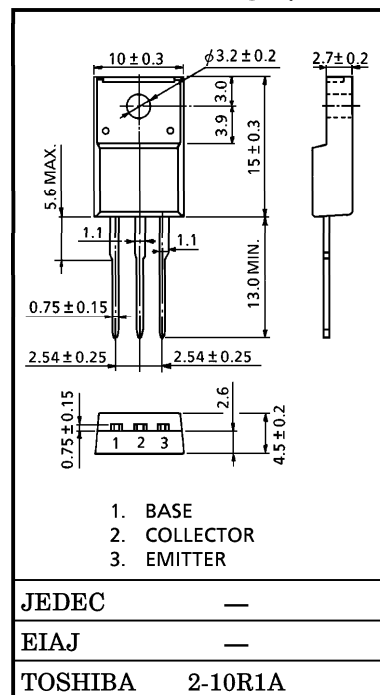
HIGH CURRENT SWITCHING APPLICATIONS  
LAMP, SOLENOID DRIVE APPLICATIONS

INDUSTRIAL APPLICATIONS  
Unit in mm

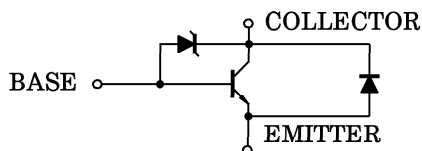
- High DC Current Gain :  $h_{FE} = 500 \sim 1500$  ( $I_C = 1A$ )
- Low Collector Saturation Voltage :  $V_{CE(sat)} = 0.3V$  (Max.) ( $I_C = 5A$ )

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	$I_C$	10	A
	Pulse	$I_{CP}$	15	
Base Current		$I_B$	2	A
Collector Power Dissipation	$T_a = 25^\circ C$	$P_C$	2.0	W
	$T_c = 25^\circ C$		30	
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	$-55 \sim 150$	$^\circ C$



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		$h_{FE} (1)$	$V_{CE} = 1V, I_C = 1A$	500	—	1500	
		$h_{FE} (2)$	$V_{CE} = 1V, I_C = 5A$	150	—	—	
Collector-Emitter Saturation Voltage		$V_{CE (sat)}$	$I_C = 5A, I_B = 0.05A$	—	—	0.3	V
Base-Emitter Saturation Voltage		$V_{BE (sat)}$	$I_C = 5A, I_B = 0.05A$	—	—	1.2	V
Collector-Emitter Forward Voltage		$V_{ECF}$	$I_C = 5A, I_B = 0$	—	—	2.0	V
Transition Frequency		$f_T$	$V_{CE} = 5V, I_C = 1A$	—	90	—	MHz
Collector Output Capacitance		$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	140	—	pF
Switching Time	Turn-on Time	$t_{on}$	<p> <math>I_{B1} = -I_{B2} = 0.05A,</math>  <math>DUTY\ CYCLE \leq 1\%</math>  <math>V_{CC} = 30V</math> </p>	—	0.5	—	$\mu s$
	Storage Time	$t_{stg}$		—	2.0	—	
	Fall Time	$t_f$		—	0.6	—	

