

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON)

2SD1415A

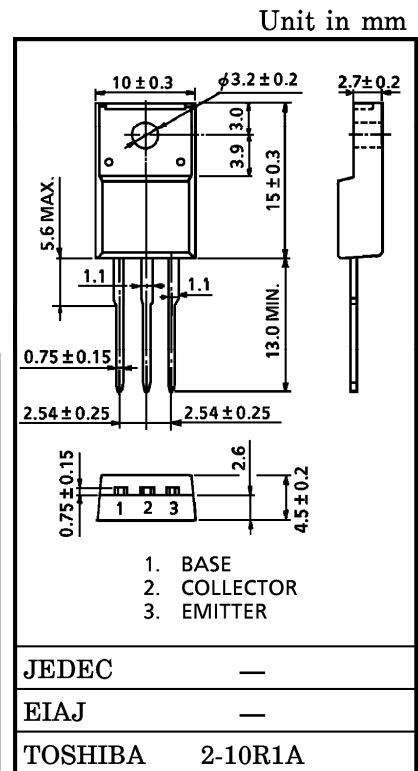
HIGH POWER SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

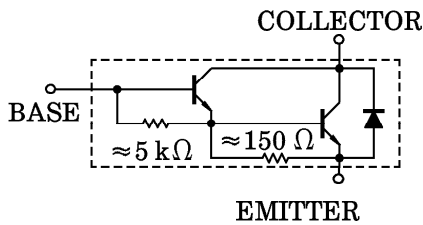
- High DC Current Gain
: $h_{FE} = 2000$ (Min.) ($V_{CE} = 3\text{ V}$, $I_C = 3\text{ A}$)
- Low Saturation Voltage : $V_{CE(sat)} = 1.5\text{ V}$ (Max.) ($I_C = 3\text{ A}$)

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

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	120	V
Collector-Emitter Voltage		V_{CEO}	100	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	7	A
	Pulse	I_{CP}	10	
Base Current		I_B	0.7	A
Collector Power Dissipation	$T_a = 25^\circ\text{C}$	P_C	2.0	W
	$T_c = 25^\circ\text{C}$		25	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55~150	$^\circ\text{C}$



EQUIVALENT CIRCUIT



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V _{CB} = 100 V, I _E = 0	—	—	100	μA
Emitter Cut-off Current		IEBO	V _{EB} = 6 V, I _C = 0	0.75	—	3.0	mA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I _C = 50 mA, I _B = 0	100	—	—	V
DC Current Gain		hFE (1)	V _{CE} = 3 V, I _C = 3 A	2000	—	15000	
		hFE (2)	V _{CE} = 3 V, I _C = 6 A	1000	—	—	
Collector-Emitter Saturation Voltage		V _{CE} (sat)	I _C = 3 A, I _B = 6 mA	—	0.9	1.5	V
Base-Emitter Saturation Voltage		V _{BE} (sat)	I _C = 3 A, I _B = 6 mA	—	1.5	2.0	V
Switching Time	Turn-on Time	t _{on}	<p> $I_{B1} = -I_{B2} = 6 \text{ mA}$, $V_{CC} = 45 \text{ V}$ DUTY CYCLE $\leq 1\%$ </p>	—	0.3	—	μs
	Storage Time	t _{stg}		—	5.1	—	
	Fall Time	t _f		—	—	0.6	

