

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (DARLINGTON)

# 2SD2584

HIGH POWER SWITCHING APPLICATIONS

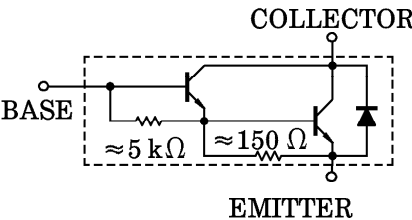
HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

- 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.) ( $I_C = 3\text{ A}$ )

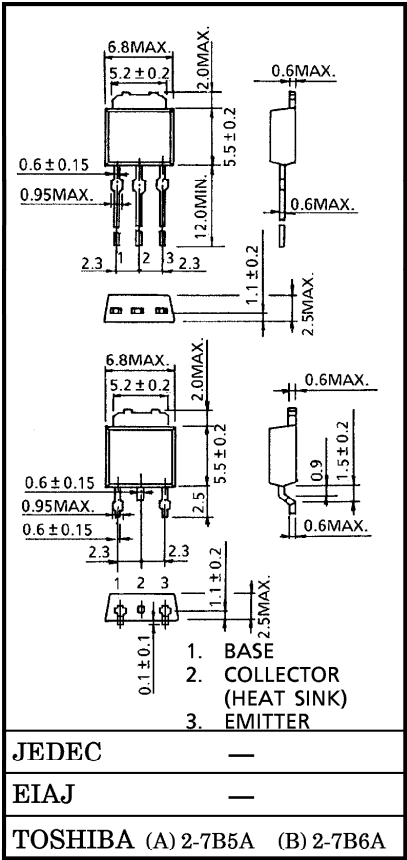
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

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	$T_a = 25^\circ\text{C}$	$P_C$	1.5	W
	$T_c = 25^\circ\text{C}$		20	
Junction Temperature		$T_j$	150	$^\circ\text{C}$
Storage Temperature Range		$T_{stg}$	$-55 \sim 150$	$^\circ\text{C}$

EQUIVALENT CIRCUIT



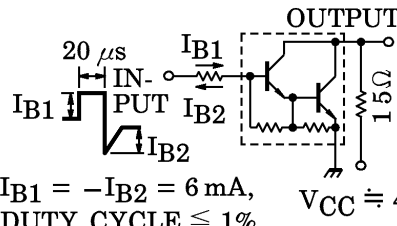
Unit in mm



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## ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		$I_{CBO}$	$V_{CB} = 100\text{ V}, I_E = 0$	—	—	100	$\mu\text{A}$
Emitter Cut-off Current		$I_{EBO}$	$V_{EB} = 6\text{ V}, I_C = 0$	0.75	—	3.0	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	100	—	—	V
DC Current Gain		$h_{FE(1)}$	$V_{CE} = 3\text{ V}, I_C = 3\text{ A}$	2000	—	15000	
		$h_{FE(2)}$	$V_{CE} = 3\text{ V}, I_C = 6\text{ A}$	1000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 6\text{ mA}$	—	0.9	1.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 3\text{ A}, I_B = 6\text{ mA}$	—	1.5	2.0	V
Switching Time	Turn-on Time	$t_{on}$	 <p><math>I_{B1} = -I_{B2} = 6\text{ mA}</math>, DUTY CYCLE <math>\leq 1\%</math></p> <p><math>V_{CC} \cong 45\text{ V}</math></p>	—	0.3	—	$\mu\text{s}$
	Storage Time	$t_{stg}$		—	5.1	—	
	Fall Time	$t_f$		—	0.6	—	

