

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS) (DARLINGTON)

2SD1224

PULSE MOTOR DRIVE, HAMMER DRIVE APPLICATIONS

SWITCHING APPLICATIONS

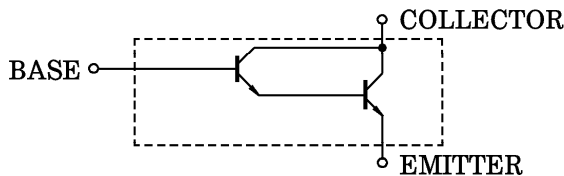
POWER AMPLIFIER APPLICATIONS

- High DC Current Gain
: $h_{FE} = 4000$ (Min.)
- Low Saturation Voltage
: $V_{CE(sat)} = 1.5$ V (Max.)

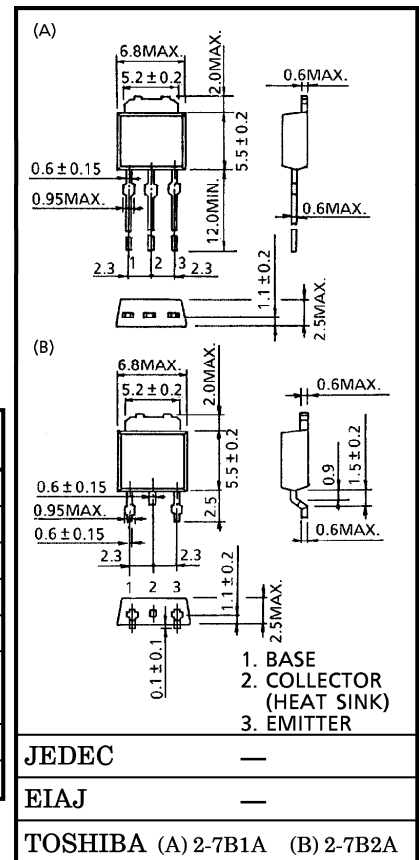
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	30	V
Collector-Emitter Voltage		V_{CEO}	30	V
Emitter-Base Voltage		V_{EBO}	10	V
Collector Current		I_C	1.5	A
Base Current		I_B	0.15	A
Collector Power Dissipation	$T_a = 25^\circ\text{C}$	P_C	1.0	W
	$T_c = 25^\circ\text{C}$		10	
Junction Temperature		T_j	150	$^\circ\text{C}$
Storage Temperature Range		T_{stg}	-55~150	$^\circ\text{C}$

EQUIVALENT CIRCUIT



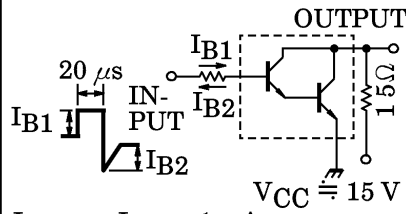
Unit in mm



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 30\text{ V}, I_E = 0$	—	—	10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 10\text{ V}, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 10\text{ mA}, I_B = 0$	30	—	—	V
DC Current Gain		h_{FE}	$V_{CE} = 2\text{ V}, I_C = 150\text{ mA}$	4000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$	—	—	1.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$	—	—	2.2	V
Switching Time	Turn-on Time	t_{on}	 <p>$I_{B1} = -I_{B2} = 1\text{ mA}$, DUTY CYCLE $\leq 1\%$</p>	—	0.18	—	μs
	Storage Time	t_{stg}		—	0.6	—	
	Fall Time	t_f		—	0.3	—	

