

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

# 2SD1222

SWITCHING APPLICATIONS

HAMMER DRIVE, PULSE MOTOR DRIVE APPLICATIONS

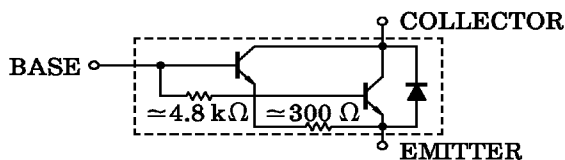
POWER AMPLIFIER APPLICATIONS

- High DC Current Gain  
:  $h_{FE(1)} = 2000$  (Min.)
- Low Saturation Voltage :  $V_{CE(sat)} = 1.5$  V (Max.)
- Complementary to 2SB907.

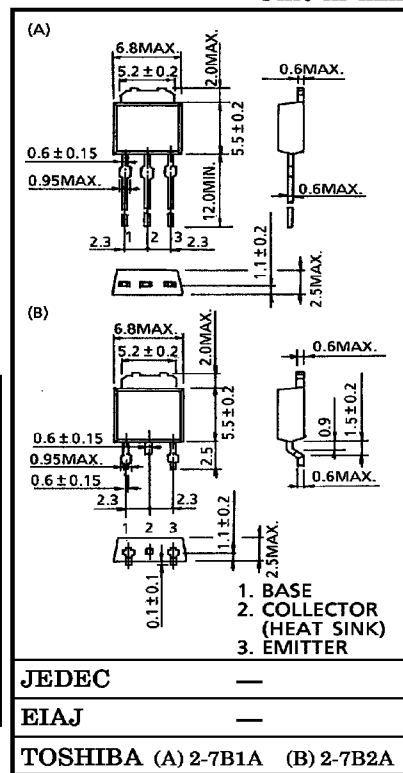
MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	60	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	3	A
Base Current	$I_B$	0.3	A
Collector Power Dissipation	$P_C$	$T_a = 25^\circ\text{C}$	1.0
		$T_c = 25^\circ\text{C}$	15
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$

EQUIVALENT CIRCUIT



Unit in mm



Weight : 0.36 g (Typ.)

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**ELECTRICAL CHARACTERISTICS (Ta = 25°C)**

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = 60 V, I <sub>E</sub> = 0	—	—	20	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0	—	—	2.5	mA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I <sub>C</sub> = 25 mA, I <sub>B</sub> = 0	40	—	—	V
DC Current Gain		h <sub>FE</sub> (1)	V <sub>CE</sub> = 2 V, I <sub>C</sub> = 1 A	2000	—	—	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 2 V, I <sub>C</sub> = 3 A	1000	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE</sub> (sat)	I <sub>C</sub> = 2 A, I <sub>B</sub> = 4 mA	—	—	1.5	V
Base-Emitter Saturation Voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = 2 A, I <sub>B</sub> = 4 mA	—	—	2.0	V
Switching Time	Turn-on Time	t <sub>on</sub>	<p> <math>I_{B1} = -I_{B2} = 6 \text{ mA}</math>,                      DUTY CYCLE <math>\leq 1\%</math> </p>	—	0.1	—	μs
	Storage Time	t <sub>stg</sub>		—	1.0	—	
	Fall Time	t <sub>f</sub>		—	—	0.2	

