

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

2SD1224

Unit in mm

PULSE MOTOR DRIVE, HAMMER DRIVE APPLICATIONS

SWITCHING APPLICATIONS

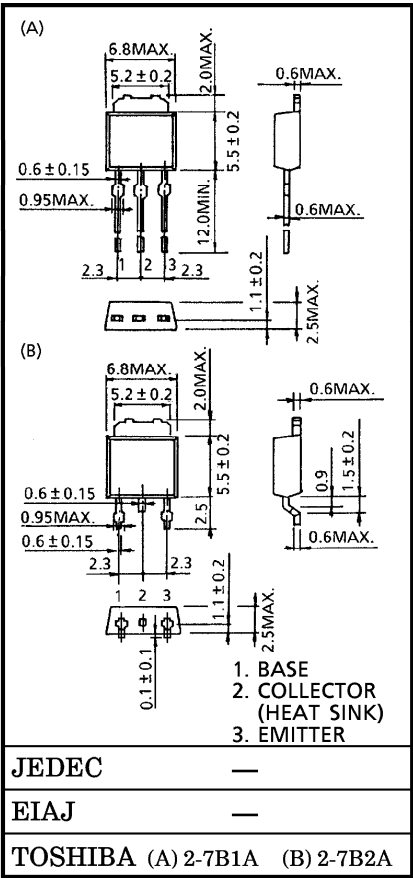
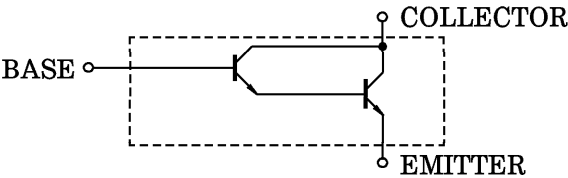
POWER AMPLIFIER APPLICATIONS

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

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

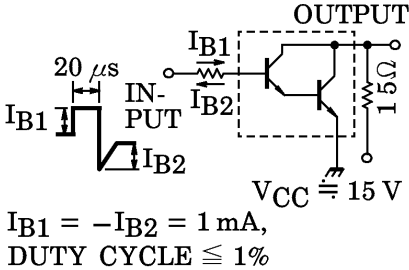
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	30	V
Collector-Emitter Voltage		$V_{CEO}$	30	V
Emitter-Base Voltage		$V_{EBO}$	10	V
Collector Current		$I_C$	1.5	A
Base Current		$I_B$	0.15	A
Collector Power Dissipation	$T_a = 25^{\circ}\text{C}$	$P_C$	1.0	W
	$T_c = 25^{\circ}\text{C}$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

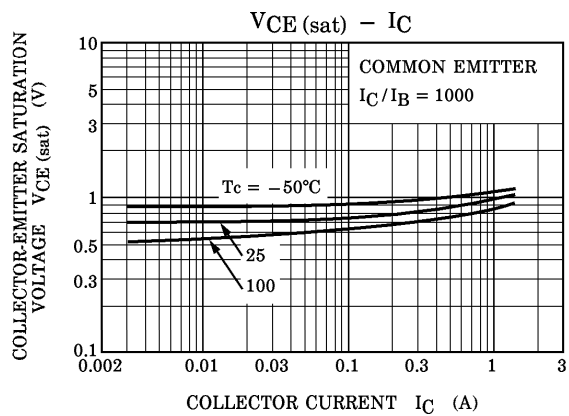
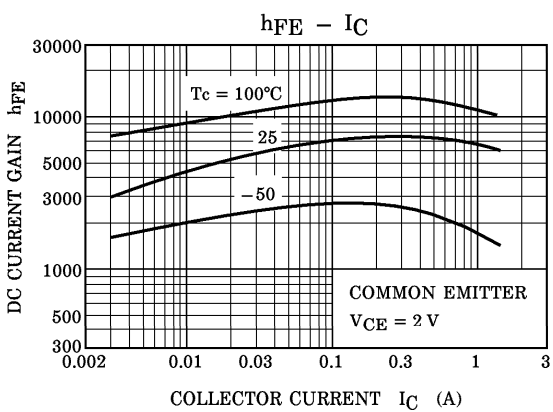
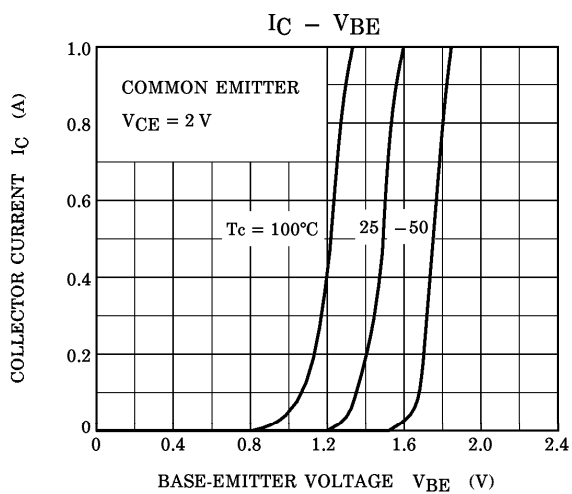
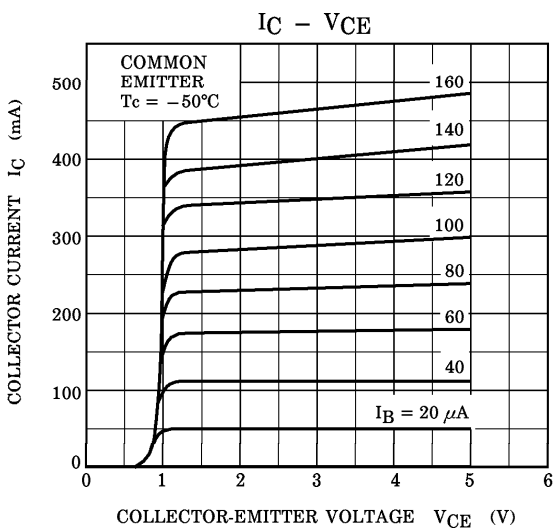
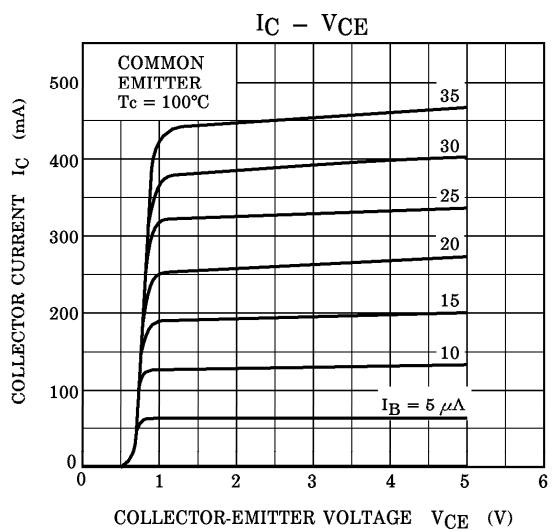
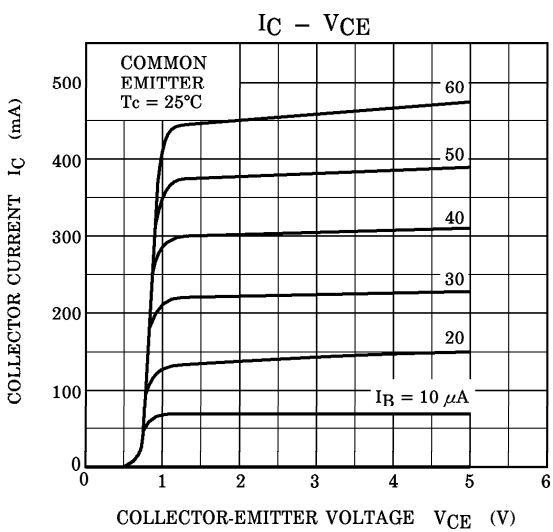
EQUIVALENT CIRCUIT

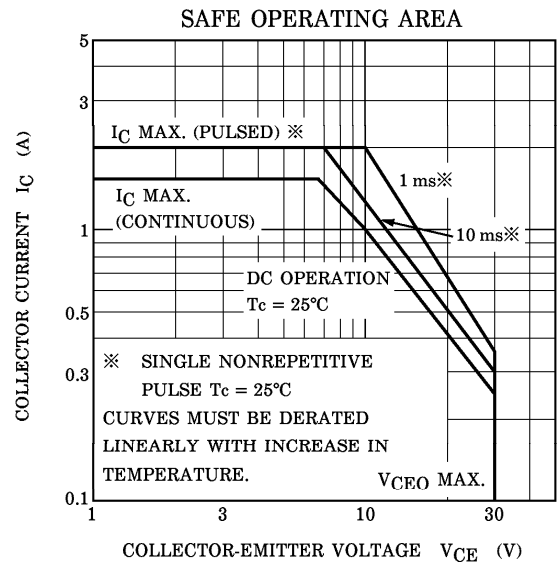
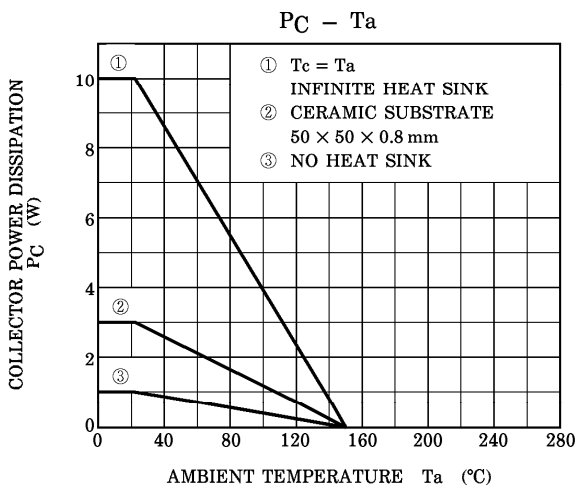
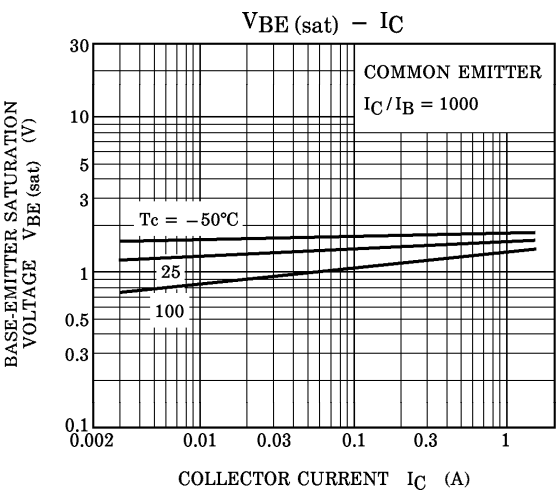


Weight : 0.36 g (Typ.)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = 30 V, I <sub>E</sub> = 0	—	—	10	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = 10 V, I <sub>C</sub> = 0	—	—	10	μA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0	30	—	—	V
DC Current Gain		h <sub>FE</sub>	V <sub>CE</sub> = 2 V, I <sub>C</sub> = 150 mA	4000	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE (sat)</sub>	I <sub>C</sub> = 1 A, I <sub>B</sub> = 1 mA	—	—	1.5	V
Base-Emitter Saturation Voltage		V <sub>BE (sat)</sub>	I <sub>C</sub> = 1 A, I <sub>B</sub> = 1 mA	—	—	2.2	V
Switching Time	Turn-on Time	t <sub>on</sub>	 I <sub>B1</sub> = -I <sub>B2</sub> = 1 mA, DUTY CYCLE ≤ 1%	—	0.18	—	μs
	Storage Time	t <sub>stg</sub>		—	0.6	—	
	Fall Time	t <sub>f</sub>		—	0.3	—	





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