

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE (PCT PROCESS)

2SD1221

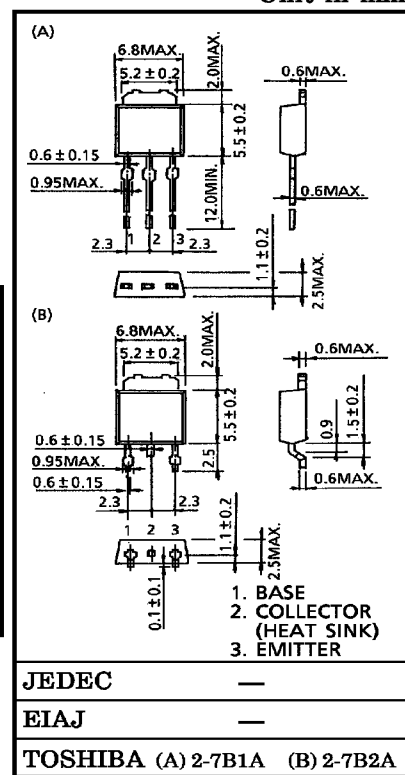
AUDIO FREQUENCY POWER AMPLIFIER APPLICATION

Unit in mm

- Low Collector Saturation Voltage
: $V_{CE(sat)} = 0.4 \text{ V (Typ.)}$
- High Power Dissipation : $P_C = 20 \text{ W}$
- Complementary to 2SB906

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EB0}	7	V
Collector Current	I_C	3	A
Base Current	I_B	0.5	A
Collector Power Dissipation	P_C	1.0 20	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

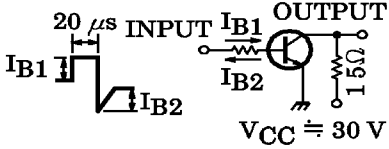


Weight : 0.36 g (Typ.)

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$	—	—	100	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	60	—	—	V
DC Current Gain	$h_{FE(1)}$ (Note)		$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	60	—	300	
	$h_{FE(2)}$		$V_{CE} = 5\text{ V}, I_C = 3\text{ A}$	20	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 3\text{ A}, I_B = 0.3\text{ A}$	—	0.4	1.0	V
Base-Emitter Voltage		V_{BE}	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	—	0.7	1.0	V
Transition Frequency		f_T	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	—	3.0	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	70	—	pF
Switching Time	Turn-on Time	t_{on}	 20 μs INPUT I_{B1} OUTPUT I_{B1} I_{B2} $V_{CC} = 30\text{ V}$ $I_{B1} = -I_{B2} = 0.2\text{ A}$, DUTY CYCLE $\leq 1\%$	—	0.8	—	μs
	Storage Time	t_{stg}		—	1.5	—	
	Fall Time	t_f		—	0.8	—	

Note : $h_{FE(1)}$ Classification O : 60~120, Y : 100~200, GR : 150~300

