

TOSHIBA Transistor Silicon NPN Diffused Type (PCT process)

2SD1221

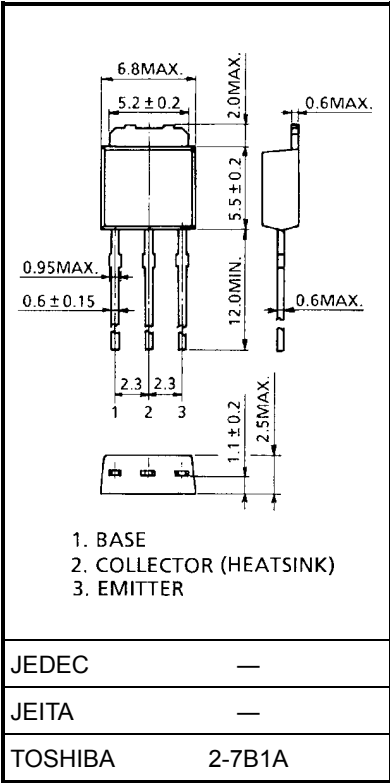
Audio Frequency Power Amplifier Application

- Low collector saturation voltage
: $V_{CE(sat)} = 4.0\text{ V (typ.)}$ ($I_C = 3\text{ A}$, $I_B = 0.3\text{ A}$)
- High power dissipation: $P_C = 20\text{ W}$ ($T_c = 25^\circ\text{C}$)
- Complementary to 2SB906

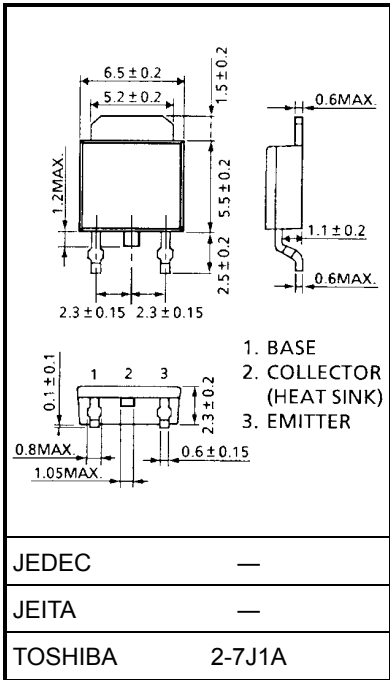
Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	60	V
Collector-emitter voltage		V_{CEO}	60	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	3	A
Base current		I_B	0.5	A
Collector power dissipation	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		20	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

Unit: mm

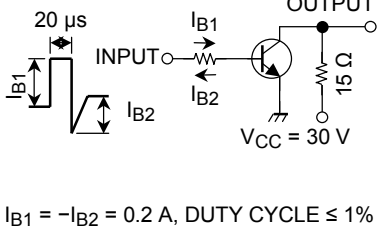


Weight: 0.36 g (typ.)



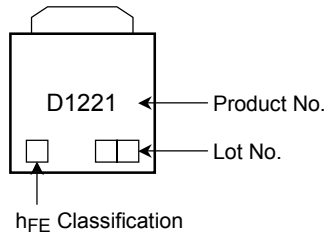
Weight: 0.36 g (typ.)

Electrical Characteristics (Ta = 25°C)

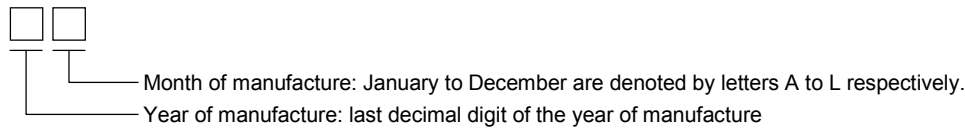
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$	—	—	100	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = 7\text{ V}, I_C = 0$	—	—	100	μA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	60	—	—	V
DC 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}	 $I_{B1} = -I_{B2} = 0.2\text{ A}, \text{DUTY CYCLE} \leq 1\%$	—	0.8	—	μs
	Storage time	t_{stg}		—	1.5	—	
	Fall time	t_f		—	0.8	—	

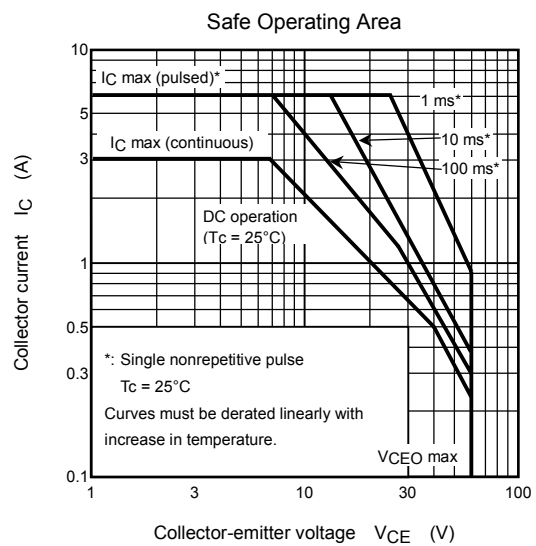
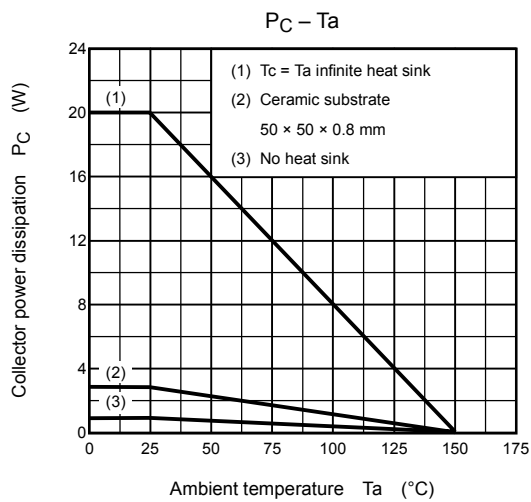
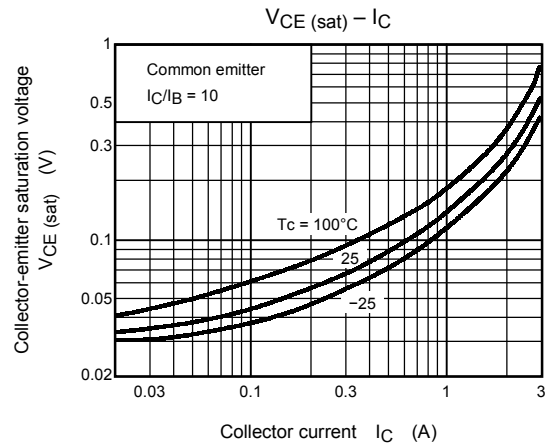
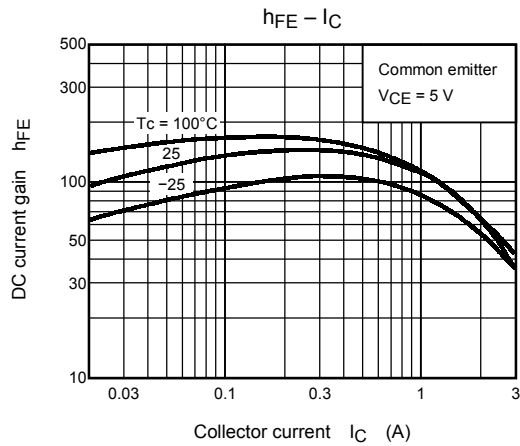
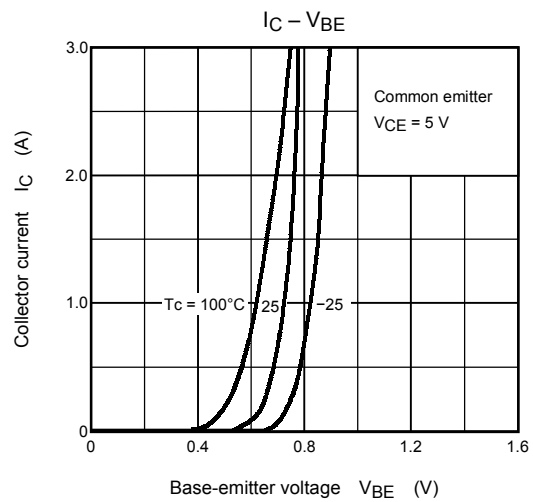
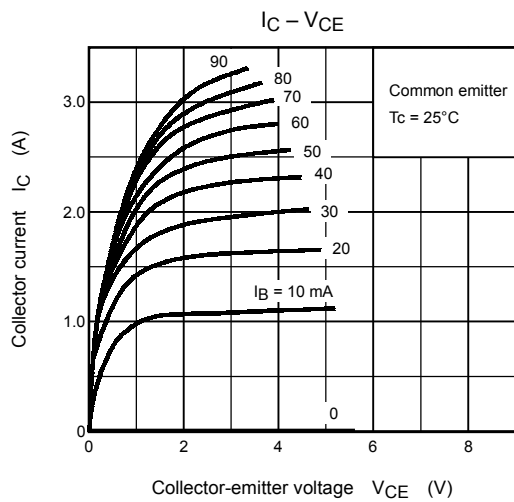
Note: h_{FE} classification O: 60 to 120, Y: 100 to 200, GR: 150 to 300

Marking



Explanation of Lot No.





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