TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

2SD1220

Power Amplifier Applications

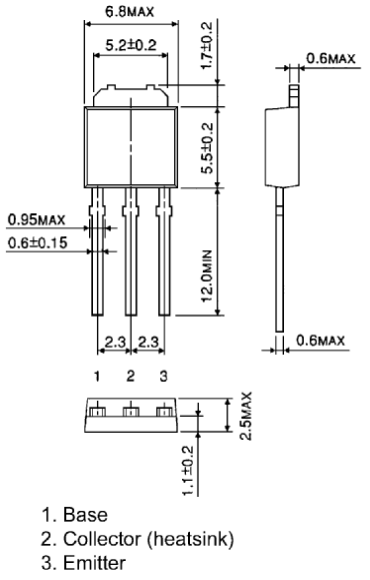
- Complementary to 2SB905

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	150	V
Collector-emitter voltage		V_{CEO}	150	V
Emitter-base voltage		V_{EBO}	6	V
Collector current		I_C	1.5	A
Base current		I_B	1.0	A
Collector power dissipation	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		10	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

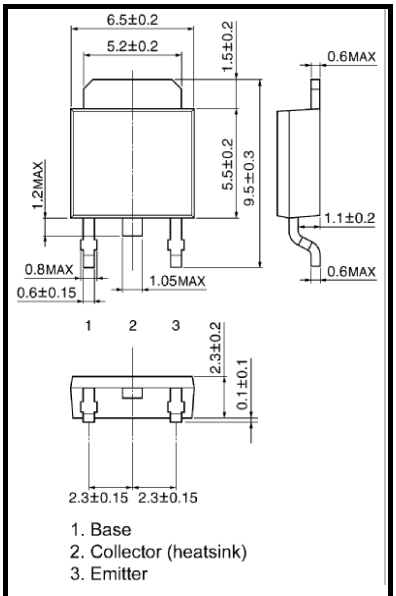
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-7B1A

Weight: 0.36 g (typ.)



JEDEC	—
JEITA	—
TOSHIBA	2-7J1A

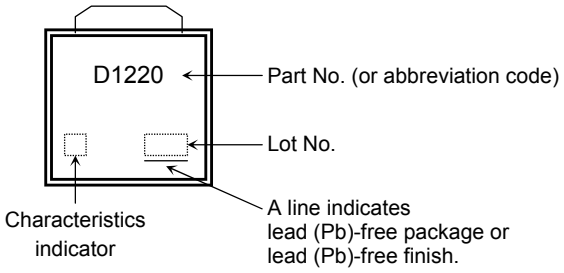
Weight: 0.36 g (typ.)

Electrical Characteristics (Ta = 25°C)

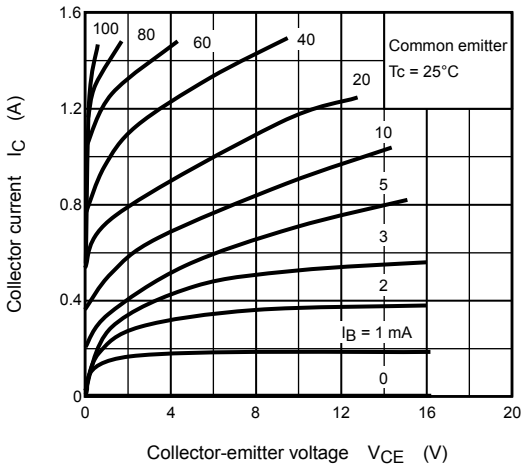
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = 150 V, I_E = 0	—	—	1.0	μA
Emitter cut-off current	I_{EBO}	V_{EB} = 6 V, I_C = 0	—	—	1.0	μA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	150	—	—	V
DC current gain	h_{FE} (Note)	V_{CE} = 5 V, I_C = 200 mA	60	—	320	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = 500 mA, I_B = 50 mA	—	—	1.5	V
Base-emitter voltage	V_{BE}	V_{CE} = 5 V, I_C = 5 mA	0.5	—	0.8	V
Transition frequency	f_T	V_{CE} = 5 V, I_C = 200 mA	20	100	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	13	20	pF

Note: h_{FE} classification R: 60 to 120, O: 100 to 200, Y: 160 to 320

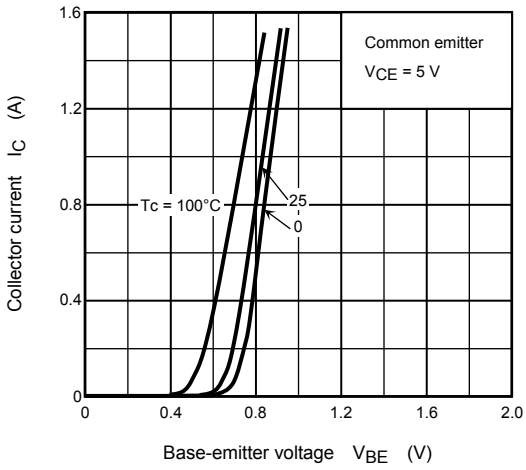
Marking



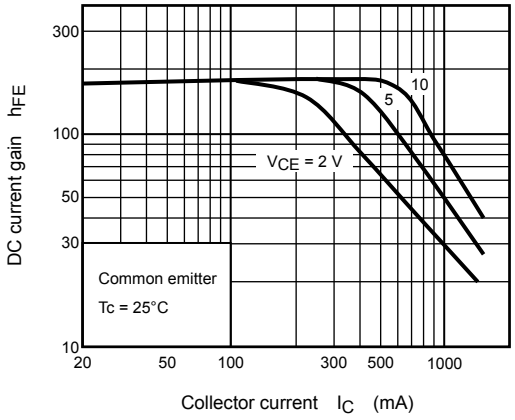
$I_C - V_{CE}$



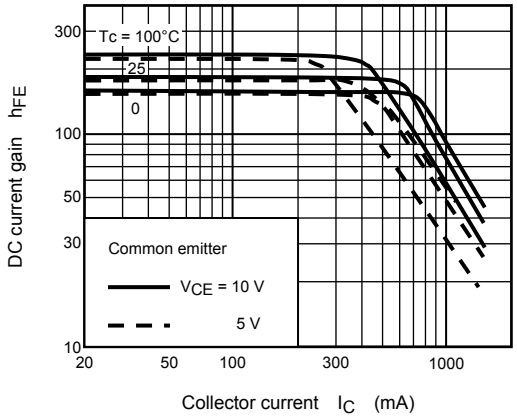
$I_C - V_{BE}$



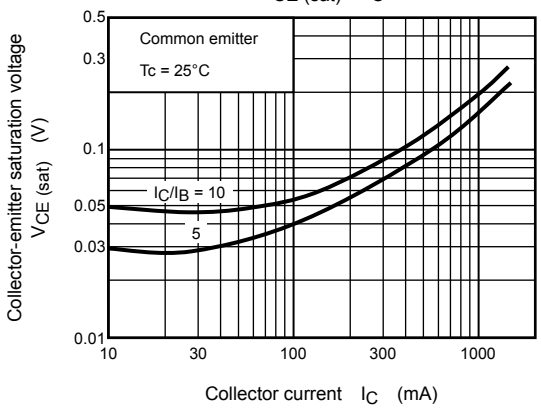
$h_{FE} - I_C$



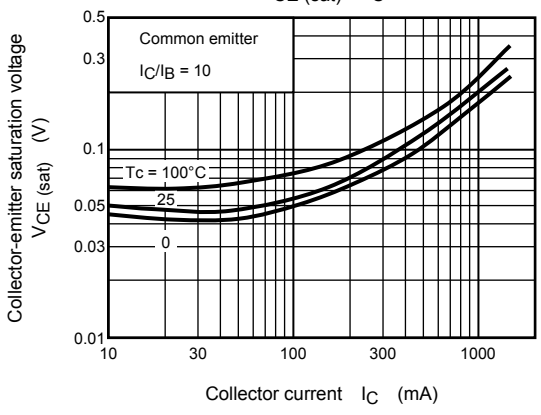
$h_{FE} - I_C$



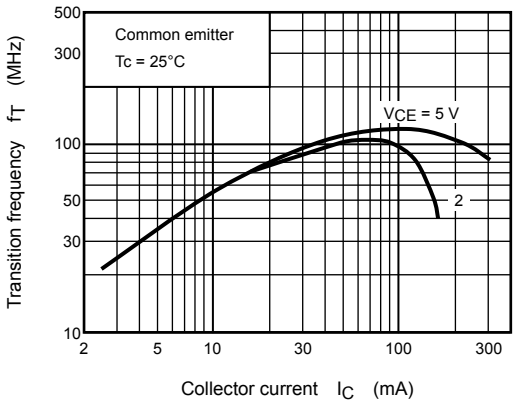
$V_{CE\ (sat)} - I_C$



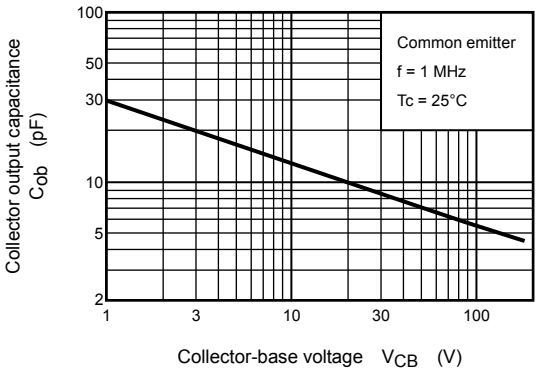
$V_{CE\ (sat)} - I_C$



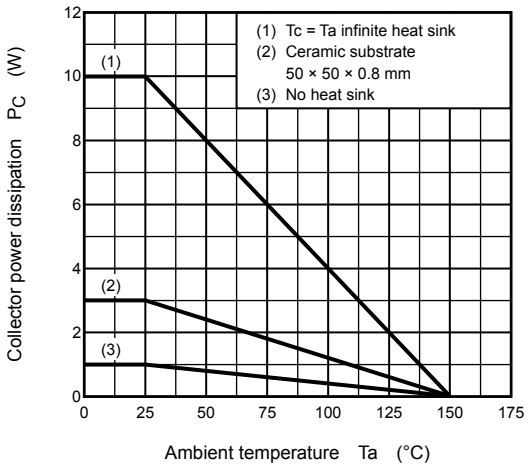
$f_T - I_C$



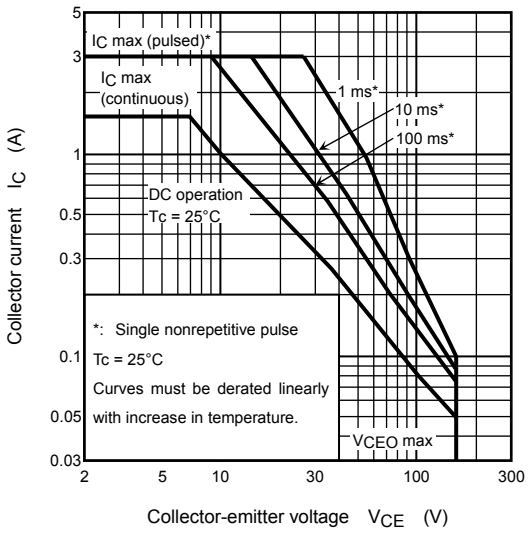
$C_{ob} - V_{CB}$



$P_C - Ta$



Safe Operating Area



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