TOSHIBA Transistor Silicon NPN Epitaxial Type (Darlington Power Transistor)

2SD2206

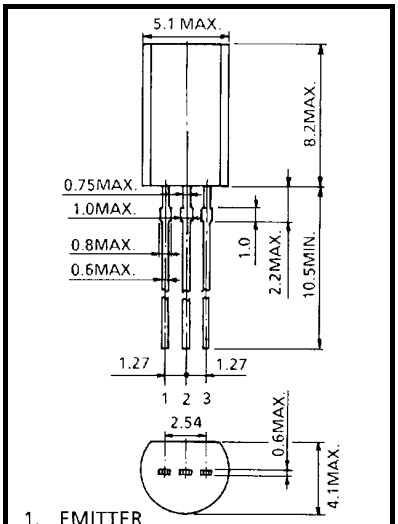
Micro Motor Drive, Hammer Drive Applications
Switching Applications
Power Amplifier Applications

- High DC current gain: h_{FE} = 2000 (min) (V_{CE} = 2 V, I_C = 1 A)
- Low saturation voltage: $V_{CE\ (sat)}$ = 1.5 V (max) (I_C = 1 A, I_B = 1 mA)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	100	V
Collector-emitter voltage		V_{CEO}	100	V
Emitter-base voltage		V_{EBO}	8	V
Collector current	DC	I_C	2	A
	Pulse	I_{CP}	3	
Base current		I_B	0.5	A
Collector power dissipation		P_C	900	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

Unit: mm

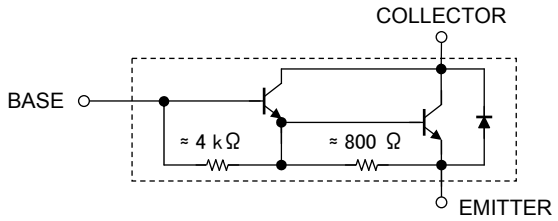


JEDEC	TO-92MOD
JEITA	—
TOSHIBA	2-5J1A

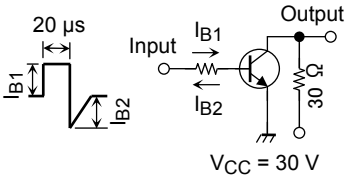
Weight: 0.36 g (typ.)

Note1: 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).

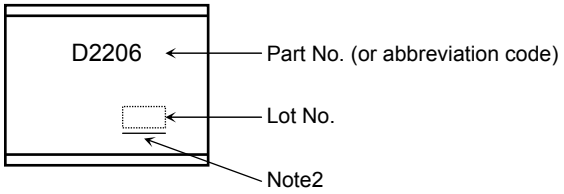
Equivalent Circuit



Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 80 V, I_E = 0	—	—	10	μA
Emitter cut-off current		I_{EBO}	V_{EB} = 8 V, I_C = 0	—	—	4	mA
Collector- emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	100	—	—	V
DC current gain		h_{FE}	V_{CE} = 2 V, I_C = 1 A (pulse)	2000	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 1 A, I_B = 1 mA (pulse)	—	—	1.5	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 1 A, I_B = 1 mA (pulse)	—	—	2.0	V
Transition frequency		f_T	V_{CE} = 2 V, I_C = 0.5 A	—	100	—	MHz
Collector output capacitance		C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1 MHz	—	20	—	pF
Switching time	Turn-on time	t_{on}		—	0.4	—	μs
	Storage time	t_{stg}		—	4.0	—	
	Fall time	t_f	I_{B1} = 1 mA, I_{B2} = 1 mA, duty cycle ≤ 1%	—	0.6	—	

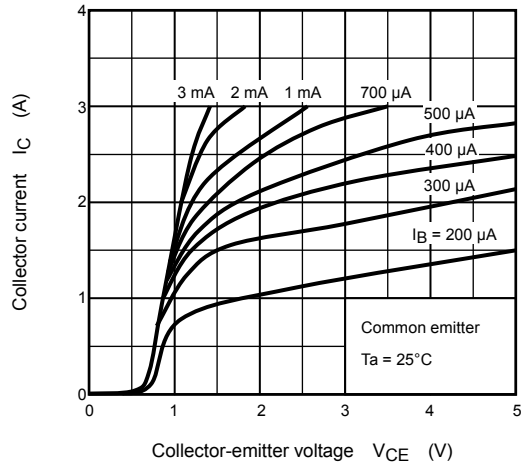
Marking



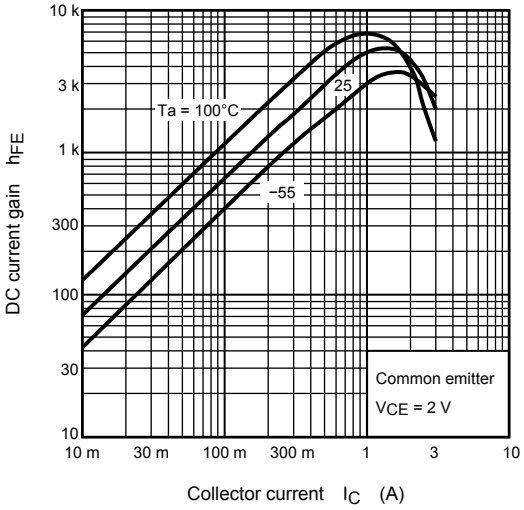
Note2: A line under a Lot No. identifies the indication of product Labels.
Not underlined: [[Pb]]/INCLUDES > MCV
Underlined: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

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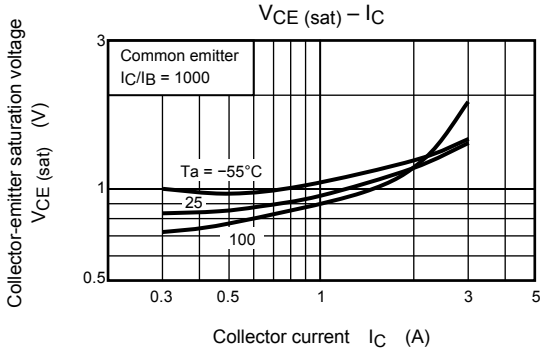
$I_C - V_{CE}$



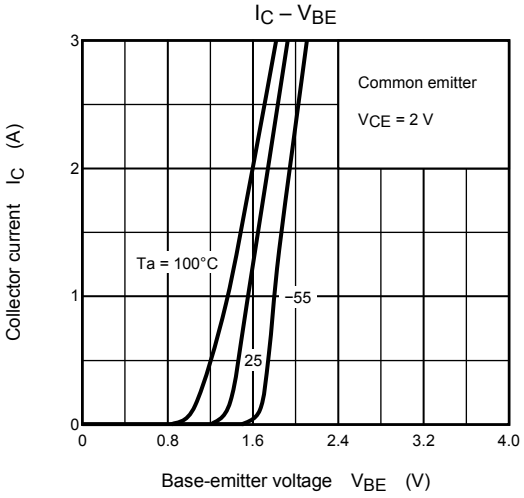
$h_{FE} - I_C$



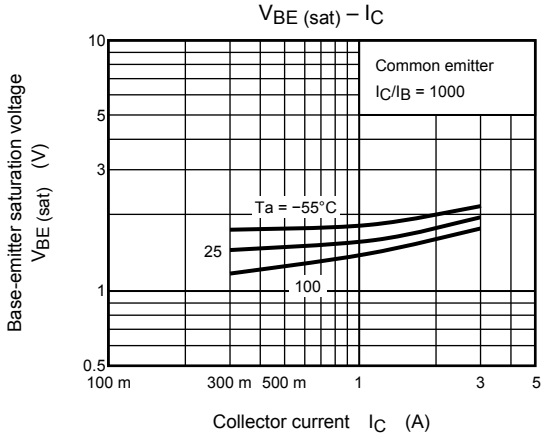
$V_{CE\ (sat)} - I_C$



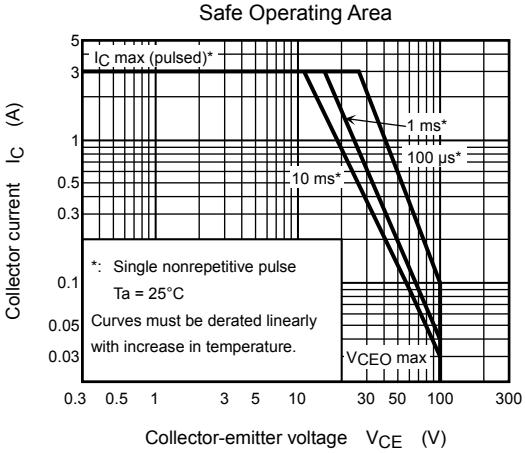
$I_C - V_{BE}$



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



Safe Operating Area



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