

TOSHIBA Transistor Silicon PNP Epitaxial Type (Darlington)

2SB1617

Micro Motor Drive, Hammer Drive Applications

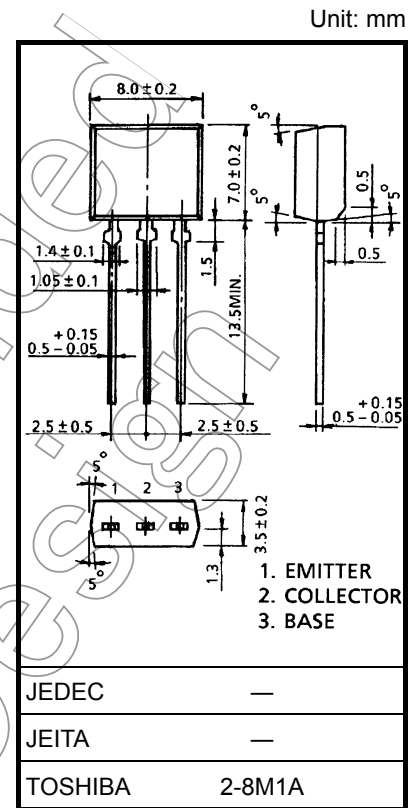
Power Switching Applications

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

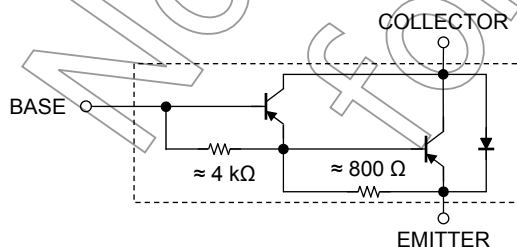
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-100	V
Collector-emitter voltage	V_{CEO}	-100	V
Emitter-base voltage	V_{EBO}	-8	V
Collector current	I_C (DC)	-2	A
Collector current	I_C (Pulse)	-3	A
Base current	I_B	-0.5	A
Collector power dissipation	P_C	1.3	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$



Weight: 0.55 g (typ.)

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).

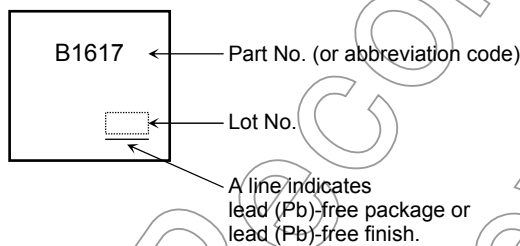
Equivalent Circuit

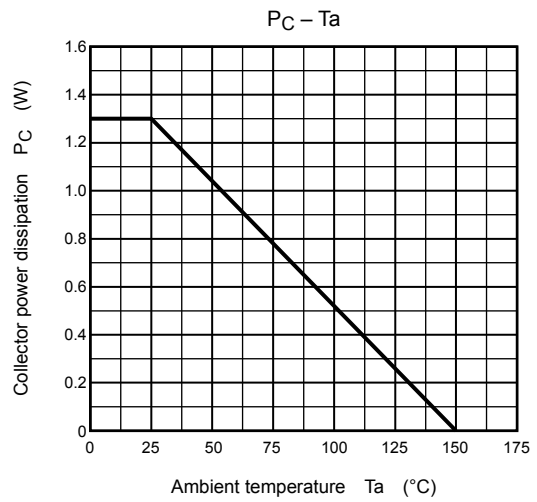
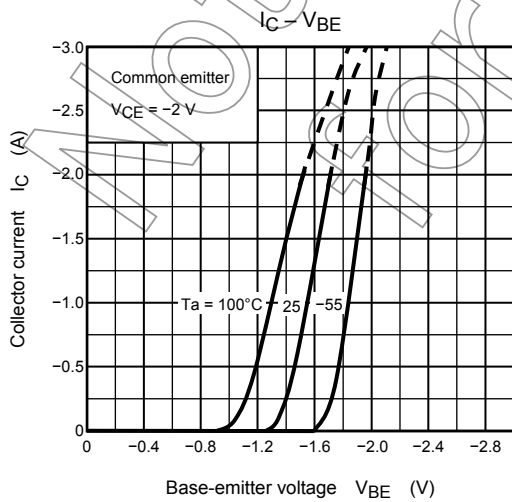
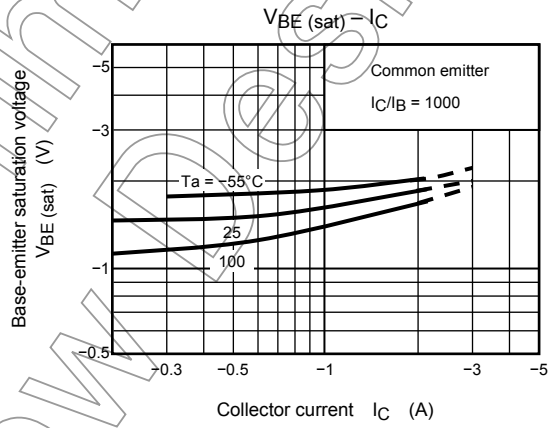
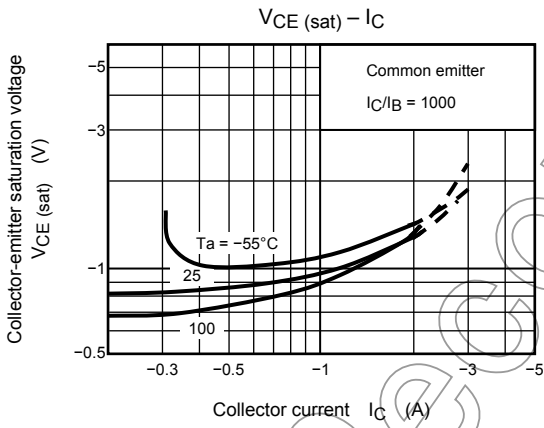
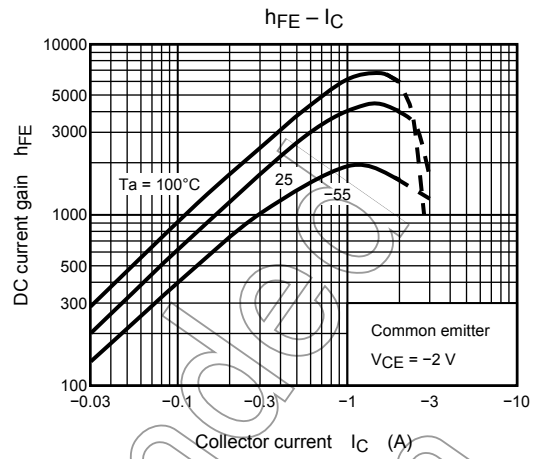
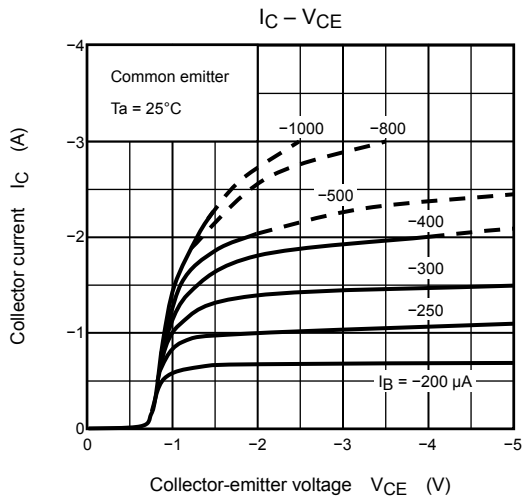


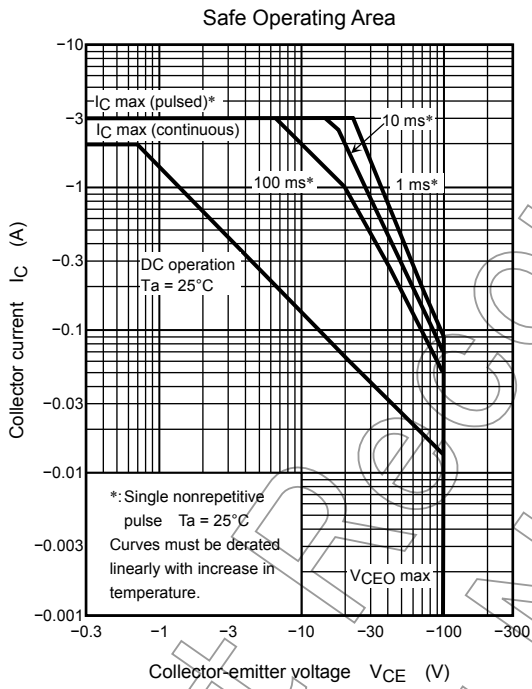
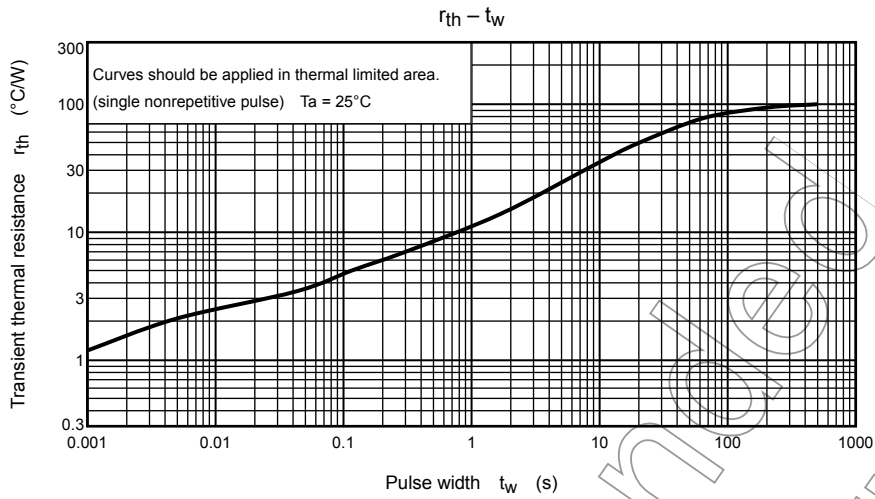
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = -80\text{ V}, I_E = 0$	—	—	-10	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = -8\text{ V}, I_C = 0$	—	—	-4	mA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-100	—	—	V
DC current gain		h_{FE}	$V_{CE} = -2\text{ V}, I_C = -1\text{ A}$	2000	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -1\text{ A}, I_B = -1\text{ mA}$	—	—	-1.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -1\text{ A}, I_B = -1\text{ mA}$	—	—	-2.0	V
Transition frequency		f_T	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	—	50	—	MHz
Collector output capacitance		C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	27	—	pF
Switching time	Turn-on time	t_{on}	<p style="text-align: center;">$V_{CC} = -30\text{ V}$</p>	—	0.4	—	μs
	Storage time	t_{stg}		—	2.0	—	
	Fall time	t_f		—	0.4	—	
			$-I_{B1} = I_{B2} = 1\text{ mA}, \text{duty cycle} \leq 1\%$				

Marking







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20070701-EN

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