

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1382

Power Amplifier Applications
High-Speed Switching Applications

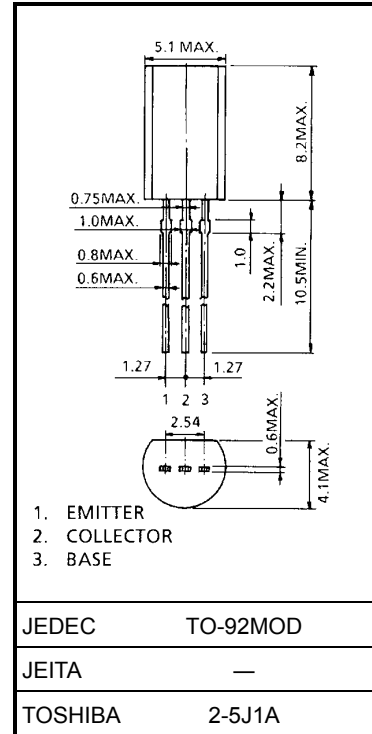
Industrial Applications

Unit: mm

- High DC current gain: $h_{FE} = 150$ to 400 ($I_C = -0.5$ A)
- Low collector saturation voltage: $V_{CE(sat)} = -0.5$ V (max) ($I_C = -1$ A)
- High-speed switching: $t_{stg} = 1.0$ μ s (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	-50	V
Collector-emitter voltage		V_{CEO}	-50	V
Emitter-base voltage		V_{EBO}	-7	V
Collector current	DC	I_C	-2	A
	Peak	I_{CP}	-4	
Base current		I_B	-1	A
Collector power dissipation		P_C	900	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C



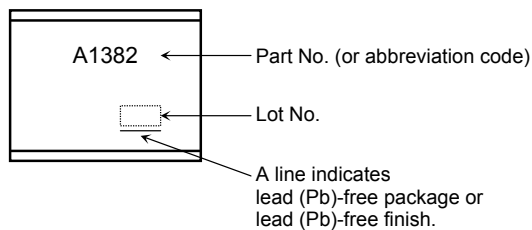
Weight: 0.36 g (typ.)

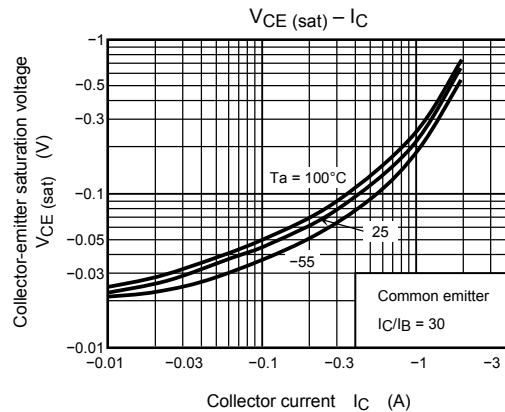
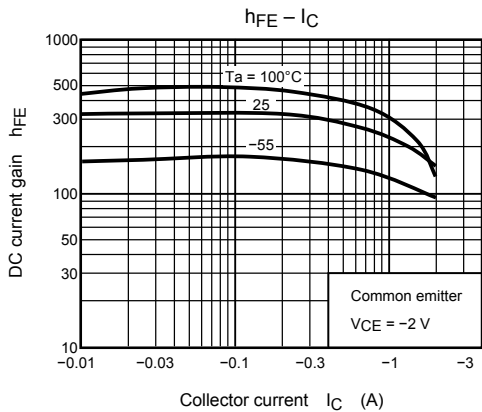
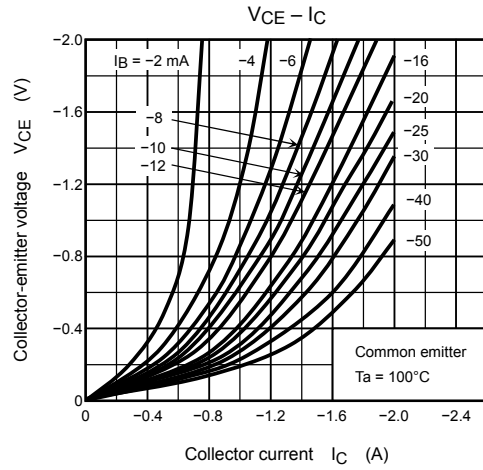
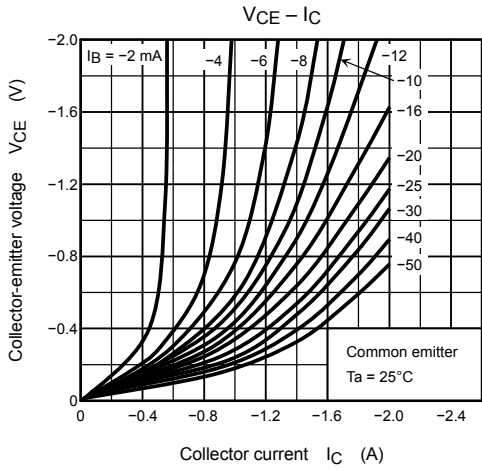
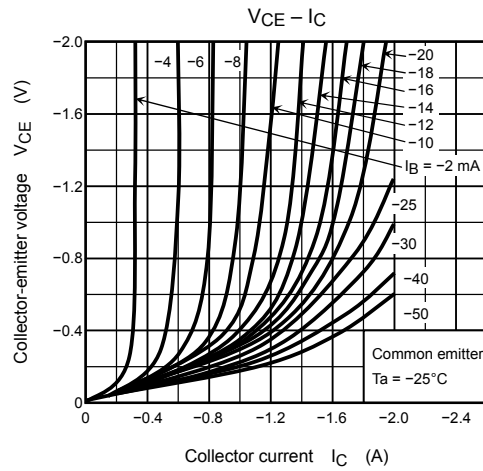
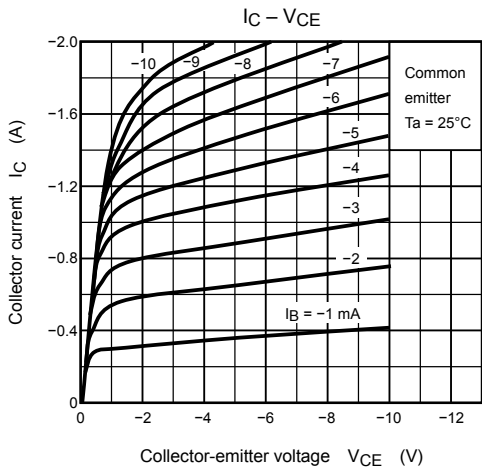
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

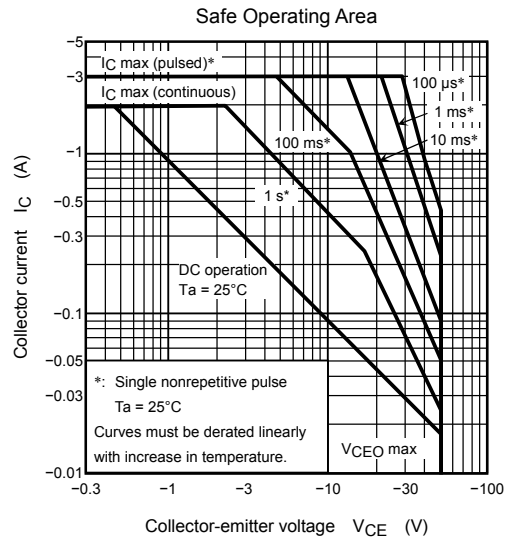
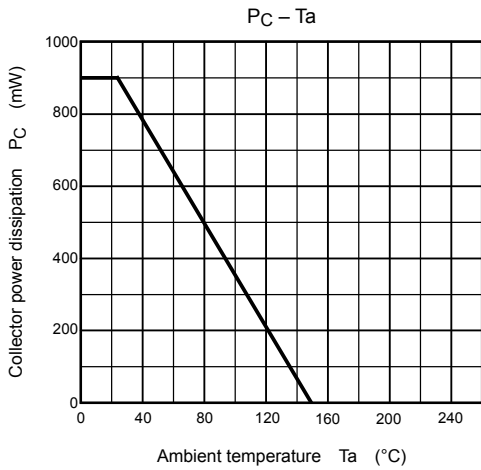
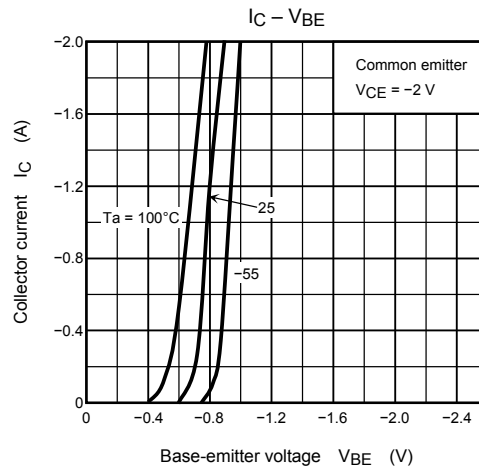
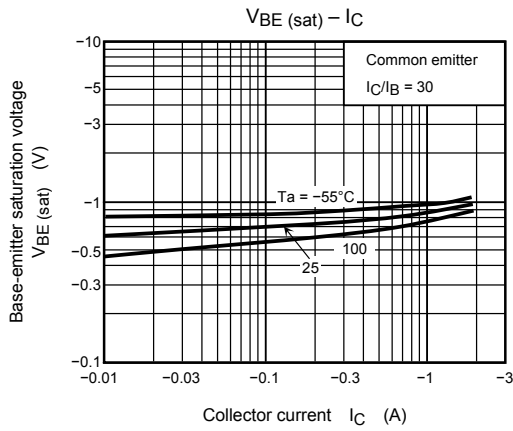
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = -50\text{ V}, I_E = 0$	—	—	-0.1	μA
Emitter cut-off current		I_{EBO}	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-0.1	μA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-50	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	150	—	400	
		$h_{FE(2)}$	$V_{CE} = -2\text{ V}, I_C = -1.5\text{ A}$	60	—	—	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -1\text{ A}, I_B = -0.033\text{ A}$	—	-0.2	-0.5	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -1\text{ A}, I_B = -0.033\text{ A}$	—	-0.9	-1.2	V
Transition frequency		f_T	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	—	110	—	MHz
Collector output capacitance		C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	50	—	pF
Switching time	Turn-on time	t_{on}	<p style="text-align: center;">-$I_{B1} = I_{B2} = 0.033\text{ A}$, duty cycle $\leq 1\%$</p>	—	0.2	—	μs
	Storage time	t_{stg}		—	1.0	—	
	Fall time	t_f		—	0.2	—	

Marking







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20070701-EN

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