

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

2SA1431

Strobe Flash Applications
 Medium Power Amplifier Applications

- High DC current gain and excellent hFE linearity
 : $h_{FE(1)} = 100$ to 320 ($V_{CE} = -2$ V, $I_C = -0.5$ A)
 : $h_{FE(2)} = 70$ (min) ($V_{CE} = -2$ V, $I_C = -4$ A)
- Low saturation voltage: $V_{CE(sat)} = -1.0$ V (max)
 ($I_C = -4$ A, $I_B = -0.1$ A)

Absolute Maximum Ratings (Ta = 25°C)

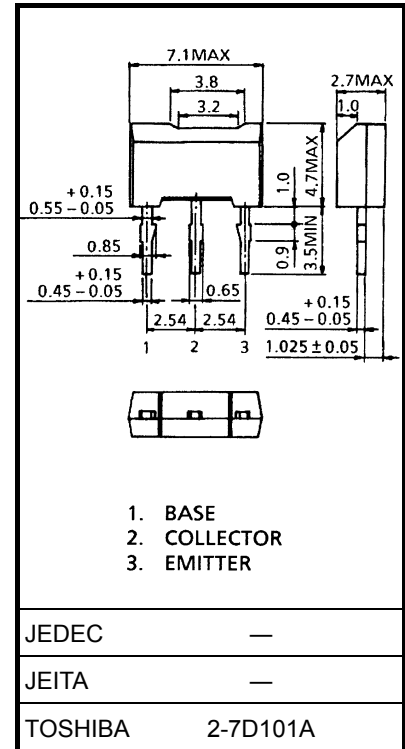
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	-35	V
Collector-emitter voltage		V_{CEO}	-20	V
Emitter-base voltage		V_{EBO}	-8	V
Collector current	DC	I_C	-5	A
	Pulsed (Note 1)	I_{CP}	-8	
Base current		I_B	-0.5	A
Collector power dissipation		P_C	1000	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-55 to 150	°C

Note 1: Pulse width = 10 ms (max), duty cycle = 30% (max)

Note 2: 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



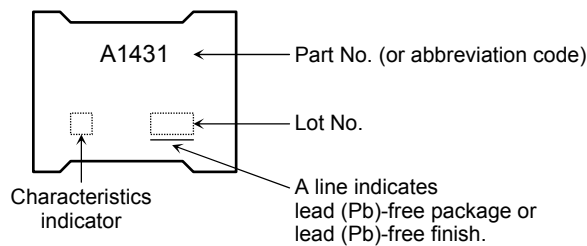
Weight: 0.2 g (typ.)

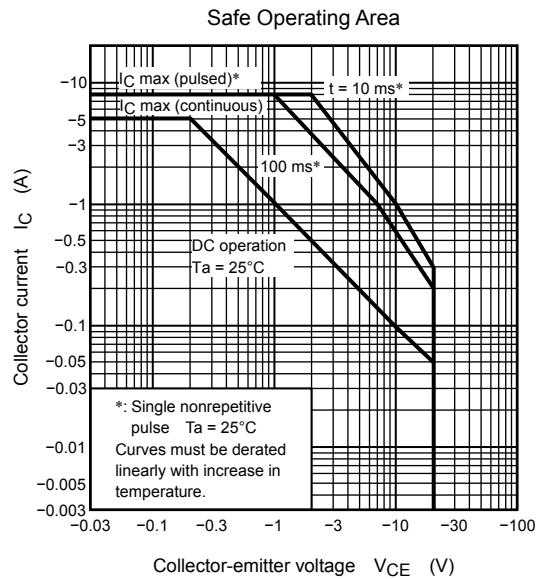
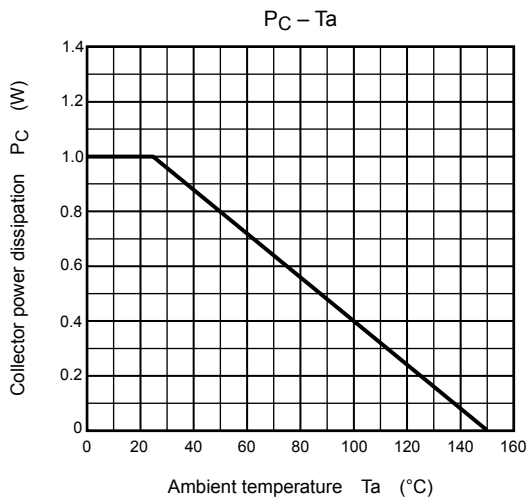
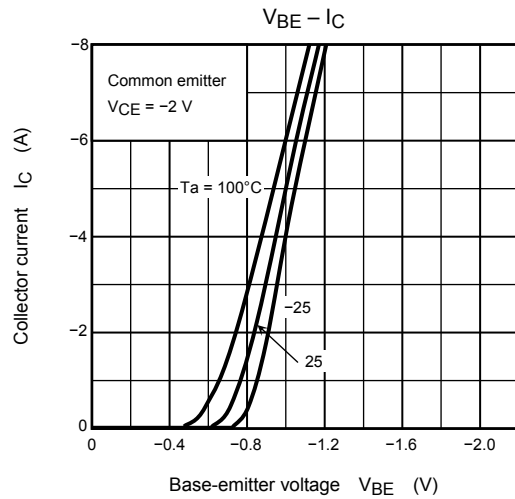
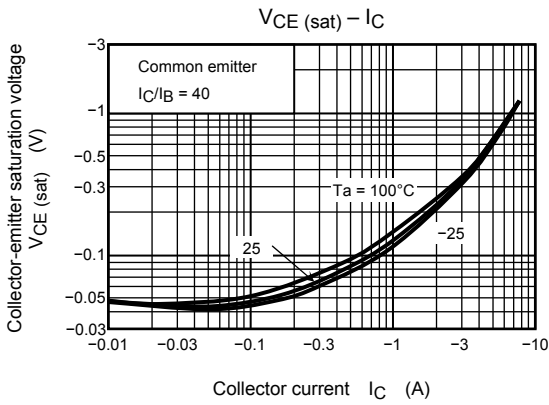
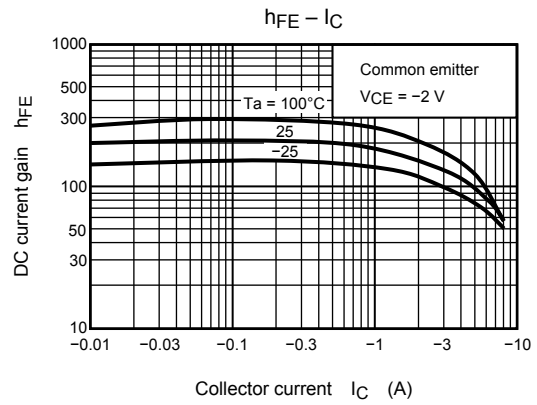
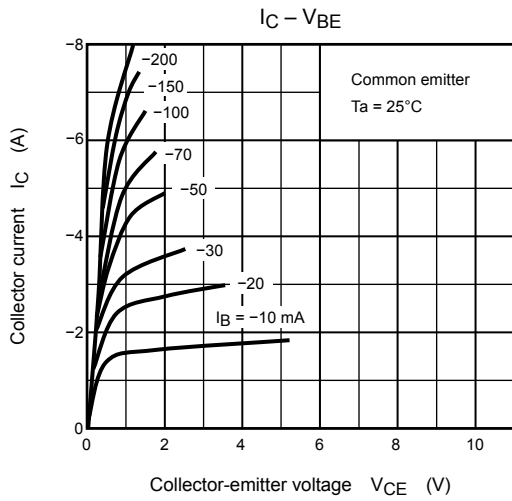
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = -35\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -8\text{ V}, I_C = 0$	—	—	-100	nA
Collector-emitter breakdown voltage	$V_{(BR) CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-20	—	—	V
Emitter-base breakdown voltage	$V_{(BR) EBO}$	$I_E = -1\text{ mA}, I_C = 0$	-8	—	—	V
DC current gain	$h_{FE (1)}$ (Note 3)	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	100	—	320	
	$h_{FE (2)}$	$V_{CE} = -2\text{ V}, I_C = -4\text{ A}$	70	—	—	
Collector-emitter saturation voltage	$V_{CE (sat)}$	$I_C = -4\text{ A}, I_B = -0.1\text{ A}$	—	—	-1.0	V
Base-emitter voltage	V_{BE}	$V_{CE} = -2\text{ V}, I_C = -4\text{ A}$	—	—	-1.5	V
Transition frequency	f_T	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	—	170	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	62	—	pF

Note 3: $h_{FE (1)}$ classification O: 100 to 200, Y: 160 to 320

Marking





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20070701-EN

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