TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

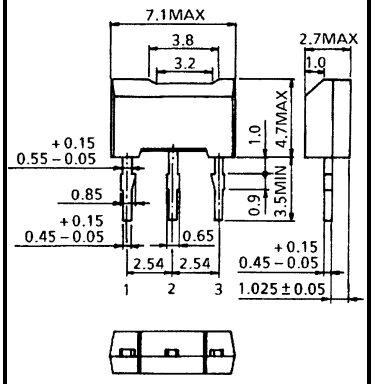
2SA1431

Strobe Flash Applications

Medium Power Amplifier Applications

- High DC current gain and excellent h_{FE} 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)

Unit: mm



1. BASE
2. COLLECTOR
3. EMITTER

JEDEC	—
JEITA	—
TOSHIBA	2-7D101A

Weight: 0.2 g (typ.)

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

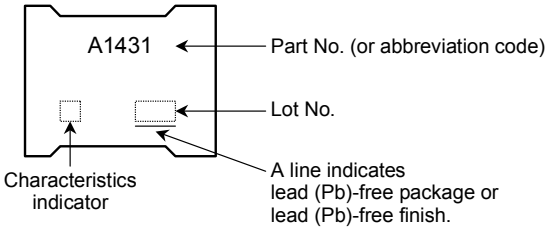
Note 1: Pulse width = 10 ms (max), duty cycle = 30% (max)

Electrical Characteristics (Ta = 25°C)

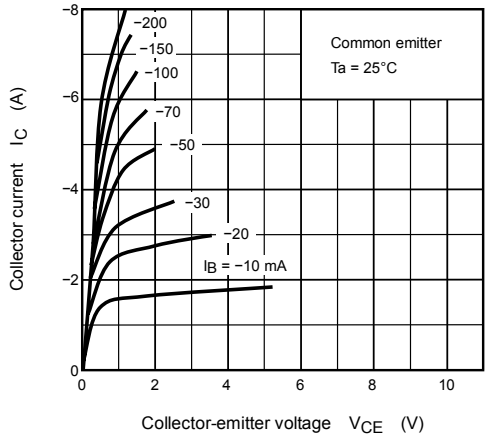
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −35 V, I_E = 0	—	—	−100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = −8 V, I_C = 0	—	—	−100	nA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −10 mA, I_B = 0	−20	—	—	V
Emitter-base breakdown voltage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

Note 2: $h_{FE\ (1)}$ classification O: 100 to 200, Y: 160 to 320

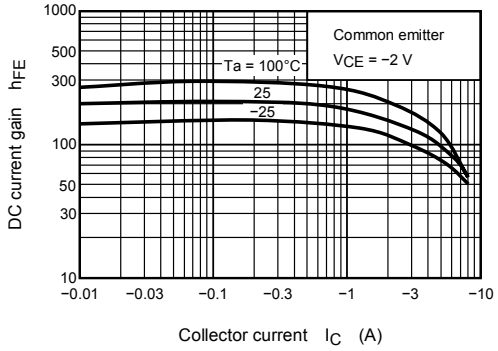
Marking


A1431
Part No. (or abbreviation code)
Lot No.
A line indicates
lead (Pb)-free package or
lead (Pb)-free finish.
Characteristics
indicator

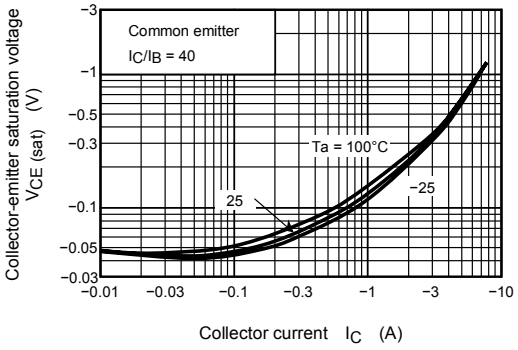
$I_C - V_{BE}$



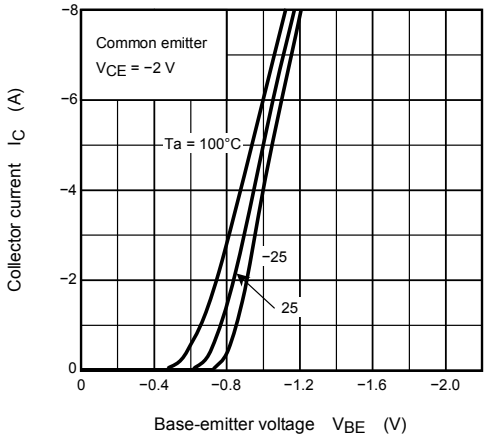
$h_{FE} - I_C$



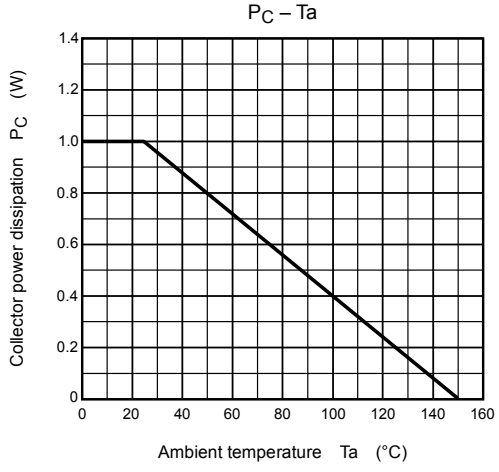
$V_{CE\ (sat)} - I_C$



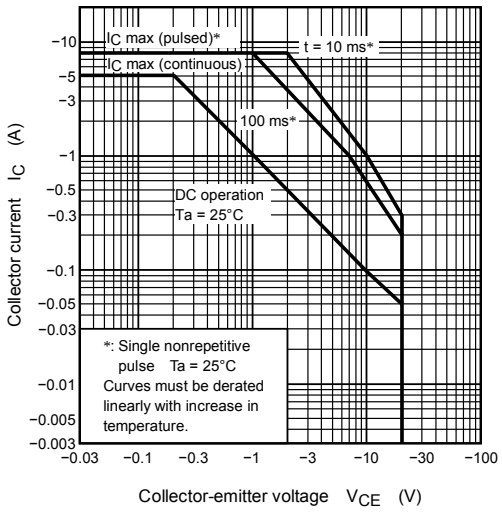
$V_{BE} - I_C$



$P_C - Ta$



Safe Operating Area



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