TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

2SA1242

Strobe Flash Applications

Medium Power Amplifier Applications

- 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 collector saturation voltage
  : $V_{CE\ (sat)}$ = −1.0 V (max) (I_C = −4 A, I_B = −0.1 A)
- High power dissipation
  : P_C = 10 W (T_c = 25°C), P_C = 1.0 W (T_a = 25°C)

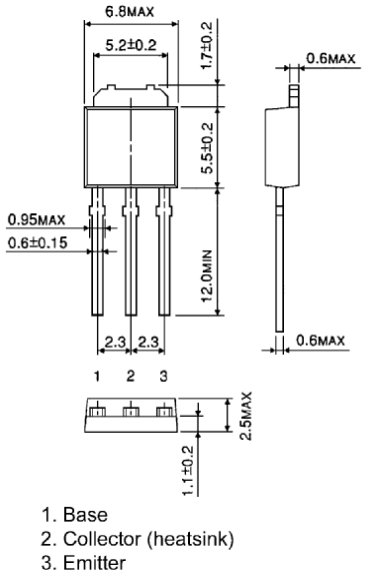
Absolute Maximum Ratings (Ta = 25°C)

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	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		10	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

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

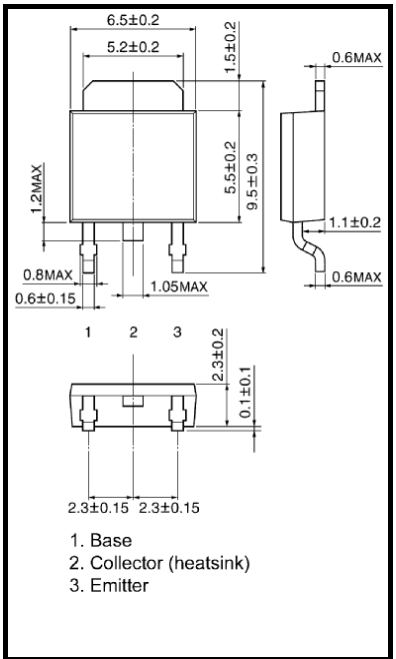
Note 2: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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



JEDEC	—
JEITA	—
TOSHIBA	2-7B1A

Weight: 0.36 g (typ.)



JEDEC	—
JEITA	—
TOSHIBA	2-7J1A

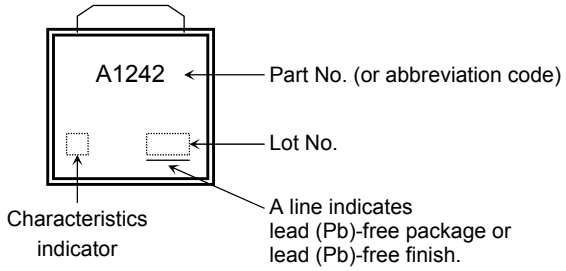
Weight: 0.36 g (typ.)

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_{CEO}	I_C = −10 mA, I_B = 0	−20	—	—	V
Emitter-base breakdown voltage	V_{EBO}	I_E = −1 mA, I_C = 0	−8	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note 3)	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 3: $h_{FE\ (1)}$ classification O: 100 to 200, Y: 160 to 320

Marking



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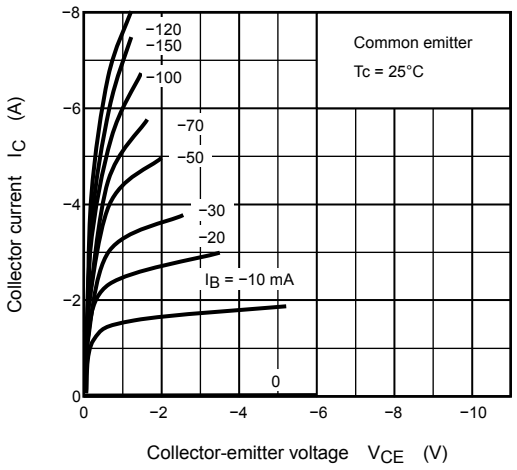
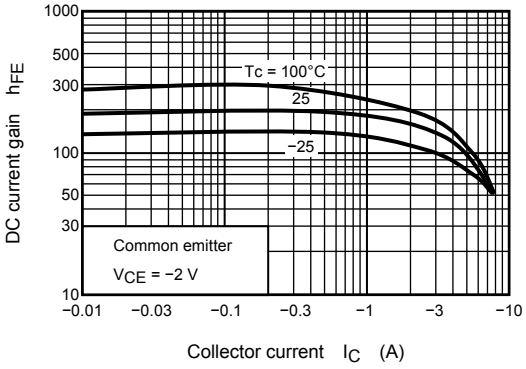
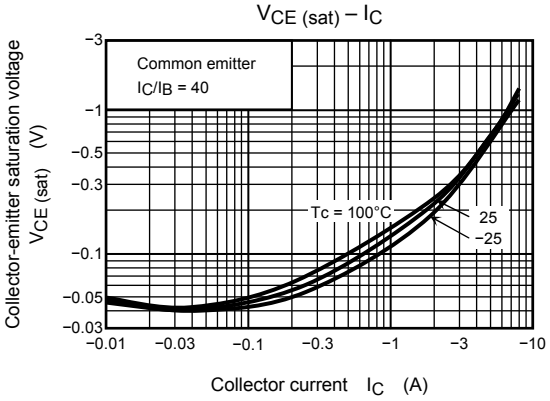
$I_C - V_{CE}$



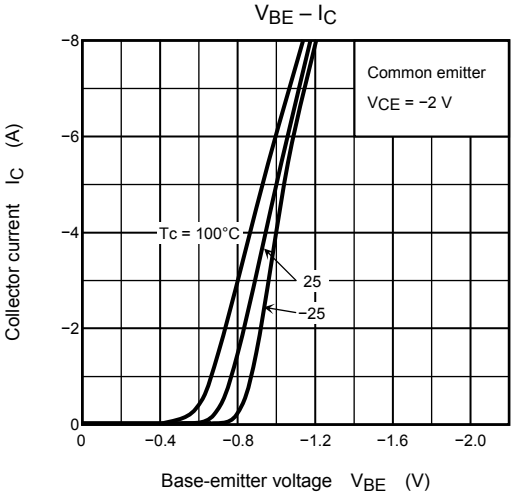
$h_{FE} - I_C$



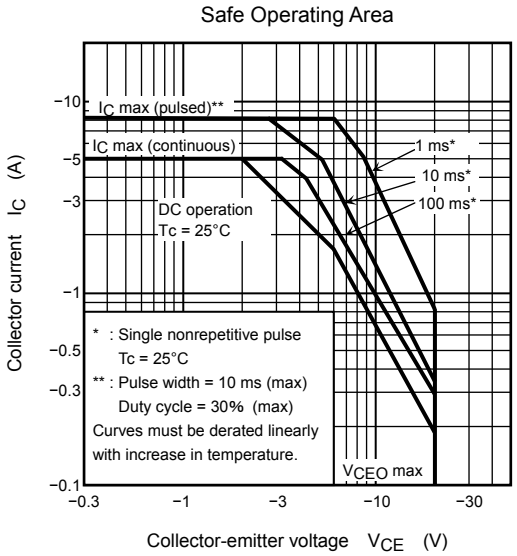
$V_{CE\ (sat)} - I_C$



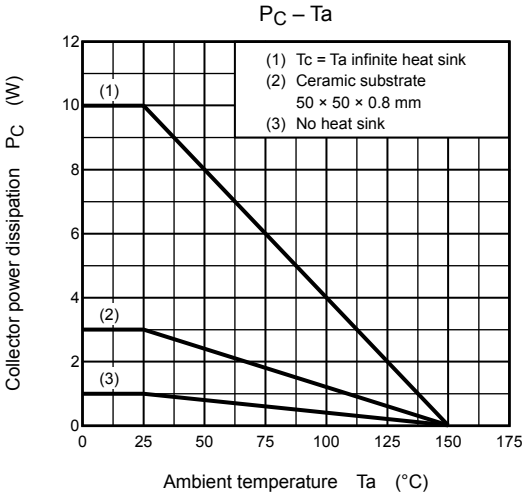
$V_{BE} - I_C$



Safe Operating Area



$P_C - Ta$



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