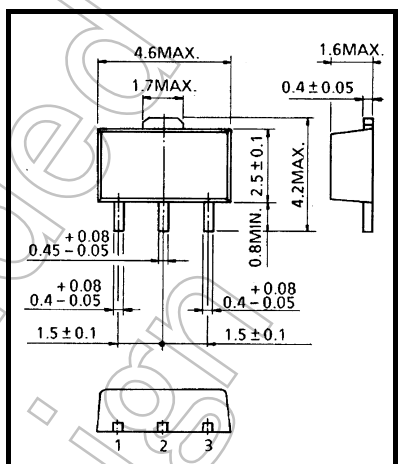
TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

2SA1314

Strobe Flash Applications
Audio Power Applications

Unit: mm



1. Base
2. Collector (heat sink)
3. Emitter

PW-MINI	
JEDEC	—
JEITA	SC-62
TOSHIBA	2-5K1A

Weight: 0.05 g (typ.)

- High DC current gain and excellent linearity
  : $h_{FE\ (1)}$ = 140 to 600 (V_{CE} = −1 V, I_C = −0.5 A)
  : $h_{FE\ (2)}$ = 60 (min), 120 (typ.), (V_{CE} = −1 V, I_C = −4 A)
- Low saturation voltage
  : $V_{CE\ (sat)}$ = −0.5 V (max) (I_C = −2 A, I_B = −50 mA)
- Small package
- Complementary to 2SC2982

Absolute Maximum Ratings (T_a = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	−20	V
Collector-emitter voltage		V_{CEO}	−10	V
Emitter-base voltage		V_{EBO}	−6	V
Collector current	DC	I_C	−2	A
	Pulsed (Note 1)	I_{CP}	−4	
Base current		I_B	−2	A
Collector power dissipation		P_C	500	mW
		P_C (Note 2)	1000	
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: Mounted on a ceramic substrate (250 mm^2 × 0.8 mm t)

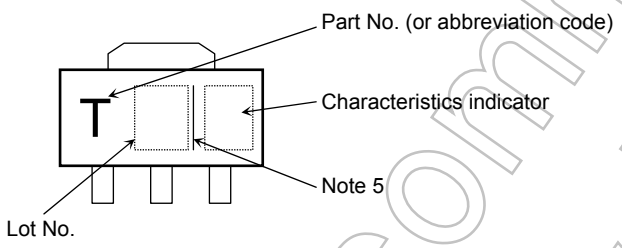
Note 3: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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 (T_a = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	V_{CB} = −20 V, I_E = 0	—	—	−100	nA
Emitter cut-off current	I_{EBO}	V_{EB} = −6 V, I_C = 0	—	—	−100	nA
Collector-emitter breakdown voltage	$V_{(BR)\ CEO}$	I_C = −10 mA, I_B = 0	−10	—	—	V
Emitter-base breakdown voltage	$V_{(BR)\ EBO}$	I_E = −1 mA, I_C = 0	−6	—	—	V
DC current gain	$h_{FE\ (1)}$ (Note 4)	V_{CE} = −1 V, I_C = −0.5 A	140	—	600	
	$h_{FE\ (2)}$	V_{CE} = −1 V, I_C = −4 A	60	120	—	
Collector-emitter saturation voltage	$V_{CE\ (sat)}$	I_C = −2 A, I_B = −50 mA	—	−0.2	−0.5	V
Base-emitter voltage	V_{BE}	V_{CE} = −1 V, I_C = −2 A	—	−0.83	−1.5	V
Transition frequency	f_T	V_{CE} = −1 V, I_C = −0.5 A	—	140	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = −10 V, I_E = 0, f = 1 MHz	—	50	—	pF

Note 4: $h_{FE\ (1)}$ classification A: 140 to 280, B: 200 to 400, C: 300 to 600

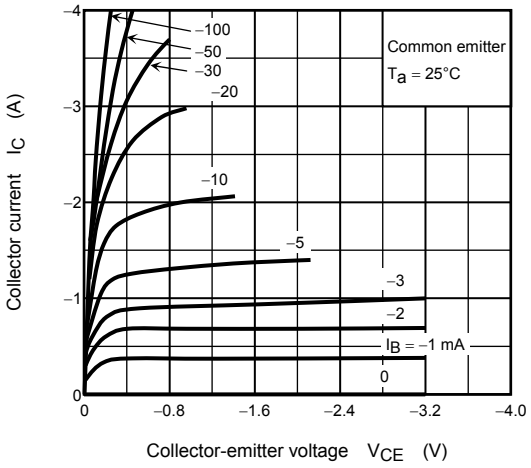
Marking



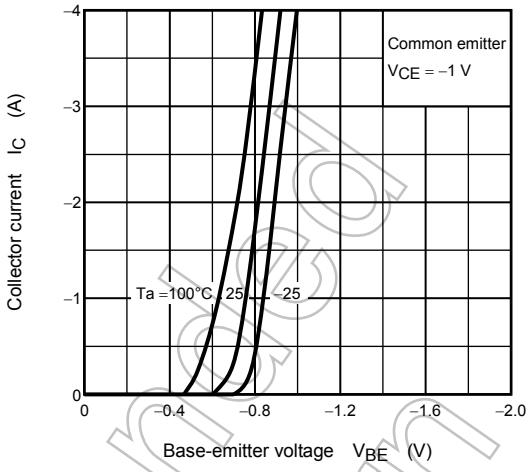
Note 5: A line beside a Lot No. identifies the indication of product Labels.
Without a line: [[Pb]]/INCLUDES > MCV
With a line: [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

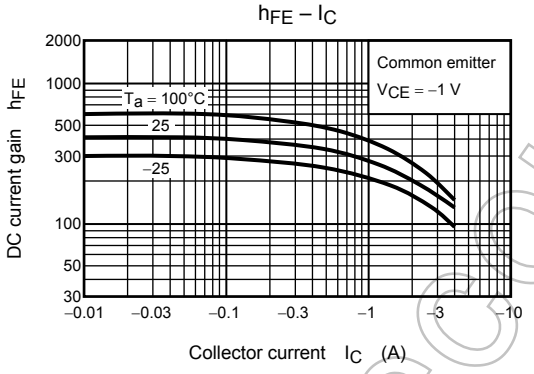
$I_C - V_{CE}$



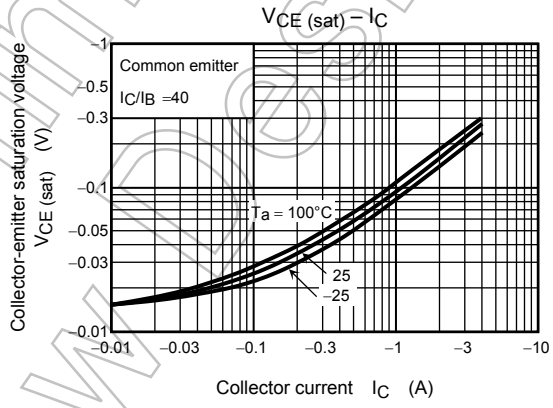
$I_C - V_{BE}$



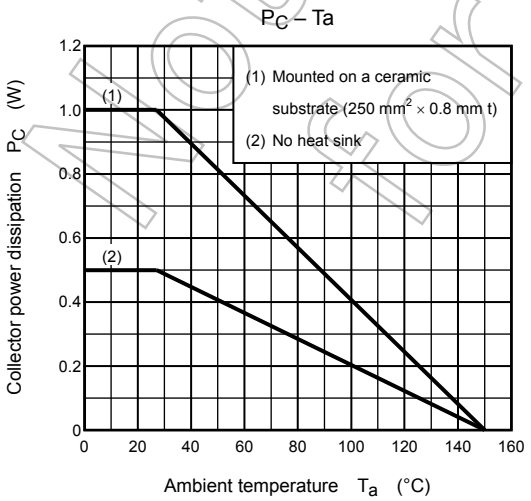
$h_{FE} - I_C$



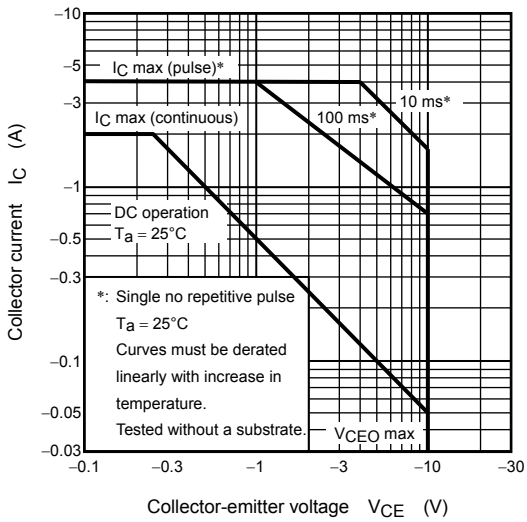
$V_{CE\ (sat)} - I_C$



$P_C - Ta$



Safe Operating Area



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