

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT process)

**2SA1244**

## High Current Switching Applications

Unit: mm

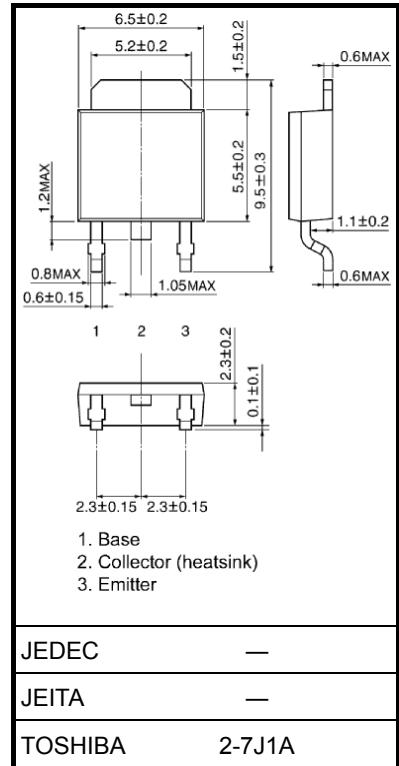
- Low collector saturation voltage:  $V_{CE}(\text{sat}) = -0.4 \text{ V (max)}$  ( $I_C = -3 \text{ A}$ )
- High speed switching time:  $t_{\text{stg}} = 1.0 \mu\text{s}$  (typ.)
- Complementary to 2SC3074

**Absolute Maximum Ratings (Ta = 25°C)**

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-60	V
Collector-emitter voltage	$V_{CEO}$	-50	V
Emitter-base voltage	$V_{EBO}$	-5	V
Collector current	$I_C$	-5	A
Base current	$I_B$	-1	A
Collector power dissipation	$P_C$	1.0	W
$T_a = 25^\circ\text{C}$		20	
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{\text{stg}}$	-55 to 150	°C

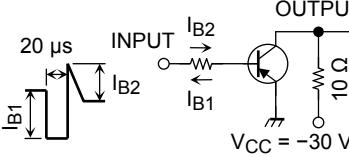
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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



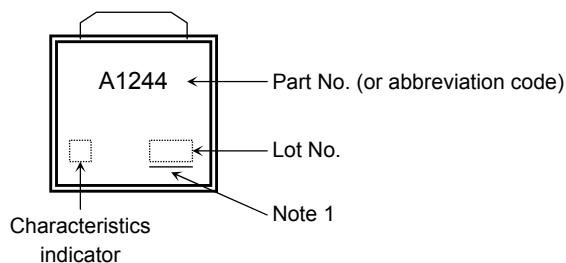
Weight: 0.36 g (typ.)

## Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	$V_{CB} = -50\text{ V}$ , $I_E = 0$	—	—	-1	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{ V}$ , $I_C = 0$	—	—	-1	$\mu\text{A}$
Collector-emitter breakdown voltage	$V_{(BR)\text{CEO}}$	$I_C = -10\text{ mA}$ , $I_B = 0$	-50	—	—	V
DC current gain	$h_{FE}$ (1) (Note)	$V_{CE} = -1\text{ V}$ , $I_C = -1\text{ A}$	70	—	240	
	$h_{FE}$ (2)	$V_{CE} = -1\text{ V}$ , $I_C = -3\text{ A}$	30	—	—	
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = -3\text{ A}$ , $I_B = -0.15\text{ A}$	—	-0.2	-0.4	V
Base-emitter saturation voltage	$V_{BE(\text{sat})}$	$I_C = -3\text{ A}$ , $I_B = -0.15\text{ A}$	—	-0.9	-1.2	V
Transition frequency	$f_T$	$V_{CE} = -4\text{ V}$ , $I_C = -1\text{ A}$	—	60	—	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{ V}$ , $I_E = 0$ , $f = 1\text{ MHz}$	—	170	—	$\text{pF}$
Switching time	Turn-on time	$t_{on}$	 $I_{B1} = 0.15\text{ A}$ , $I_{B2} = 0.15\text{ A}$ DUTY CYCLE $\leq 1\%$	—	0.1	—
	Storage time	$t_{stg}$		—	1.0	—
	Fall time	$t_f$		—	0.1	—

Note:  $h_{FE}$  (1) classification O: 70 to 140, Y: 120 to 240

## Marking

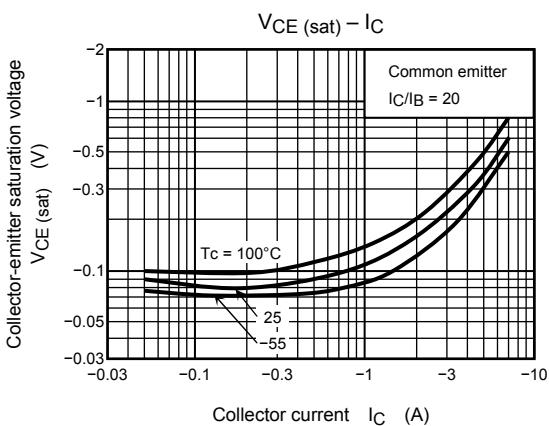
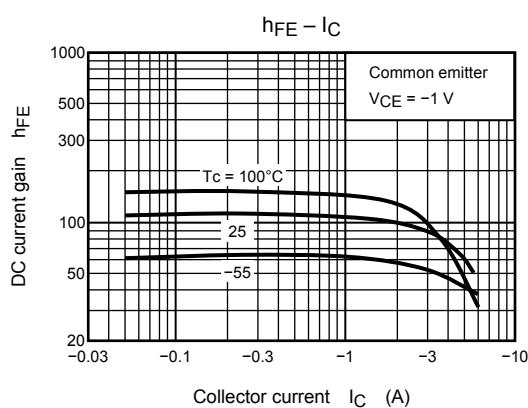
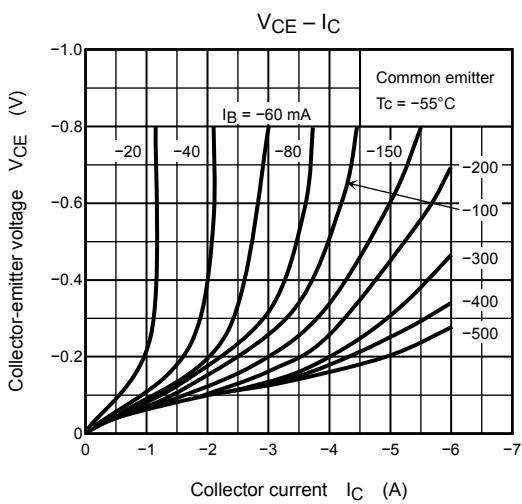
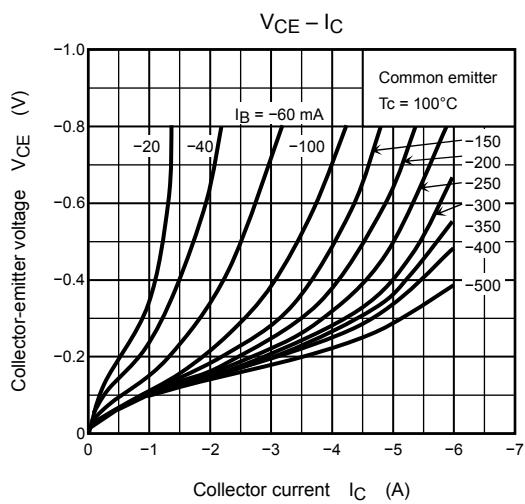
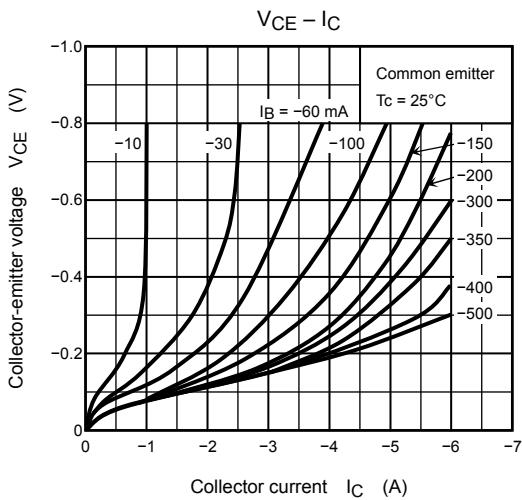
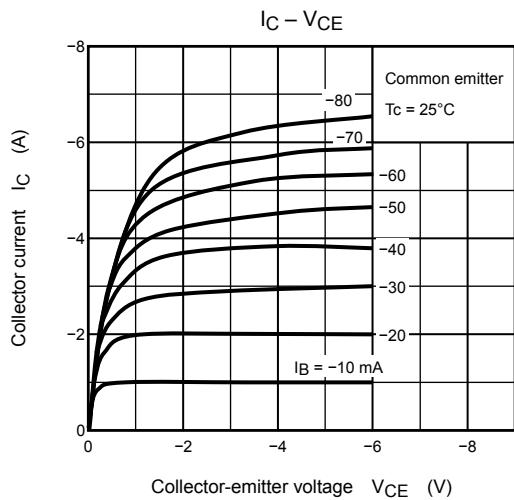


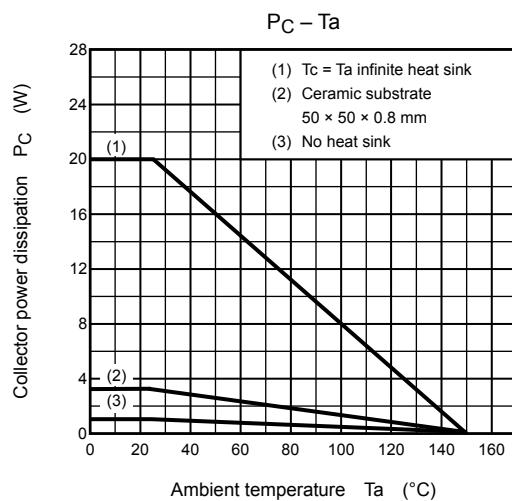
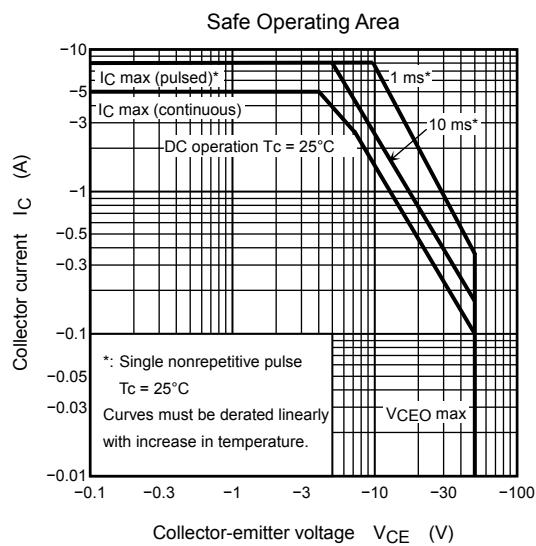
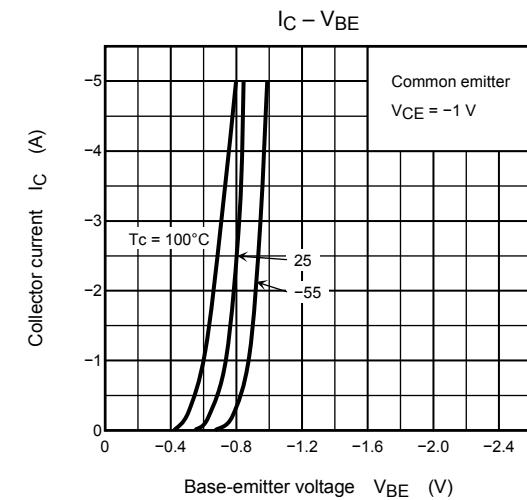
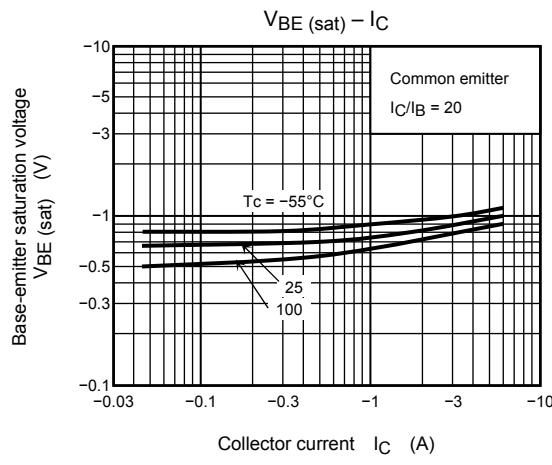
Note 1: A line under a Lot No. identifies the indication of product Labels.

Not underlined: [[Pb]]/INCLUDES > MCV

Underlined: [[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.





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