

TOSHIBA Transistor Silicon PNP Triple Diffused Type

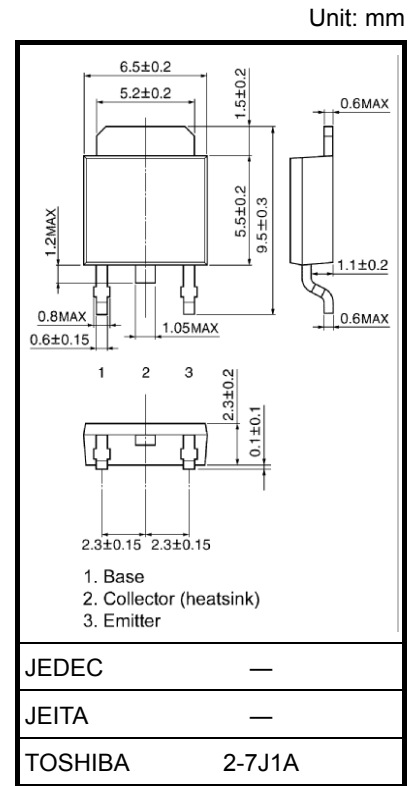
# 2SA2034

## High-Voltage Switching Applications

- High voltage :  $V_{CBO} = -400\text{ V}$
- High speed :  $t_f = 0.3\ \mu\text{s (max)}$  ( $I_C = -1.0\text{ A}$ )

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristic	Symbol	Rating	Unit	
Collector-base voltage	$V_{CBO}$	-400	V	
Collector-emitter voltage	$V_{CEO}$	-400	V	
Emitter-base voltage	$V_{EBO}$	-7	V	
Collector current	DC	$I_C$	-2	A
	Pulse	$I_{CP}$	-4	
Base current	$I_B$	-1	A	
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1	W
	$T_c = 25^\circ\text{C}$		15	
Junction temperature	$T_j$	150	$^\circ\text{C}$	
Storage temperature range	$T_{stg}$	-55~150	$^\circ\text{C}$	



Weight: 0.36 g (typ.)

Note1: 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.

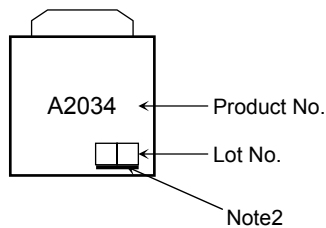
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Start of commercial production  
2000-02

**Electrical Characteristics (Ta = 25°C)**

Characteristic		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cutoff current		$I_{CBO}$	$V_{CB} = -400\text{ V}, I_E = 0$	—	—	-10	$\mu\text{A}$
Emitter cutoff current		$I_{EBO}$	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-1	$\mu\text{A}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-400	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = -5\text{ V}, I_C = -1\text{ mA}$	80	—	—	—
		$h_{FE(2)}$	$V_{CE} = -5\text{ V}, I_C = -0.1\text{ A}$	80	—	240	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -0.5\text{ A}, I_B = -0.1\text{ A}$	—	—	-1.0	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -0.5\text{ A}, I_B = -0.1\text{ A}$	—	—	-1.5	V
Switching time	Rise time	$t_r$	<p><math>I_{B1} = 0.2\text{ A}, I_{B2} = 0.2\text{ A}</math> Duty Cycle &lt; 1%</p>	—	—	0.3	$\mu\text{s}$
	Storage time	$t_{stg}$		—	—	2.5	
	Fall time	$t_f$		—	—	0.3	

**Marking**

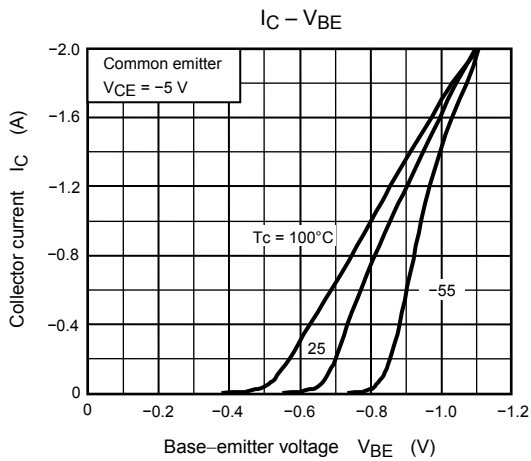
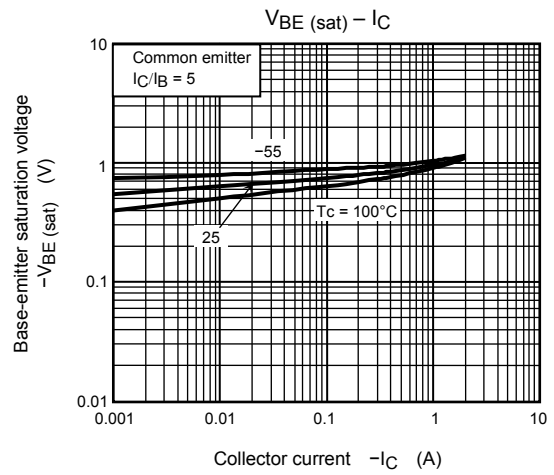
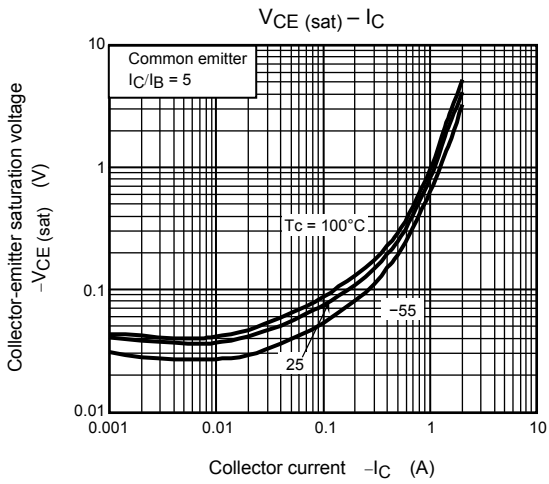
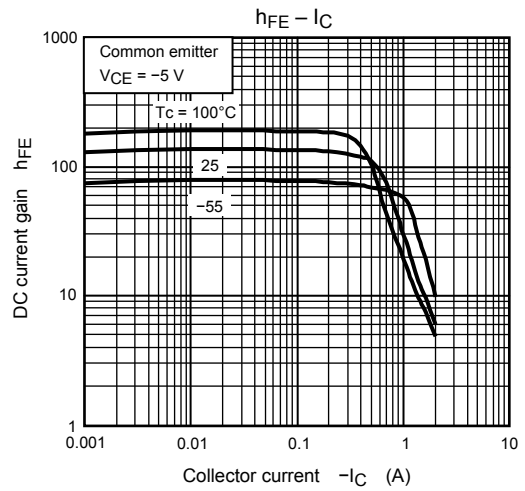
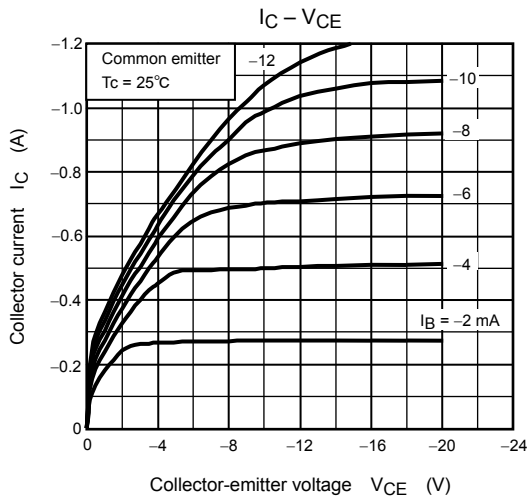


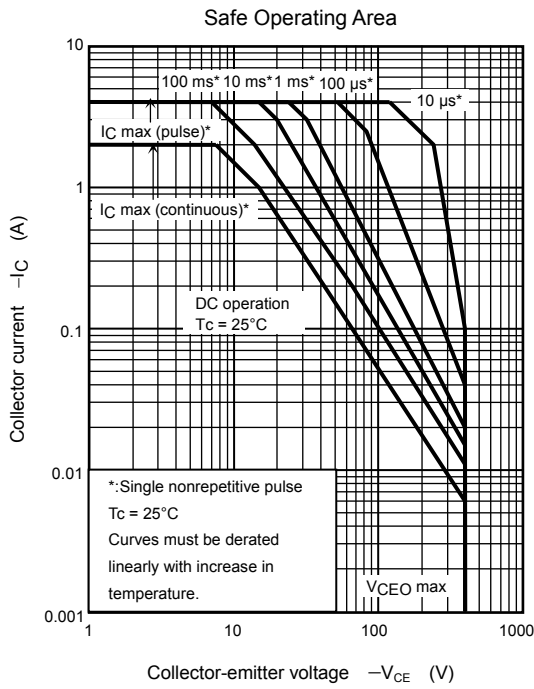
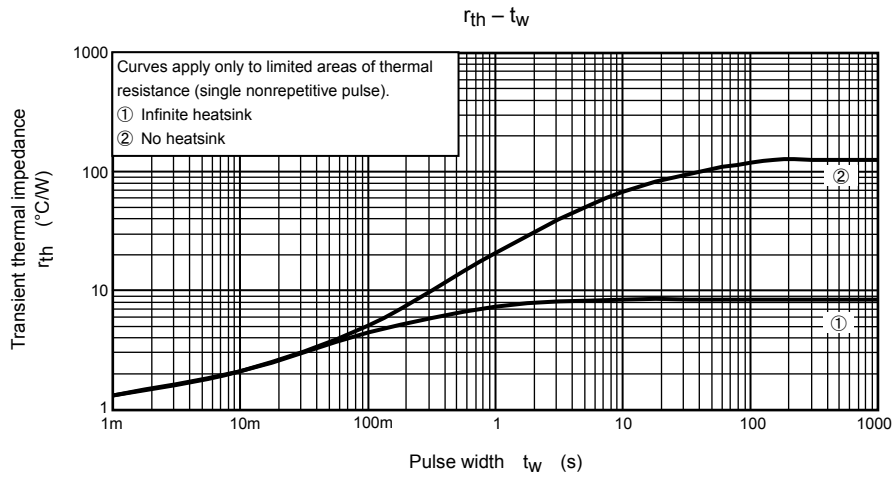
Note2: A line under a Lot No. identifies the indication of product Labels.

Not underlined:  $[[\text{Pb}]]/\text{INCLUDES} > \text{MCV}$

Underlined:  $[[\text{G}]]/\text{RoHS COMPATIBLE}$  or  $[[\text{G}]]/\text{RoHS} [[\text{Pb}]]$

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product. The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.





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