

# 2SA2184

## High Voltage Switching Applications

- High voltage:  $V_{CEO} = -550\text{ V}$
- High speed:  $t_f = 40\text{ ns (typ.)}$  ( $I_C = -0.5\text{ A}$ )

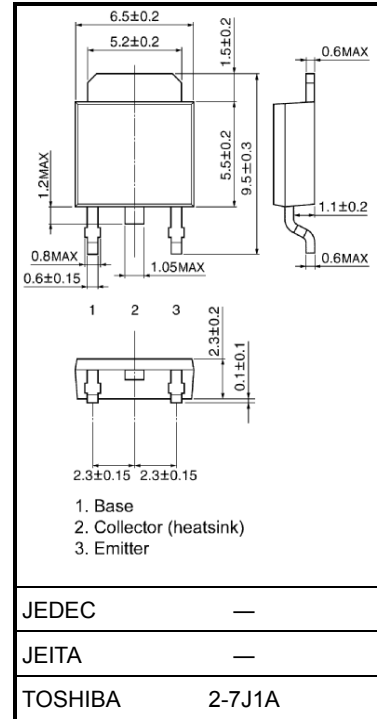
### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

Characteristics	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	-550	V
Collector-emitter voltage	$V_{CEO}$	-550	V
Emitter-base voltage	$V_{EBO}$	-7	V
Collector current	DC	$I_C$	-1
	Pulse	$I_{CP}$	-2
Base current	$I_B$	-1	A
Collector power dissipation	$T_a = 25^\circ\text{C}$	$P_C$	1
	$T_c = 25^\circ\text{C}$		20
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-55 to 150	$^\circ\text{C}$

Note:1 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

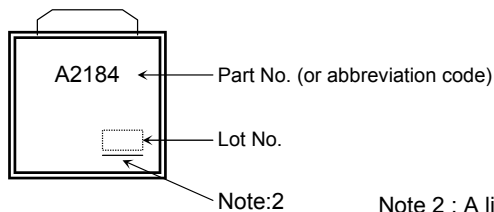


Weight: 0.36 g (typ.)

## Electrical Characteristics (Ta = 25°C)

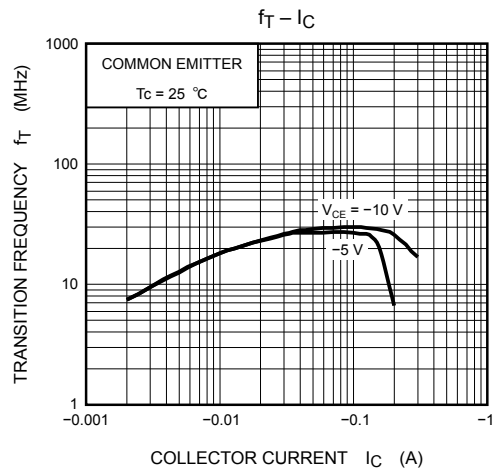
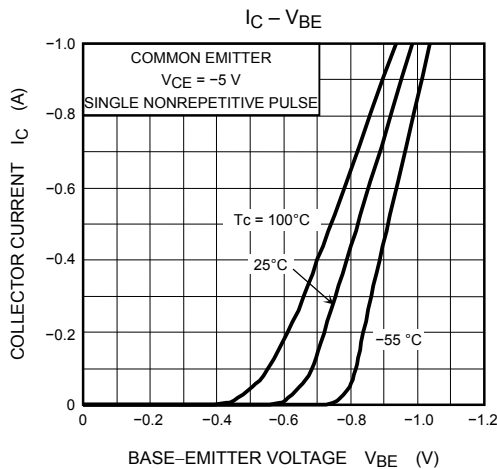
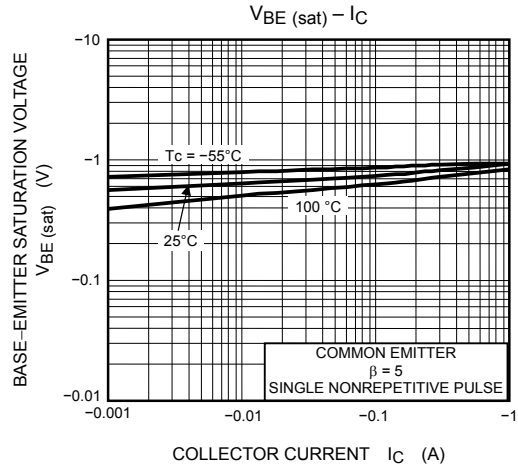
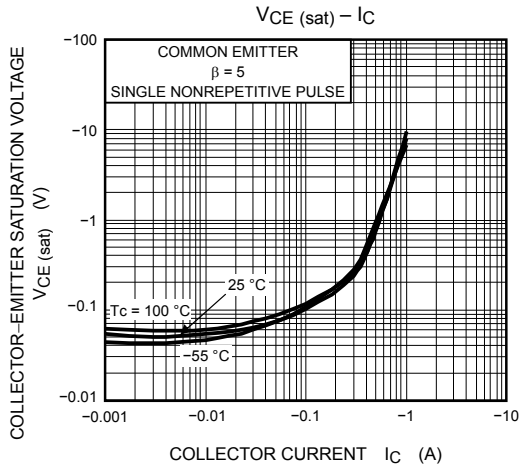
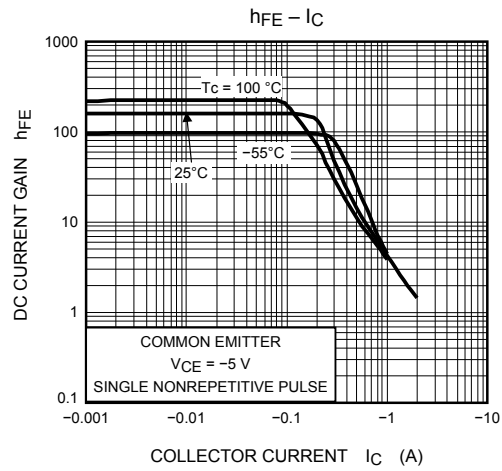
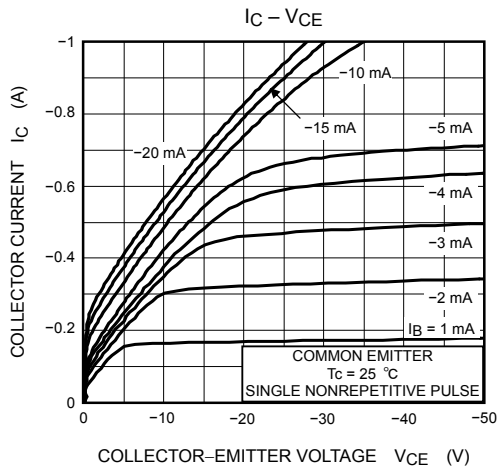
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = -550 \text{ V}, I_E = 0$	—	—	-10	$\mu\text{A}$
Emitter cut-off current		$I_{EBO}$	$V_{EB} = -7 \text{ V}, I_C = 0$	—	—	-1	$\mu\text{A}$
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -10 \text{ mA}, I_B = 0$	-550	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = -5 \text{ V}, I_C = -100 \text{ mA}$	80	—	300	
		$h_{FE(2)}$	$V_{CE} = -5 \text{ V}, I_C = -500 \text{ mA}$	5	—	—	
Collector emitter saturation voltage		$V_{CE(sat)}$	$I_C = -300 \text{ mA}, I_B = -60 \text{ mA}$	—	—	-0.7	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -300 \text{ mA}, I_B = -60 \text{ mA}$	—	—	-1.2	V
Transition frequency		$f_T$	$V_{CE} = -5 \text{ V}, I_C = -50 \text{ mA}$	—	27	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$	—	30	—	pF
Switching time	Rise time	$t_r$		—	0.1	—	$\mu\text{s}$
	Storage time	$t_{stg}$		—	1.6	—	
	Fall time	$t_f$		$I_{B1} = 100 \text{ mA}, I_{B2} = 200 \text{ mA}$ Duty cycle $\leq 1\%$	—	40	

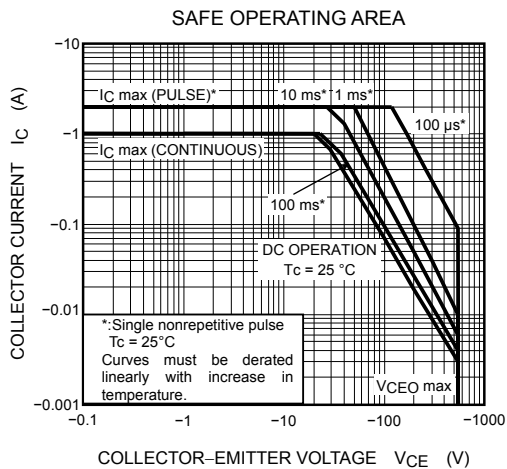
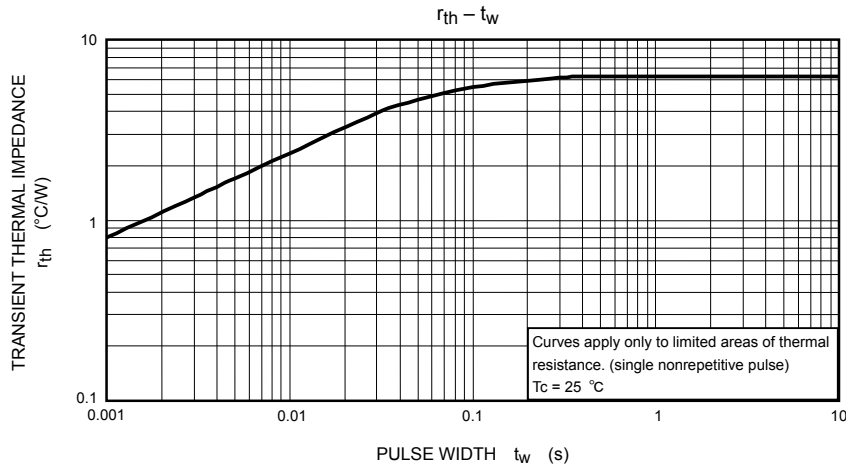
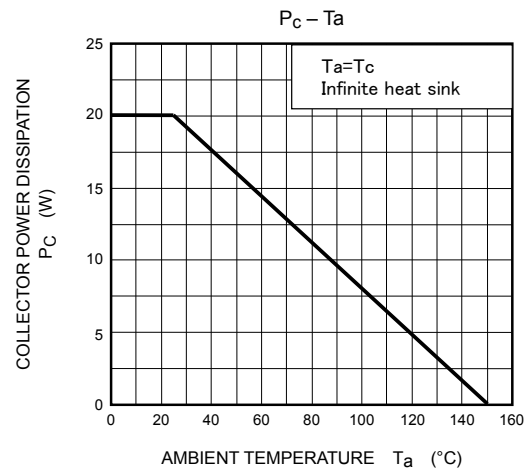
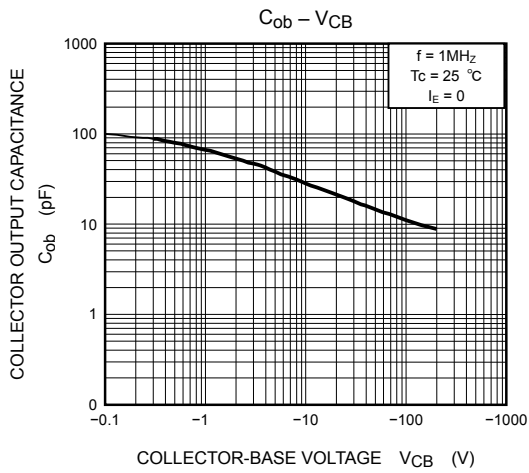
## Marking



Note 2 : A line under a Lot No. identifies the indication of product Labels  
 [[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 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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