

TOSHIBA Transistor Silicon PNP Epitaxial Type

# 2SA2183

## High Current Switching Applications

- Low collector-emitter saturation :  $V_{CE(sat)} = -1.0 \text{ V (max)}$

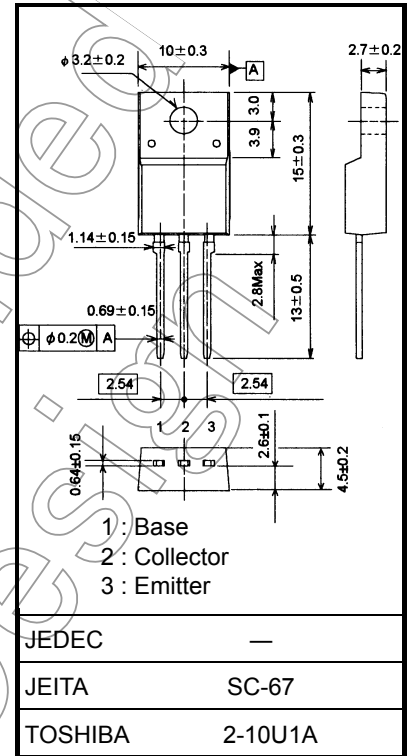
## Absolute Maximum Ratings (Ta = 25°C)

Characteristics		Symbol	Rating	Unit
Collector-base voltage		$V_{CBO}$	-60	V
Collector-emitter voltage		$V_{CEO}$	-60	V
Emitter-base voltage		$V_{EBO}$	-7	V
Collector current	DC	$I_C$	-5.0	A
	Pulse	$I_{CP}$	-8.0	A
Base current		$I_B$	-0.5	A
Collector power dissipation	Ta = 25°C	$P_C$	2	W
	Tc = 25°C		20	W
Junction temperature		$T_j$	150	°C
Storage temperature range		$T_{stg}$	-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).

Unit: mm



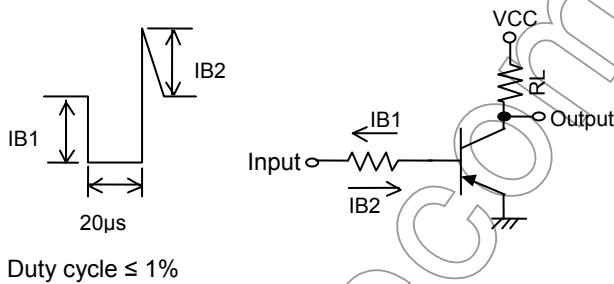
Weight: 1.7 g (typ.)

Not for New

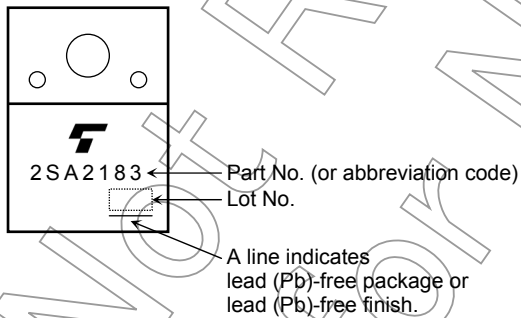
**Electrical Characteristics (Ta = 25°C)**

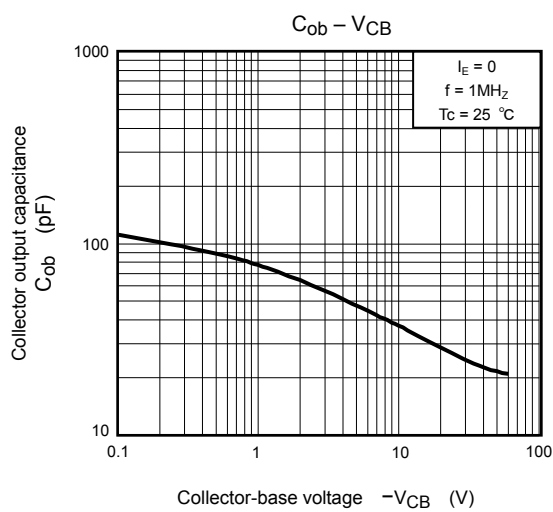
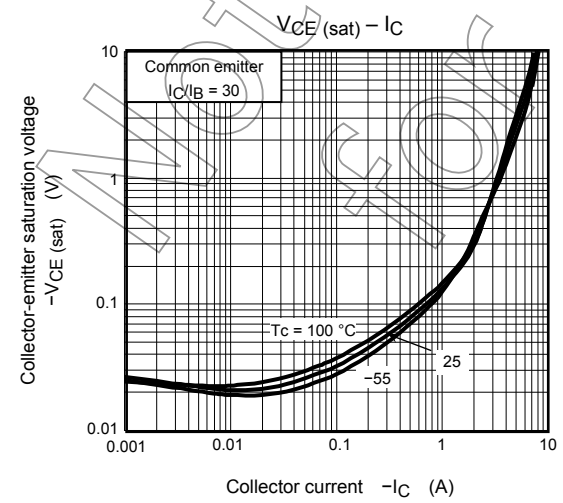
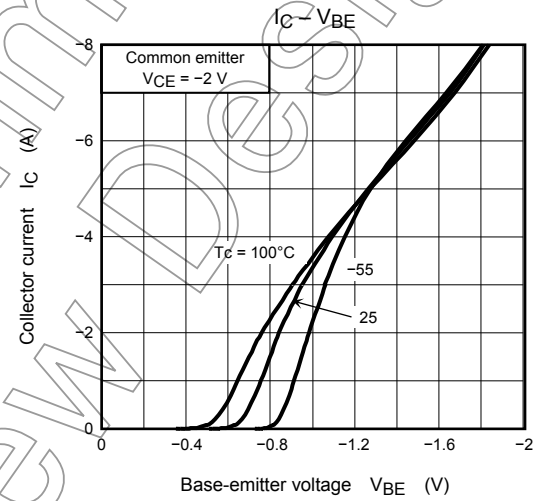
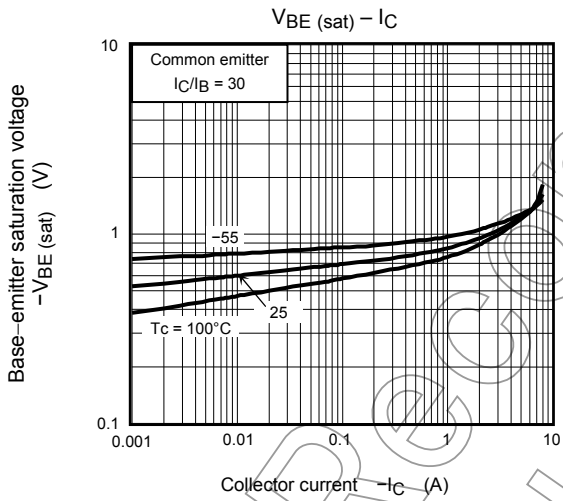
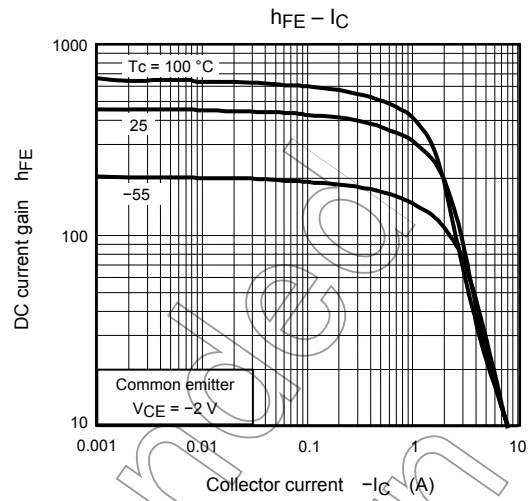
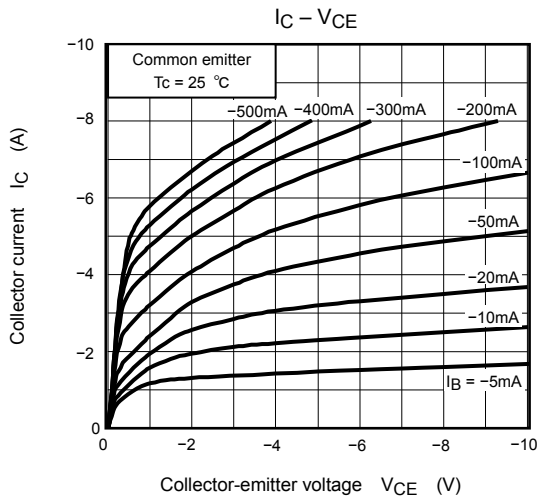
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		$I_{CBO}$	$V_{CB} = -60\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cut-off current		$I_{EBO}$	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-100	nA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-60	—	—	V
DC current gain		$h_{FE(1)}$	$V_{CE} = -2\text{ V}, I_C = -0.5\text{ A}$	200	—	500	
		$h_{FE(2)}$	$V_{CE} = -2\text{ V}, I_C = -1.6\text{ A}$	100	—	—	
Collector emitter saturation voltage		$V_{CE(sat)}$	$I_C = -1.6\text{ A}, I_B = -53\text{ mA}$	—	—	-1.0	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = -1.6\text{ A}, I_B = -53\text{ mA}$	—	—	-1.5	V
Transition frequency		$f_T$	$V_{CE} = -10\text{ V}, I_C = -0.5\text{ A}$	—	170	—	MHz
Collector output capacitance		$C_{ob}$	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	38	—	pF
Switching time	Rise time	$t_r$	See Figure 1 circuit diagram	—	100	—	ns
	Storage time	$t_{stg}$	$V_{CC} \doteq -30\text{ V}, R_L = 18.75\Omega$	—	300	—	
	Fall time	$t_f$	$I_{B1} = -53\text{ mA}, I_{B2} = 53\text{ mA}$	—	60	—	

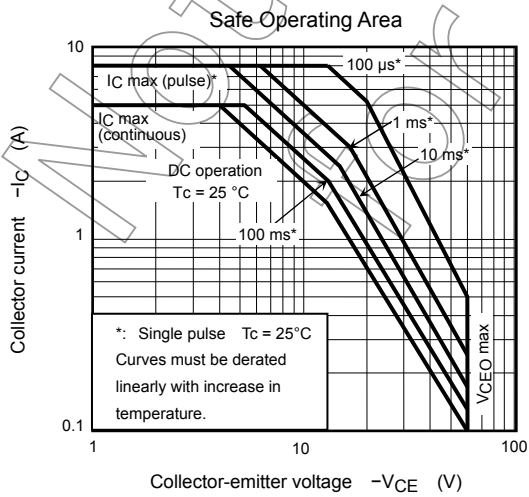
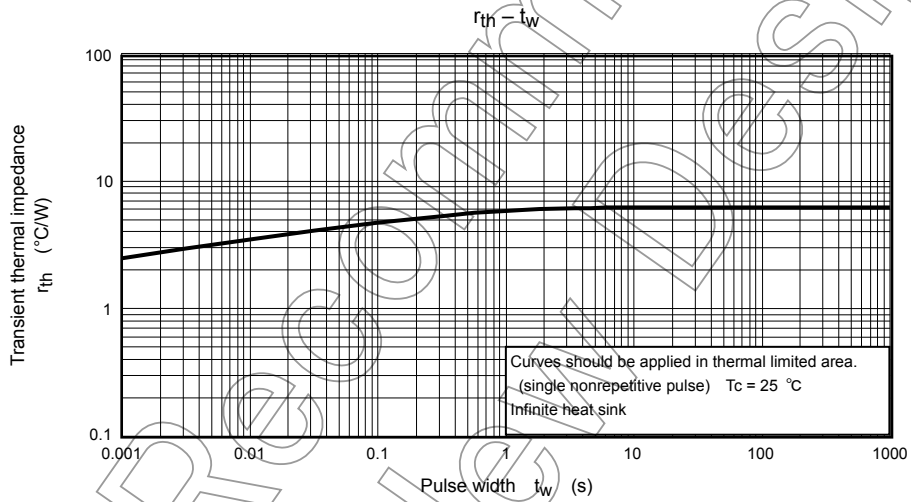
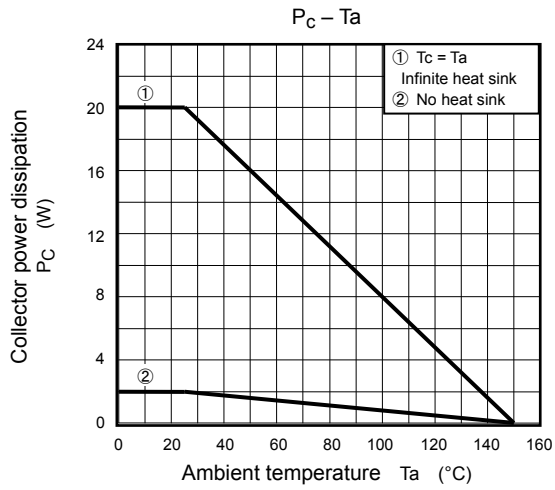
**Figure 1 Switching Time Test Circuit & Timing Chart**



**Marking**







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