

TOSHIBA Transistor Silicon PNP Epitaxial Type

2SA2183

High Current Switching Applications

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

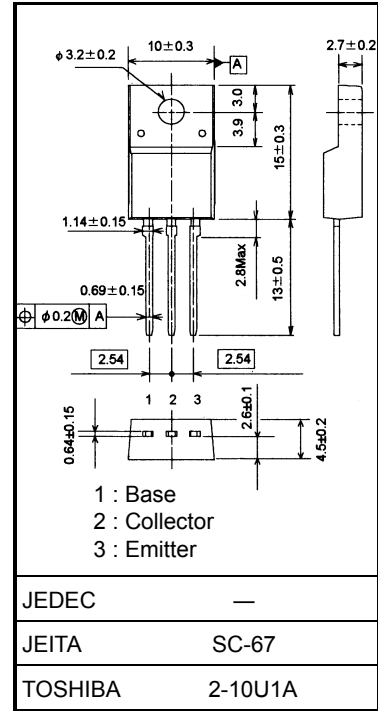
Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit	
Collector-base voltage	V_{CB0}	-60	V	
Collector-emitter voltage	V_{CE0}	-60	V	
Emitter-base voltage	V_{EB0}	-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

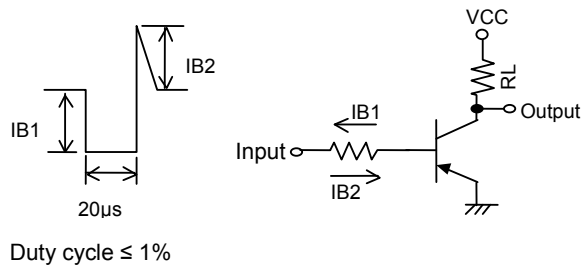


Weight: 1.7 g (typ.)

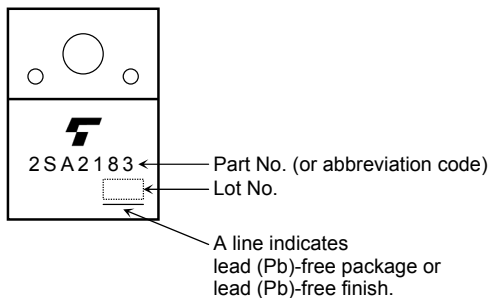
Electrical Characteristics (Ta = 25°C)

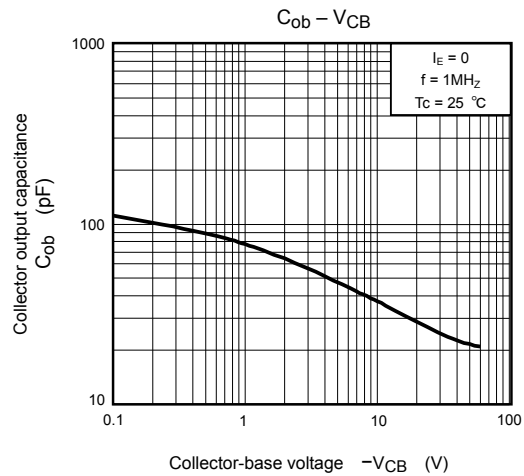
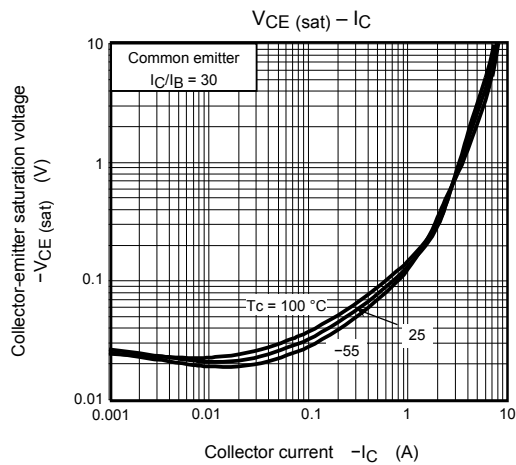
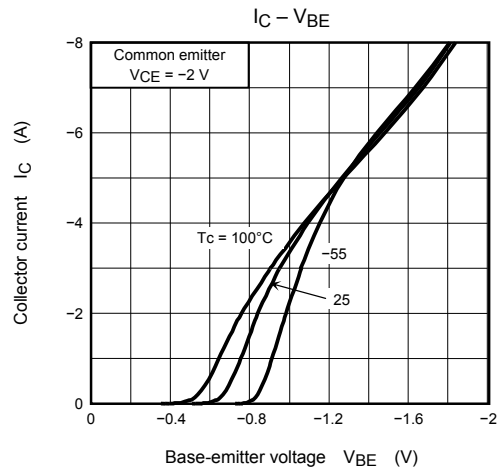
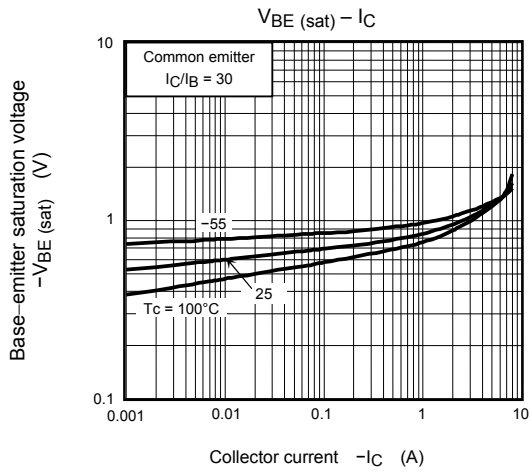
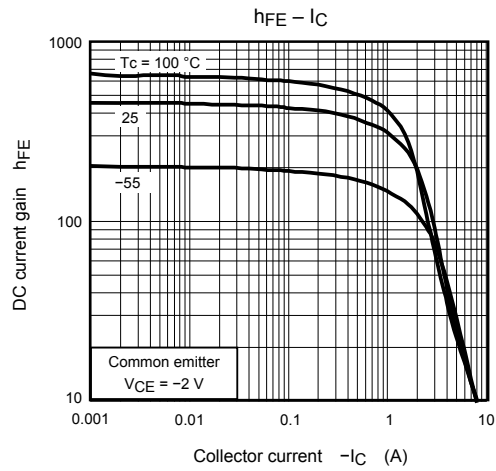
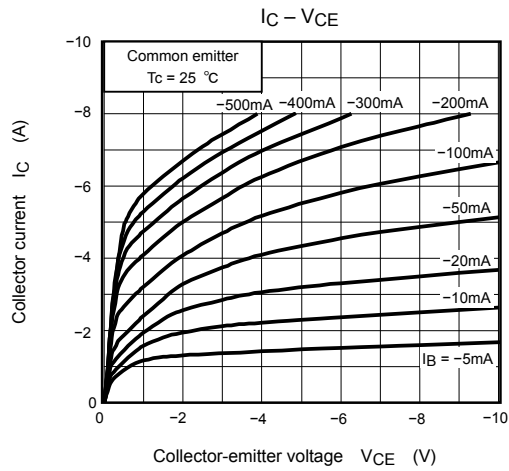
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = -60\text{ V}, I_E = 0$	—	—	-100	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = -7\text{ V}, I_C = 0$	—	—	-100	nA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10\text{ mA}, I_B = 0$	-60	—	—	V
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			ns
	Storage time	t_{stg}	$V_{CC} \approx -30\text{ V}, R_L = 18.75\Omega$			
	Fall time	t_f	$I_{B1} = -53\text{ mA}, I_{B2} = 53\text{ mA}$			

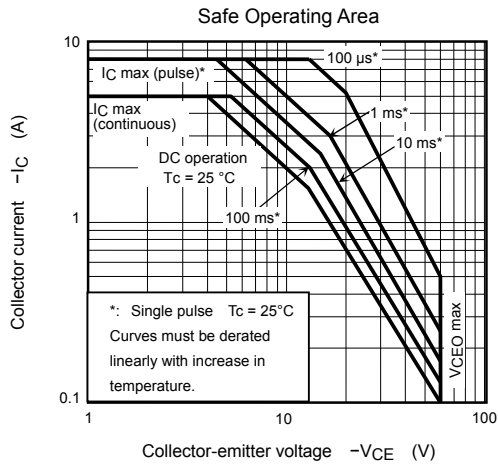
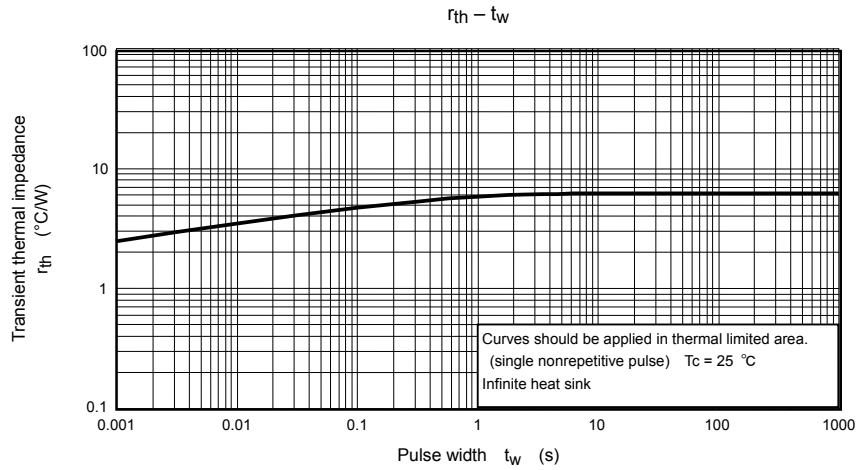
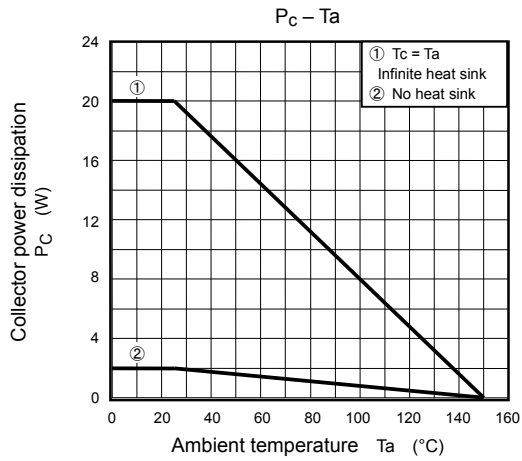
Figure 1 Switching Time Test Circuit & Timing Chart



Marking







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