

TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SD2353

Power Amplifier Applications

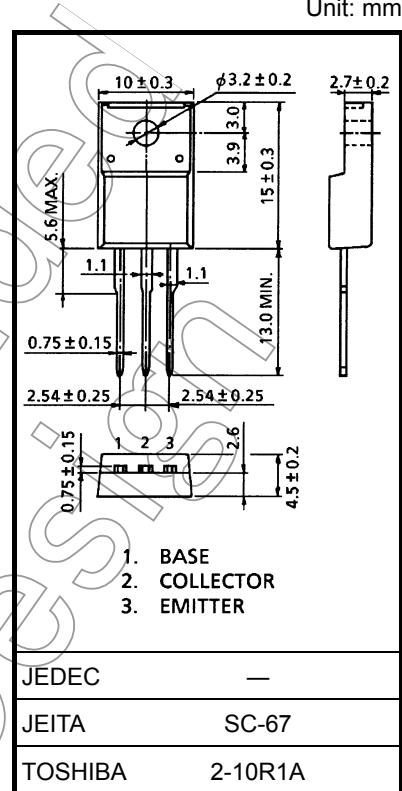
- High DC current gain: $hFE = 800$ to 3200
- Low collector saturation voltage: $V_{CE}(\text{sat}) = 0.4$ V (typ.)

Absolute Maximum Ratings (T_c = 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	3	A
	Pulse	I _{CP}	6	
Base current		I _B	0.6	A
Collector power dissipation	T _a = 25°C	P _C	2	W
	T _c = 25°C		25	
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.

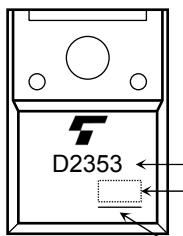
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).



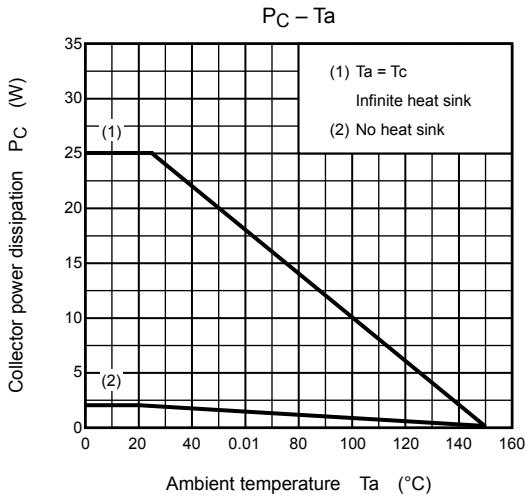
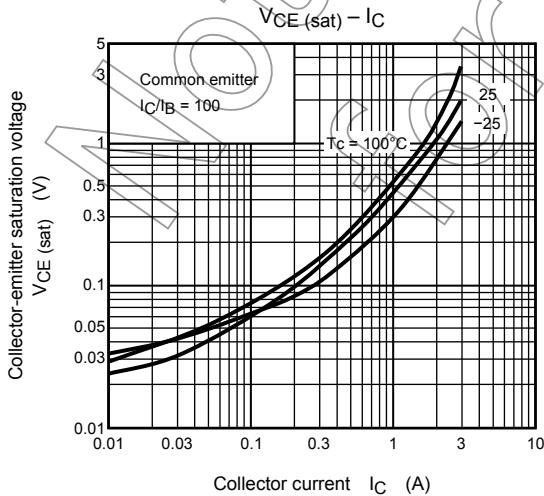
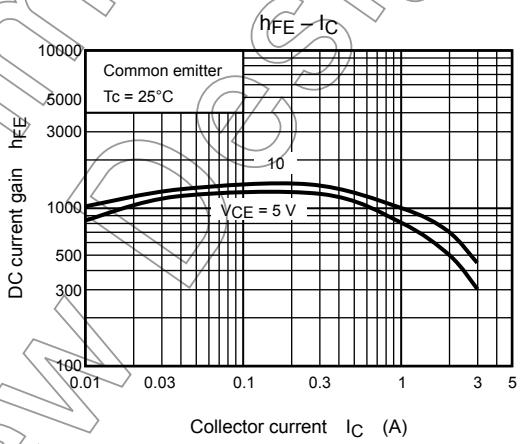
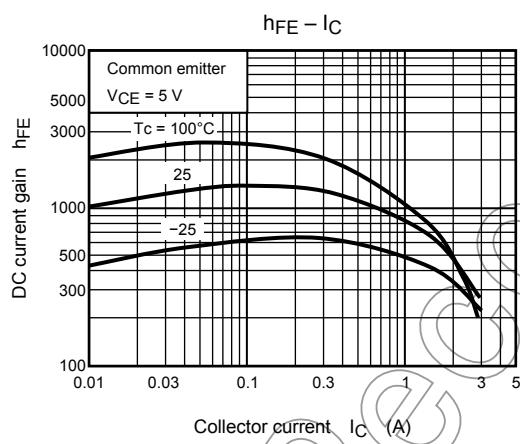
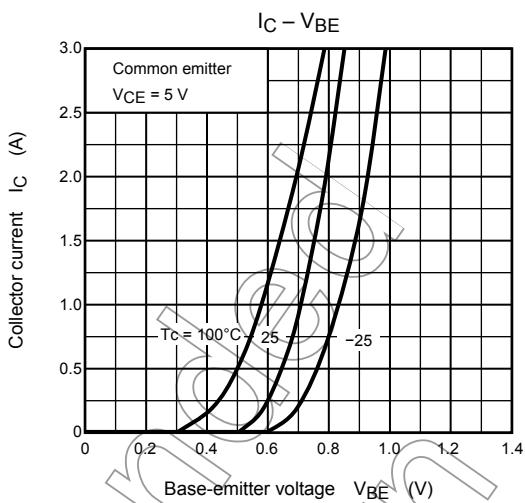
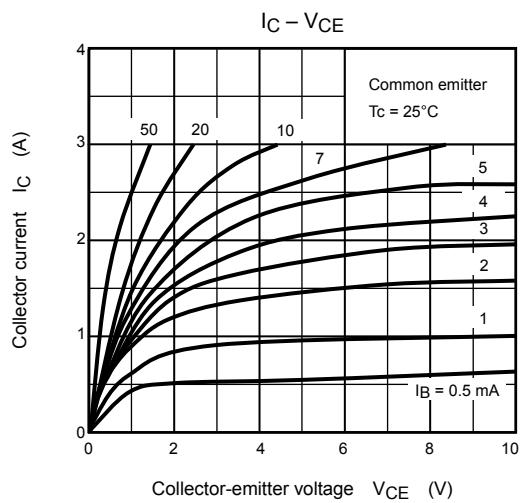
Electrical Characteristics ($T_c = 25^\circ\text{C}$)

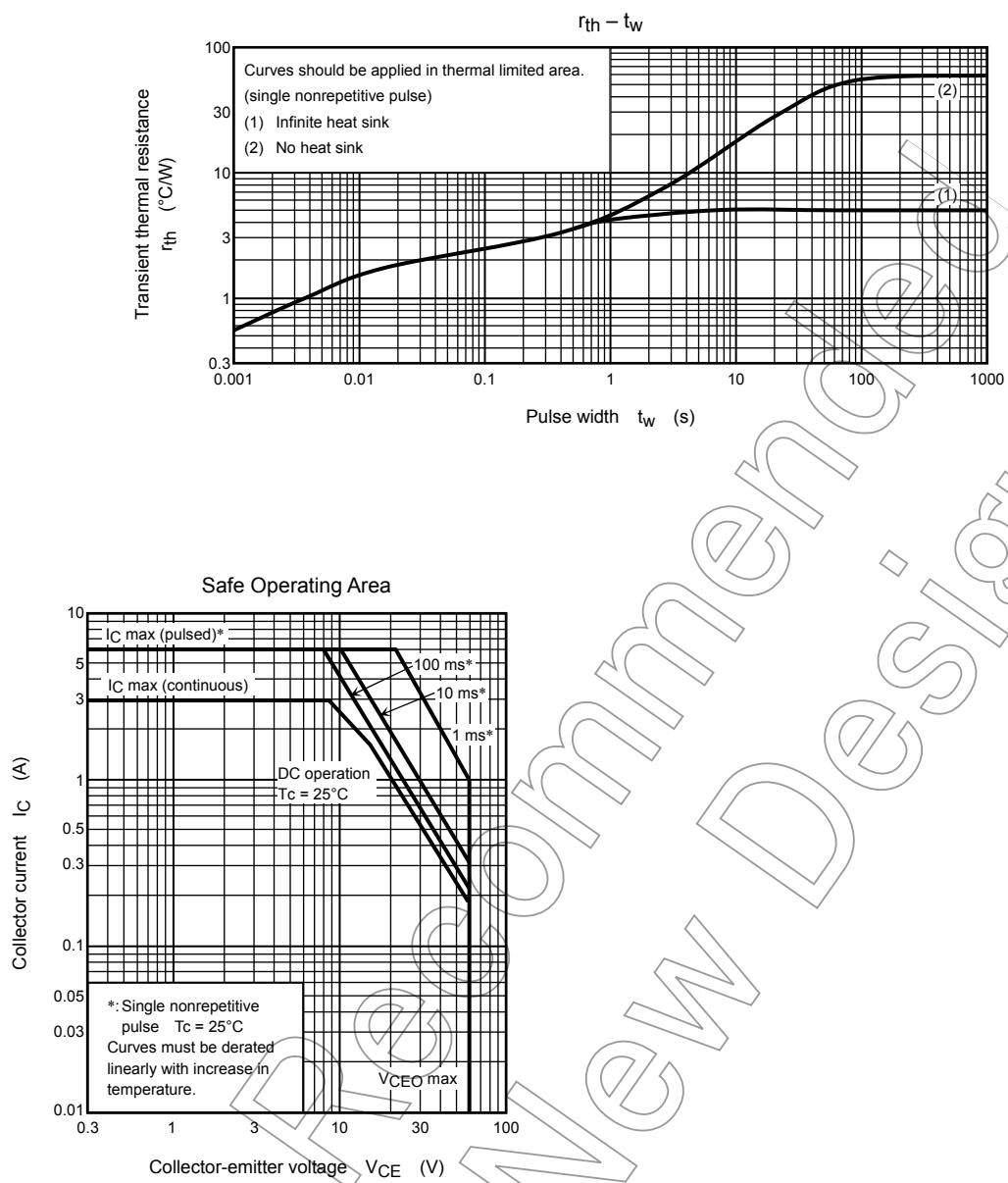
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 60\text{ V}, I_E = 0$	—	—	100	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 6\text{ V}, I_C = 0$	—	—	100	μA
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	$I_C = 50\text{ mA}, I_B = 0$	60	—	—	V
DC current gain	h_{FE} (1)	$V_{CE} = 5\text{ V}, I_C = 0.2\text{ A}$	800	—	3200	
	h_{FE} (2)	$V_{CE} = 5\text{ V}, I_C = 1.5\text{ A}$	350	—	—	
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = 1\text{ A}, I_B = 10\text{ mA}$	—	0.4	1.0	V
Base-emitter voltage	V_{BE}	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	—	0.7	1.0	V
Transition frequency	f_T	$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	—	18	—	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	42	—	pF

Marking



A line indicates
lead (Pb)-free package or
lead (Pb)-free finish.





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