TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SC3233

Switching Regulator and High Voltage Switching Applications

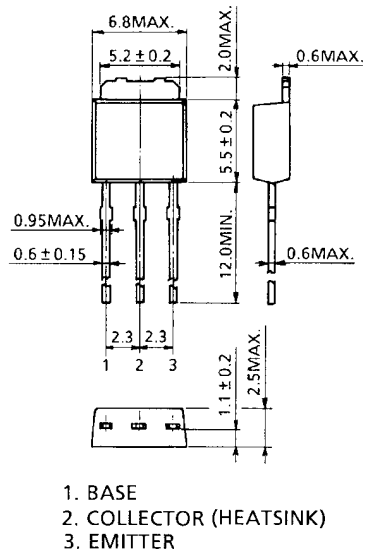
High Speed DC-DC Converter Applications

- Excellent switching times: t_r = 1.0 μs (max)
  t_f = 1.0 μs (max), (I_C = 0.8 A)
- High collector breakdown voltage: V_{CEO} = 400 V

Maximum Ratings (Ta = 25°C)

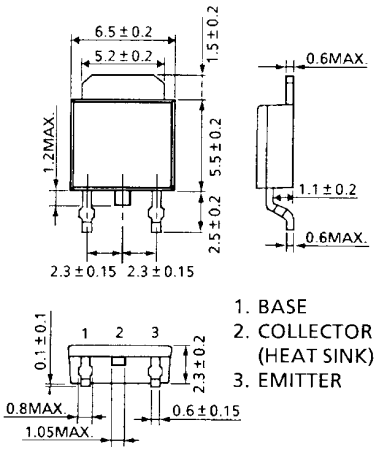
Characteristics		Symbol	Rating	Unit
Collector-base voltage		V_{CBO}	500	V
Collector-emitter voltage		V_{CEO}	400	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	2	A
Base current		I_B	0.5	A
Collector power dissipation	Ta = 25°C	P_C	1.0	W
	Tc = 25°C		20	
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	−55 to 150	°C

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	2-7B1A

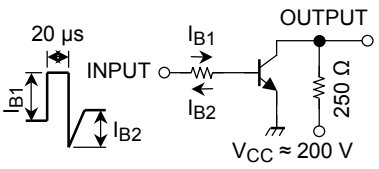
Weight: 0.36 g (typ.)



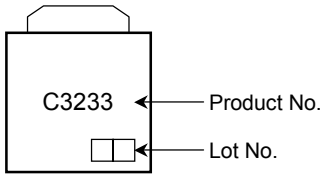
JEDEC	—
JEITA	—
TOSHIBA	2-7J1A

Weight: 0.36 g (typ.)

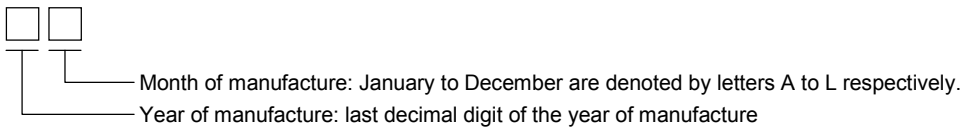
Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	V_{CB} = 400 V, I_E = 0	—	—	100	μA
Emitter cut-off current		I_{EBO}	V_{EB} = 7 V, I_C = 0	—	—	1	mA
Collector-base breakdown voltage		$V_{(BR)\ CBO}$	I_C = 1 mA, I_E = 0	500	—	—	V
Collector-emitter breakdown voltage		$V_{(BR)\ CEO}$	I_C = 10 mA, I_B = 0	400	—	—	V
DC current gain		h_{FE}	V_{CE} = 5 V, I_C = 0.1 A	20	—	—	
			V_{CE} = 5 V, I_C = 1 A	8	—	—	
Collector-emitter saturation voltage		$V_{CE\ (sat)}$	I_C = 1 A, I_B = 0.2 A	—	—	1.0	V
Base-emitter saturation voltage		$V_{BE\ (sat)}$	I_C = 1 A, I_B = 0.2 A	—	—	1.5	V
Switching time	Rise time	t_r		—	—	1.0	μs
	Storage time	t_{stg}		—	—	2.5	
	Fall time	t_f	I_{B1} = −I_{B2} = 0.08 A DUTY CYCLE ≤ 1%	—	—	1.0	

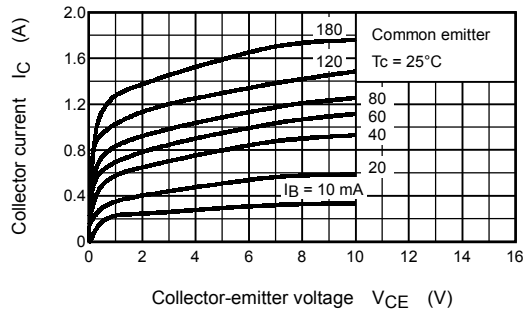
Marking



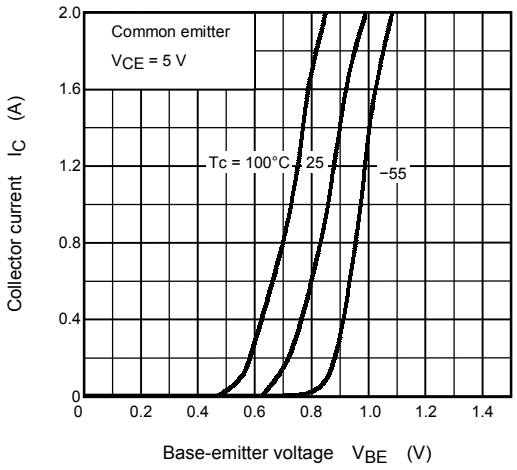
Explanation of Lot No.



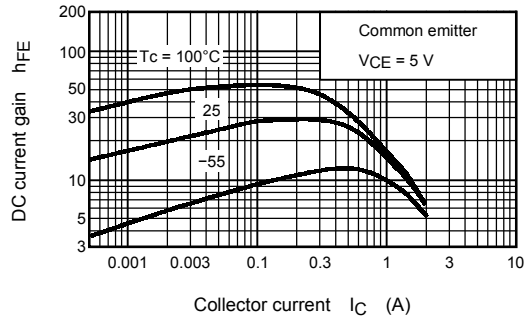
$I_C - V_{CE}$



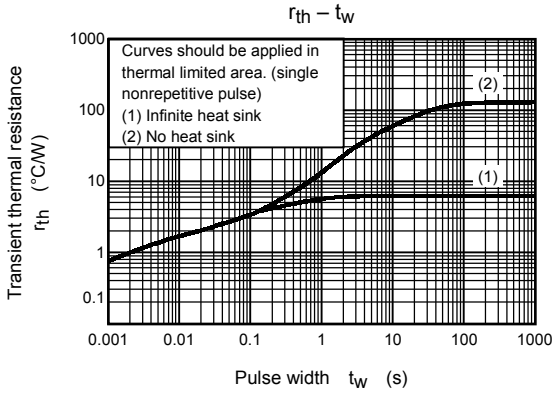
$I_C - V_{BE}$



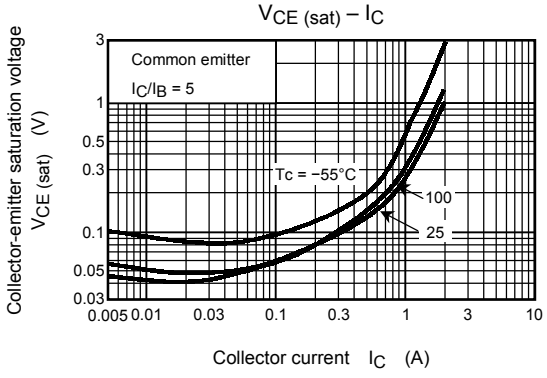
$h_{FE} - I_C$



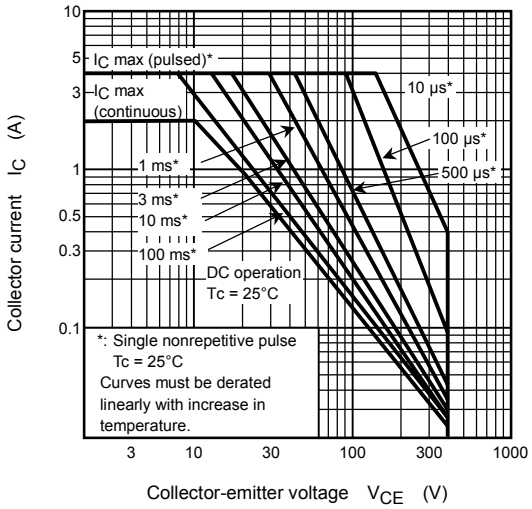
$r_{th} - t_w$



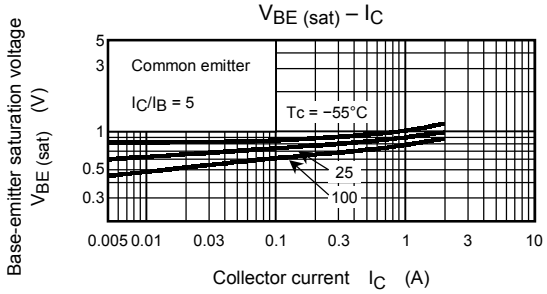
$V_{CE\ (sat)} - I_C$



Safe Operating Area



$V_{BE\ (sat)} - I_C$



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