TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

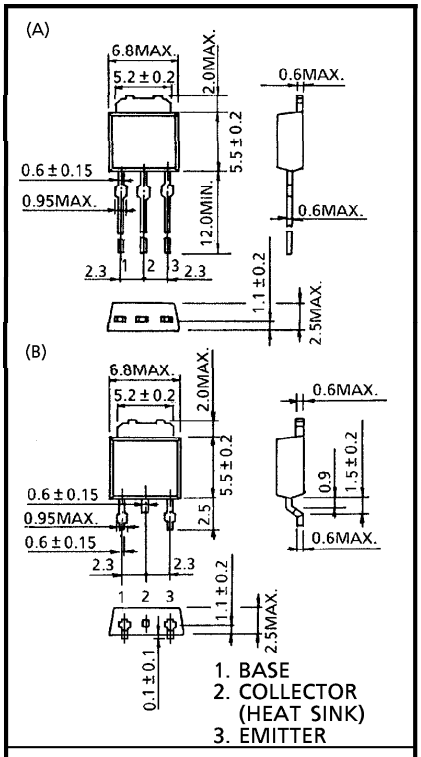
2SC3233

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.) at I_C = 0.8 A
- High Collector Breakdown Voltage : V_{CEO} = 400 V

Unit in mm



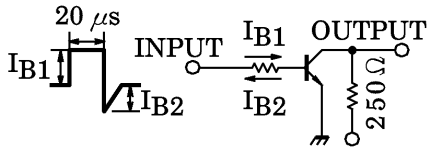
JEDEC	—
JEITA	—
TOSHIBA	(A)2-7B1A (B)2-7B2A

Weight : 0.36 g (Typ.)

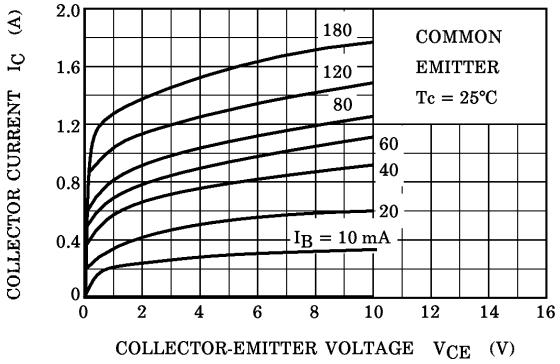
MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC		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}	−55~150	°C

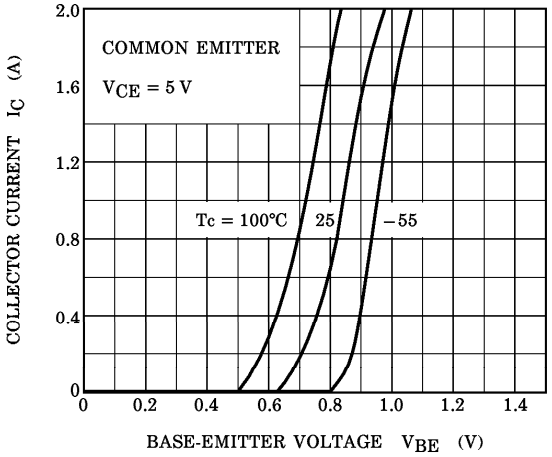
ELECTRICAL CHARACTERISTICS (Tc = 25°C)

CHARACTERISTIC		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	 $I_{B1} = -I_{B2}$ = 0.08 A DUTY CYCLE < 1% V_{CC} ≒ 200 V	—	—	1.0	μs
	Storage Time	t_{stg}		—	—	2.5	
	Fall Time	t_f		—	—	1.0	

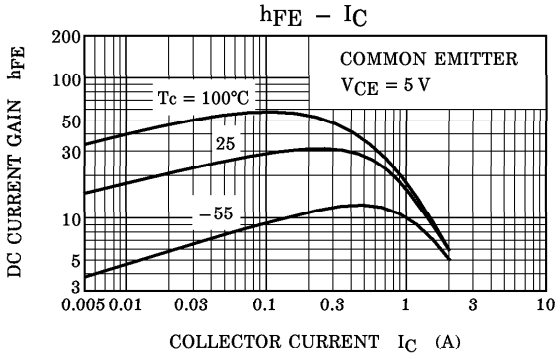
$I_C - V_{CE}$



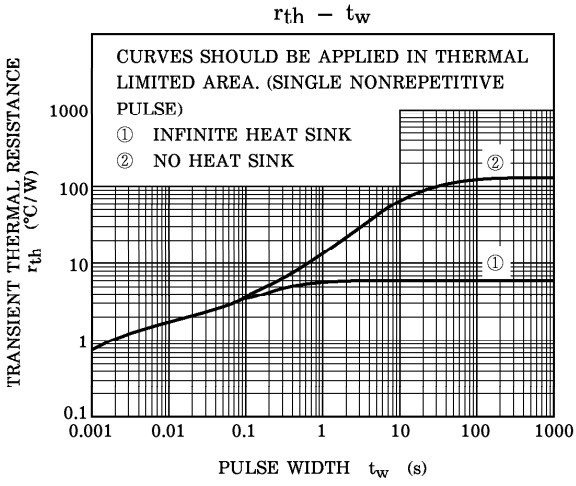
$I_C - V_{BE}$



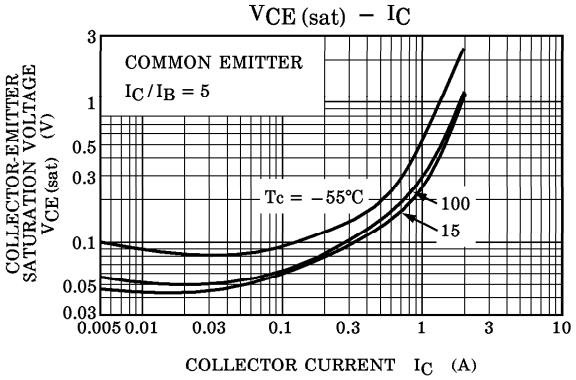
$h_{FE} - I_C$



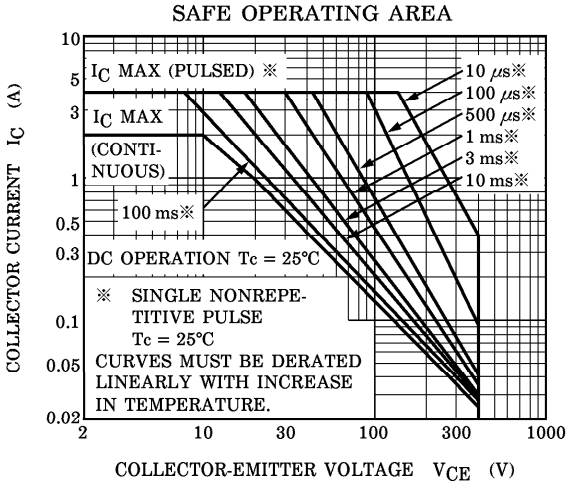
$r_{th} - t_w$



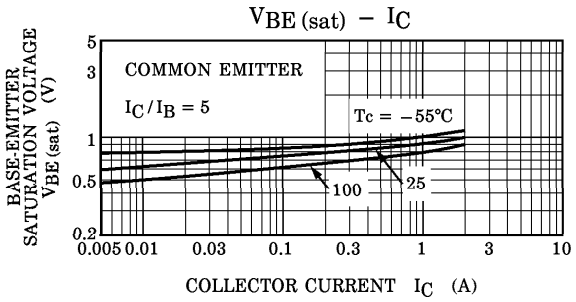
$V_{CE\,(sat)} - I_C$



SAFE OPERATING AREA



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



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