

TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

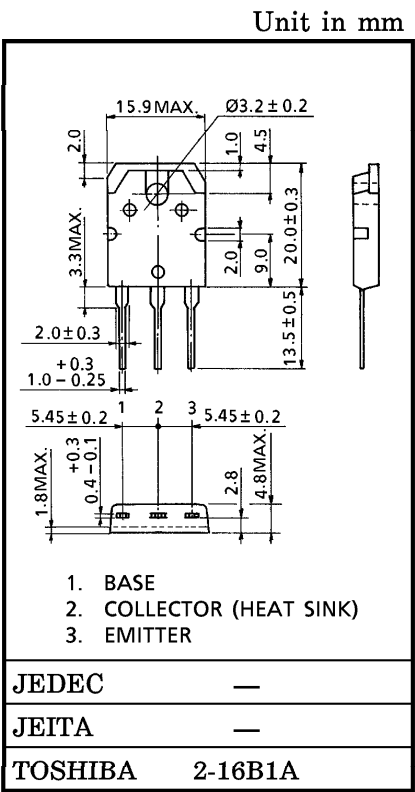
2SD1187

HIGH POWER SWITCHING APPLICATIONS
DC-DC CONVERTER AND DC-AC INVERTER APPLICATIONS

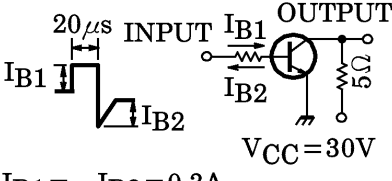
- Low Collector-Emitter Saturation Voltage : $V_{CE(sat)}=0.5V$ (Max.) ($I_C=6A$)
- High Collector Power Dissipation : $P_C=80W$ ($T_c=25^{\circ}C$)

MAXIMUM RATINGS ($T_c=25^{\circ}C$)

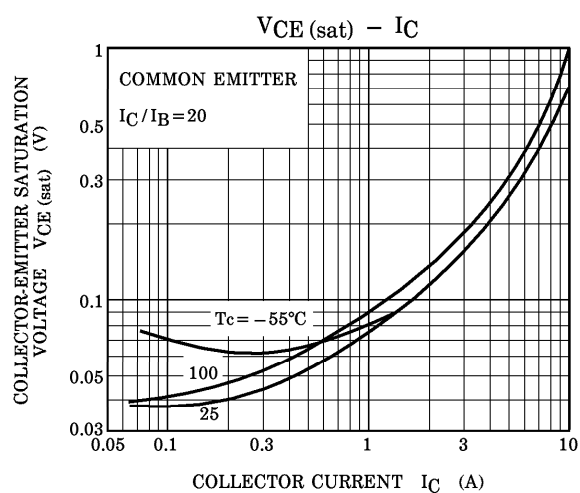
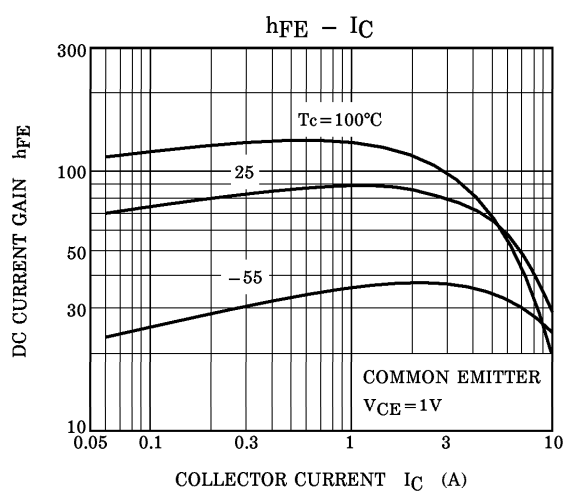
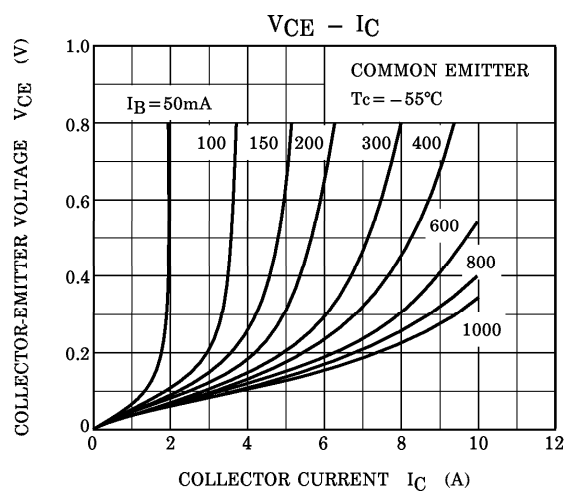
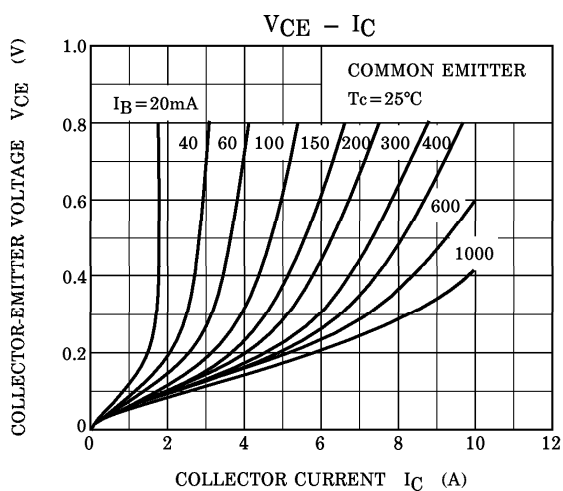
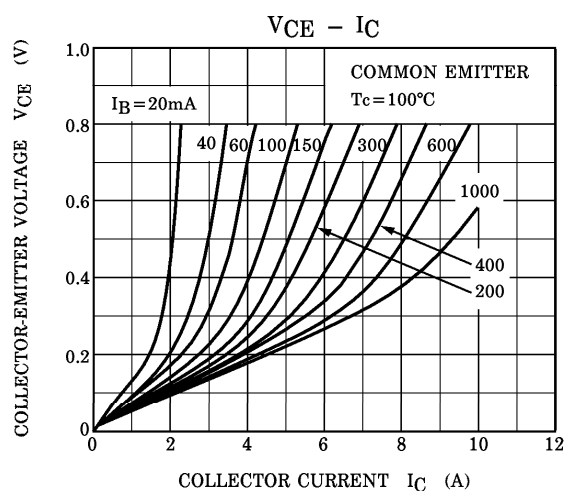
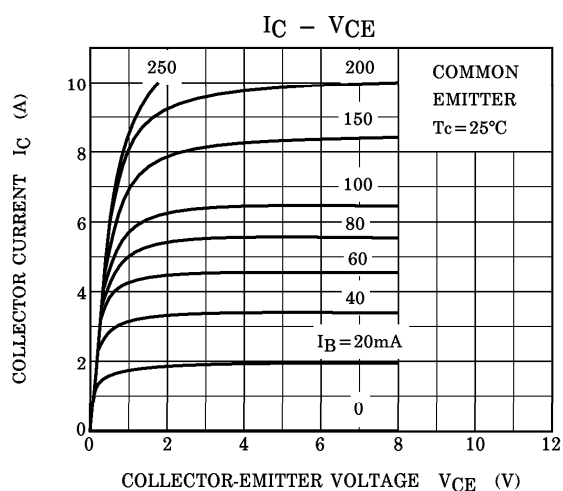
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	10	A
Base Current	I_B	2	A
Collector Power Dissipation ($T_c=25^{\circ}C$)	P_C	80	W
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55~150	$^{\circ}C$

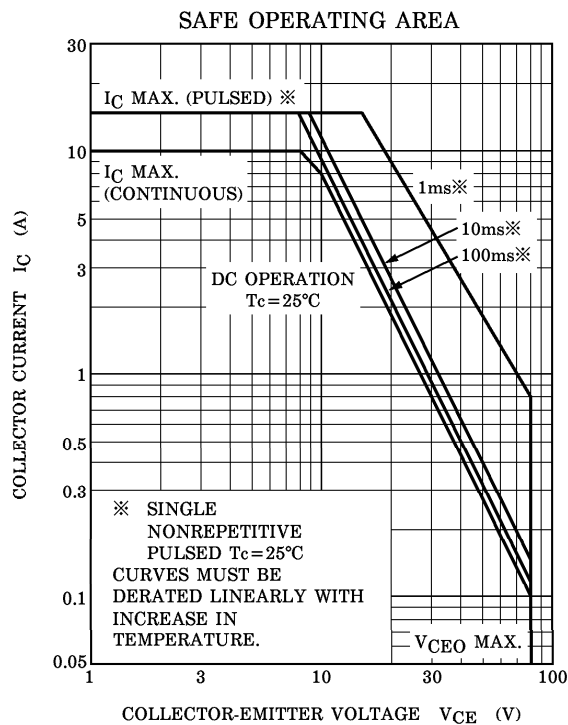
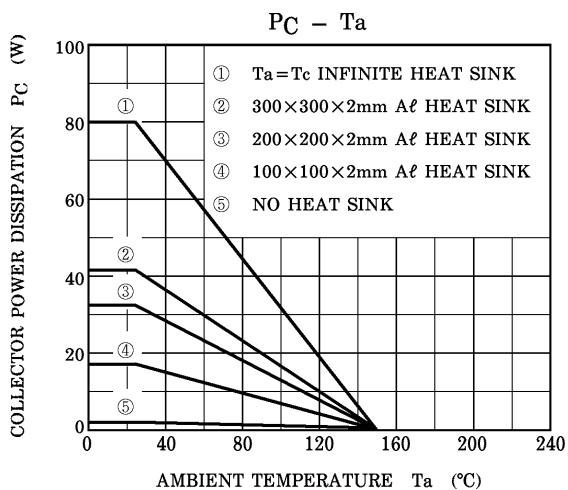
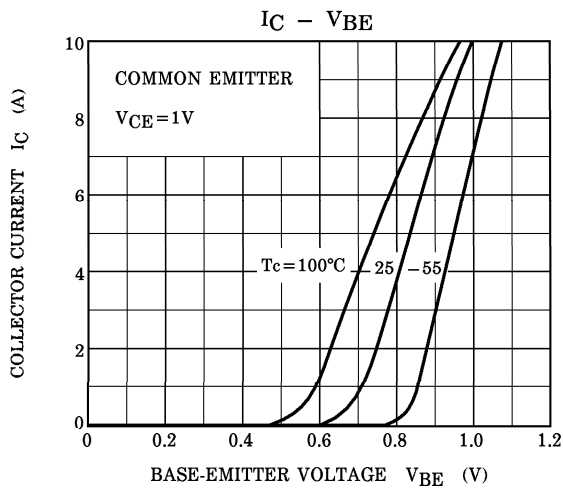
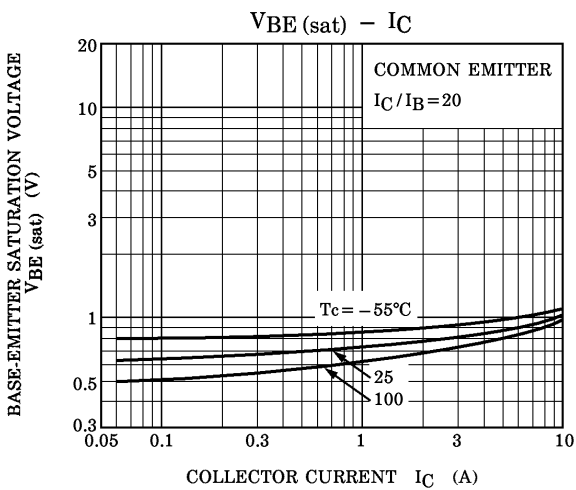


ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 100\text{V}, I_E = 0$	—	—	10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 5\text{V}, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 50\text{mA}, I_B = 0$	80	—	—	V
DC Current Gain		$h_{FE(1)}$ (Note)	$V_{CE} = 1\text{V}, I_C = 1\text{A}$	70	—	240	
		$h_{FE(2)}$	$V_{CE} = 1\text{V}, I_C = 6\text{A}$	30	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 6\text{A}, I_B = 0.3\text{A}$	—	0.3	0.5	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 6\text{A}, I_B = 0.3\text{A}$	—	0.9	1.4	V
Transition Frequency		f_T	$V_{CE} = 4\text{V}, I_C = 1\text{A}$	—	10	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	350	—	pF
Switching Time	Turn-on Time	t_{on}	 $I_{B1} = -I_{B2} = 0.3\text{A}$, DUTY CYCLE $\leq 1\%$	—	0.5	—	μs
	Storage Time	t_{stg}		—	2.5	—	
	Fall Time	t_f		—	0.8	—	

(Note) : $h_{FE(1)}$ Classification O : 70~140, Y : 120~240





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