

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

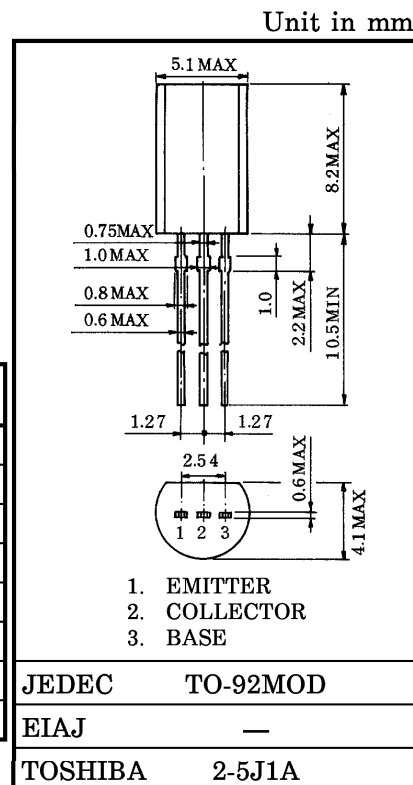
2SA1680

POWER AMPLIFIER APPLICATIONS.
POWER SWITCHING APPLICATIONS.

- Low Collector Saturation Voltage
: $V_{CE(sat)} = -0.5V$ (Max.) ($I_C = -1A$)
- High Collector Power Dissipation : $P_C = 900mW$ ($T_a = 25^\circ C$)
- High Speed Switching Time : $t_{stg} = 300ns$ (Typ.)
- Complementary to 2SC4408.

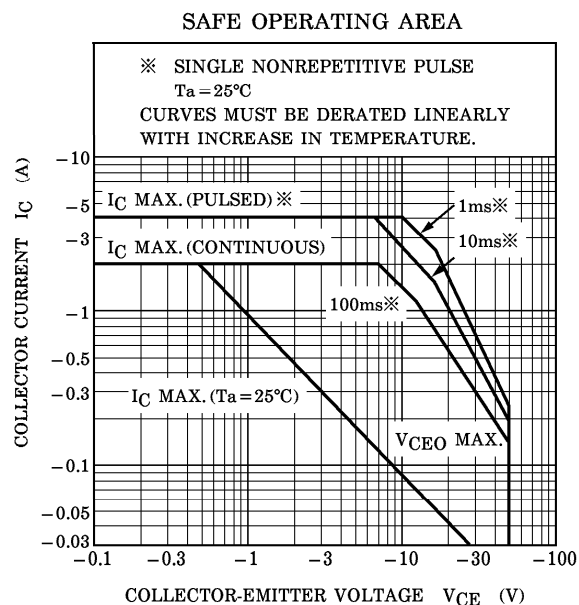
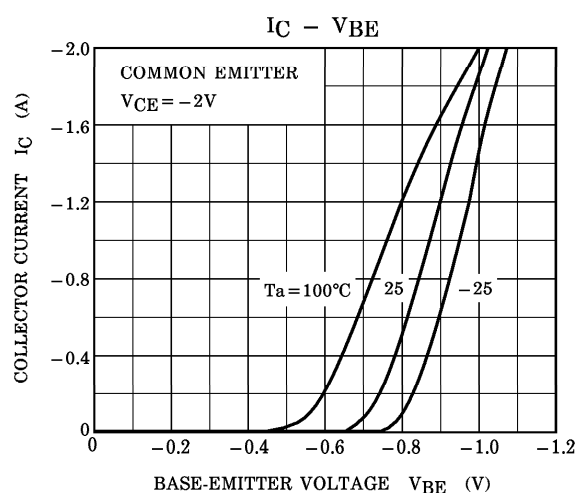
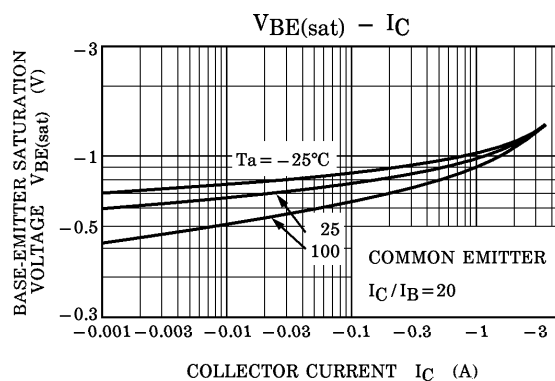
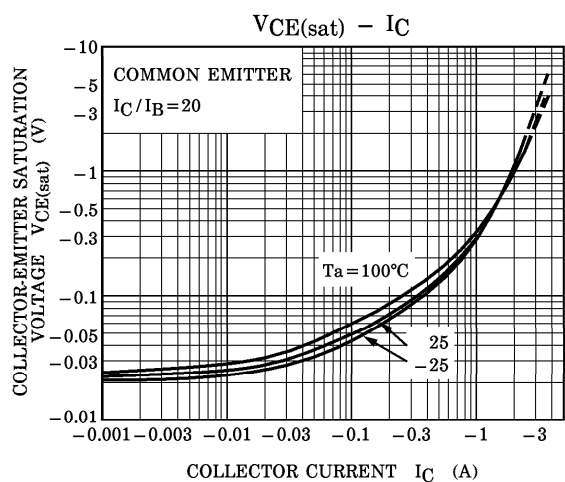
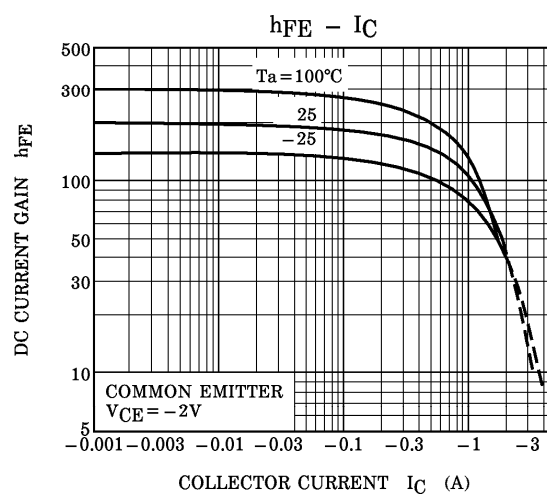
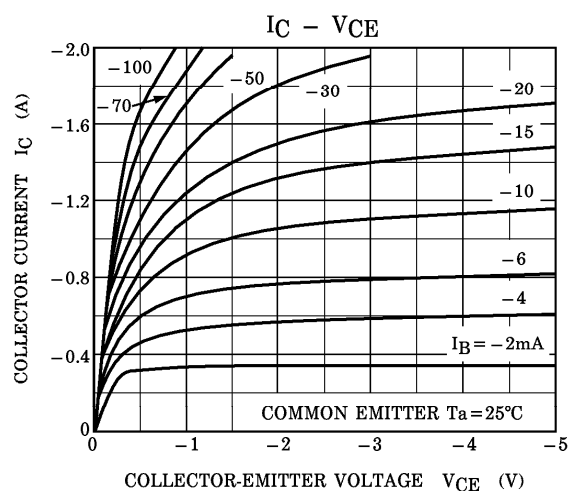
MAXIMUM RATINGS ($T_a = 25^\circ C$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-6	V
Collector Current	I_C	-2	A
Base Current	I_B	-0.2	A
Collector Power Dissipation	P_C	900	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55~150	$^\circ C$

ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Weight : 0.36g

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = -60V, I_E = 0$	—	—	-1.0	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -6V, I_C = 0$	—	—	-1.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -10mA, I_B = 0$	-50	—	—	V
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -2V, I_C = -100mA$	120	—	400	
	$h_{FE(2)}$	$V_{CE} = -2V, I_C = -1.5A$	40	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1A, I_B = -0.05A$	—	—	-0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -1A, I_B = -0.05A$	—	—	-1.2	V
Transition Frequency	f_T	$V_{CE} = -2V, I_C = -100mA$	—	100	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$	—	23	—	pF
Switching Time	Turn-on Time	t_{on}			—	μs
	Storage Time	t_{stg}			0.1	
	Fall Time	t_f			0.3	
					0.1	



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