

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

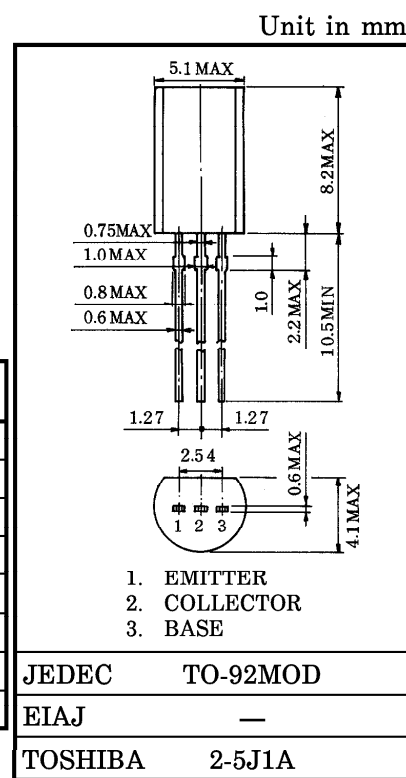
2SA1680

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	$^\circ C$

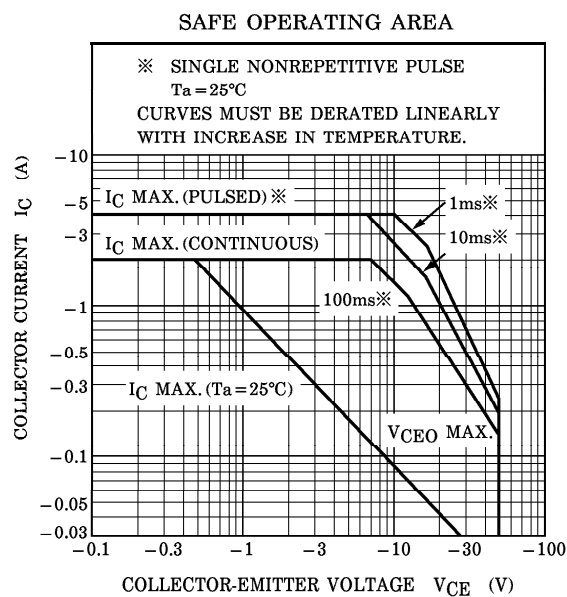
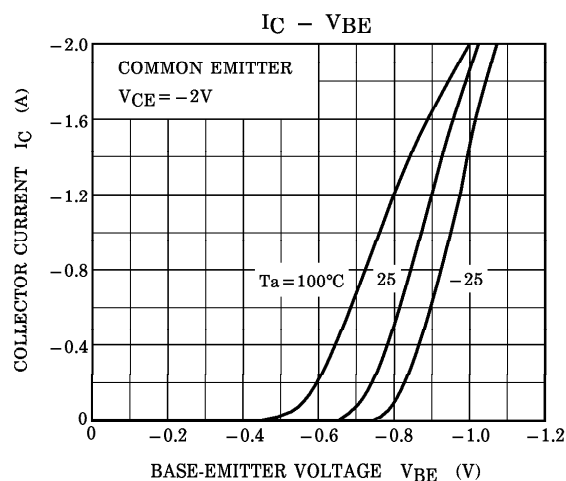
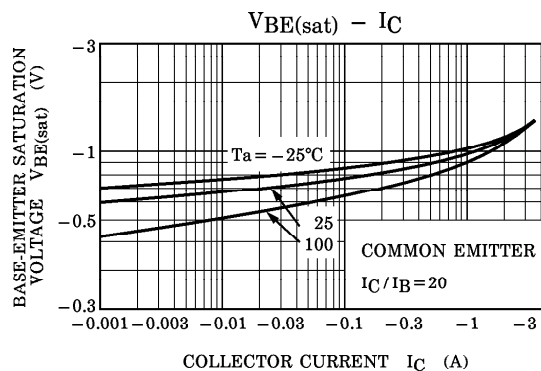
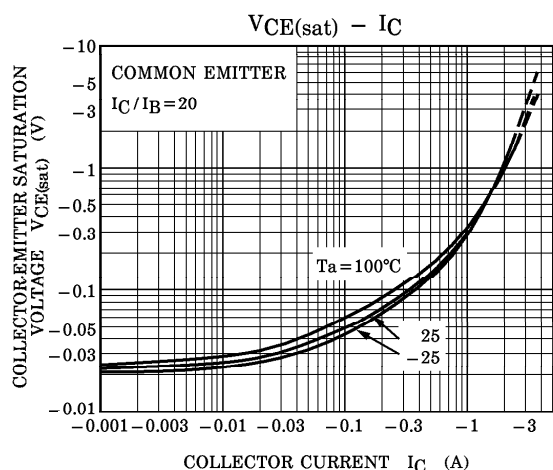
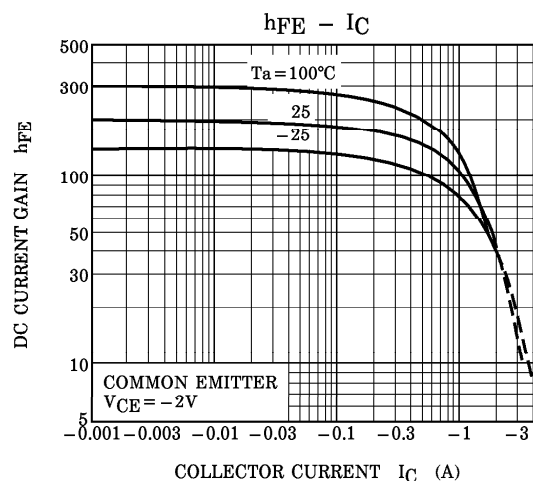
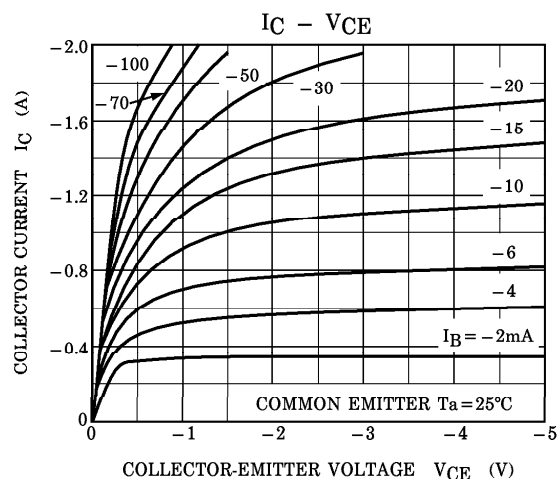
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

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}	<p>$20\mu s$ INPUT I_{B2} I_{B1} OUTPUT 30Ω $V_{CC} = -30V$ DUTY CYCLE $\leq 1\%$</p>	—	0.1	—	μs
	Storage Time	t_{stg}		—	0.3	—	
	Fall Time	t_f		—	0.1	—	

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