

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

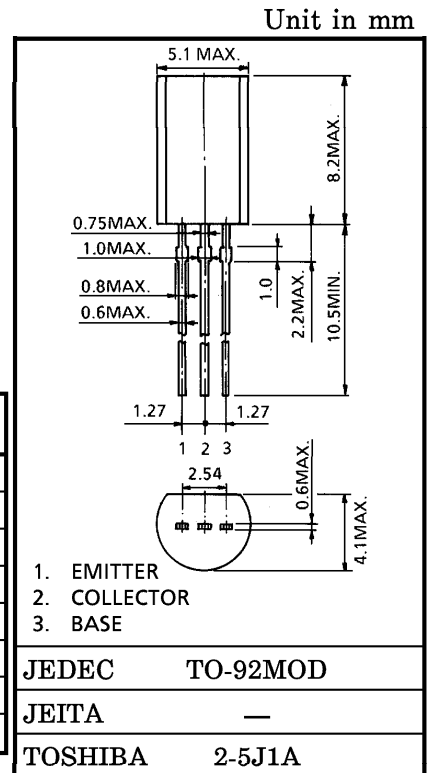
# 2SC4408

POWER AMPLIFIER APPLICATIONS  
POWER SWITCHING APPLICATIONS

- Low Collector Saturation Voltage :  $V_{CE(sat)} = 0.5V$  (Max.)
- High Collector Power Dissipation :  $P_C = 900mW$  ( $T_a = 25^\circ C$ )
- High Speed Switching Time :  $t_{stg} = 500ns$  (Typ.)
- Complementary to 2SA1680

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

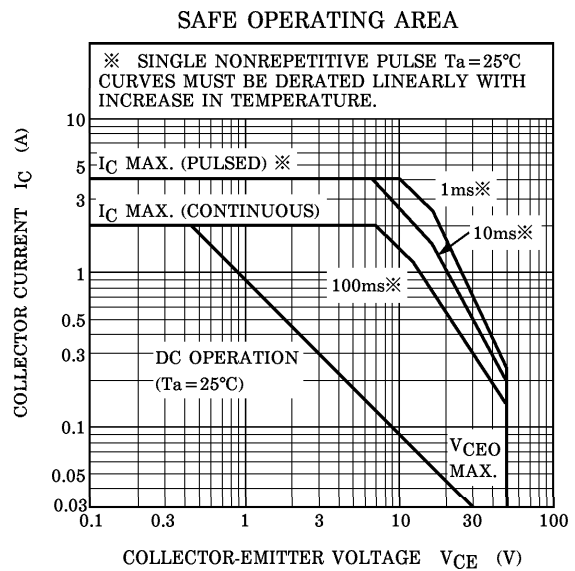
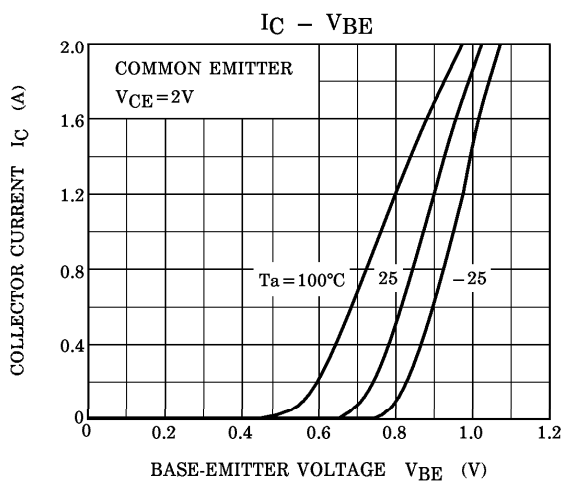
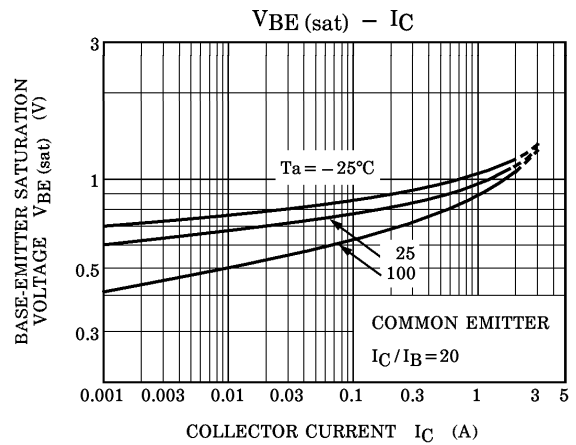
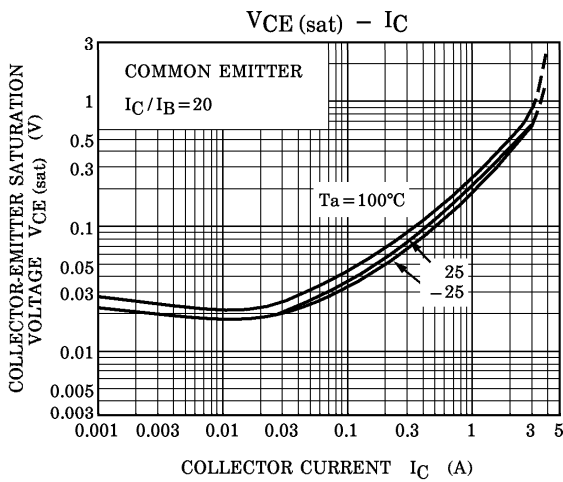
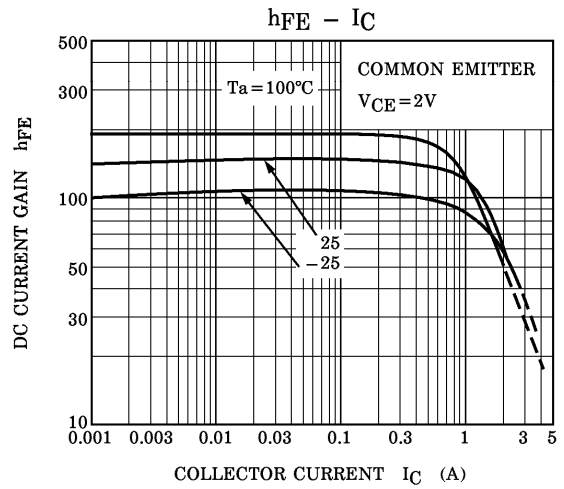
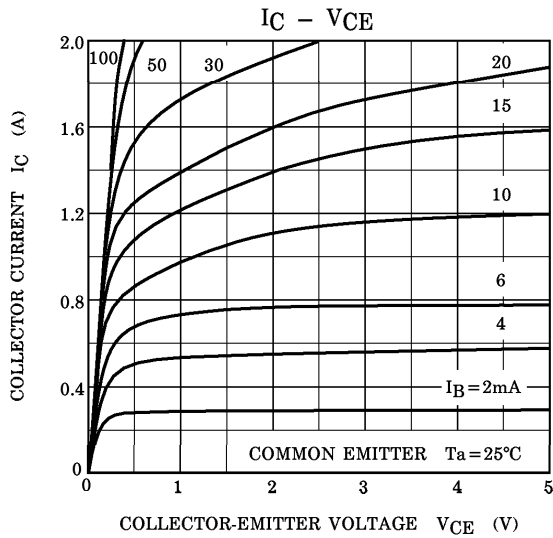
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	$V_{CB0}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	2	A
Base Current	$I_B$	0.2	A
Collector Power Dissipation	$P_C$	900	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ C$



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

Weight : 0.36g (Typ.)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT		
Collector Cut-off Current	$I_{CB0}$	$V_{CB} = 80V, I_E = 0$	—	—	1.0	$\mu A$		
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 6V, I_C = 0$	—	—	1.0	$\mu A$		
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	$C_{ob}$	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	14	—	pF		
Switching Time	Turn-on Time	$t_{on}$			—	0.1	—	$\mu s$
	Storage Time	$t_{stg}$			—	0.5	—	
	Fall Time	$t_f$	$I_{B1} = -I_{B2} = 0.05A,$ DUTY CYCLE $\leq 1\%$		—	0.1	—	



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