

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

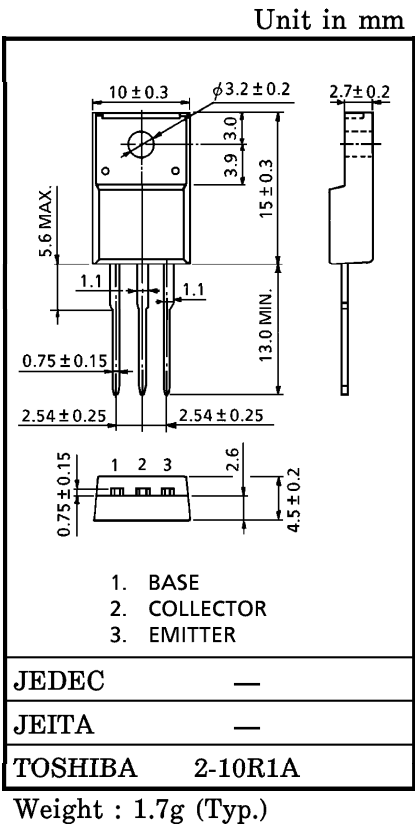
2SC3709A

HIGH CURRENT SWITCHING APPLICATIONS

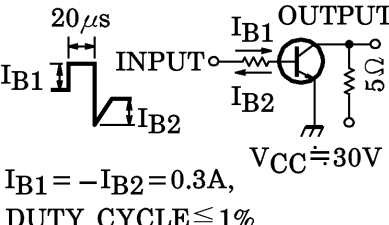
- Low Collector Saturation Voltage : $V_{CE(sat)}=0.4V$ (Max.)
- High Speed Switching Time : $t_{stg}=1.0\mu s$ (Typ.)
- Complementary to 2SA1451A

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

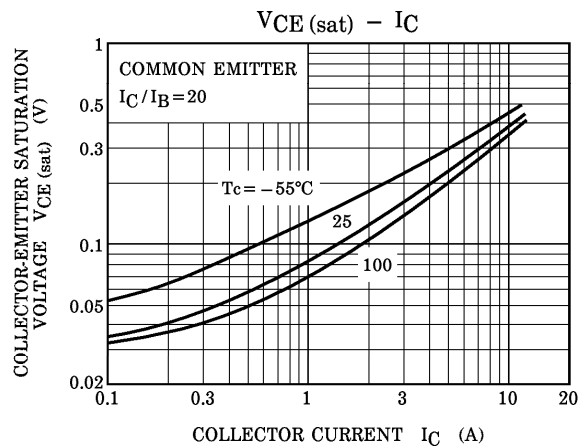
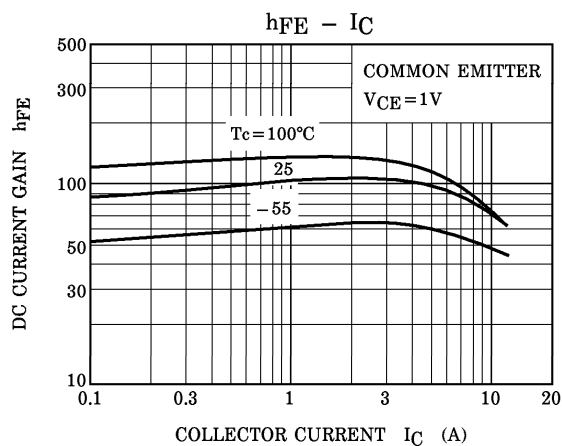
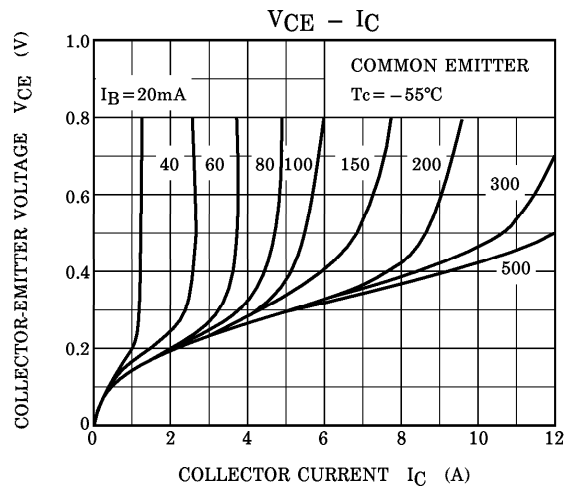
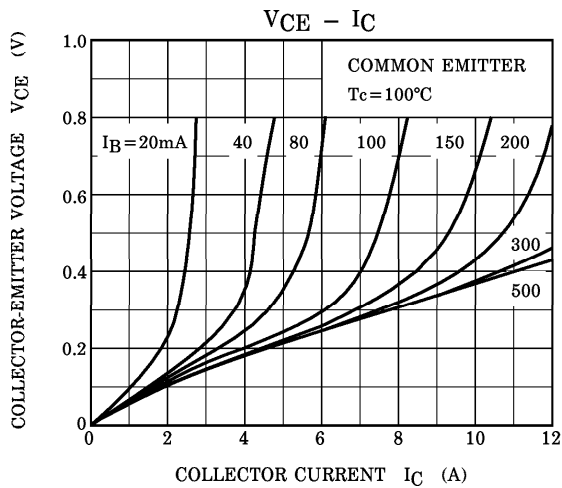
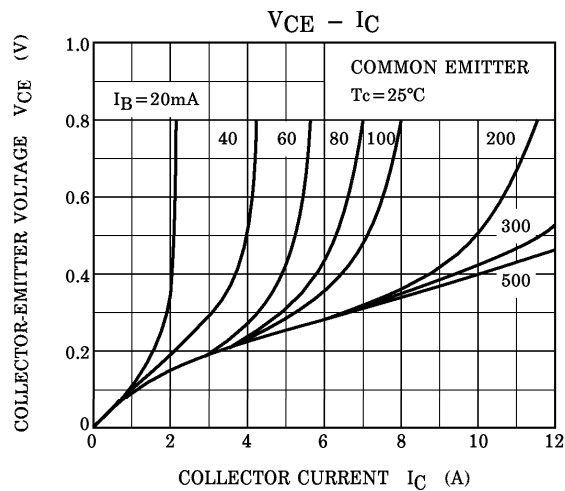
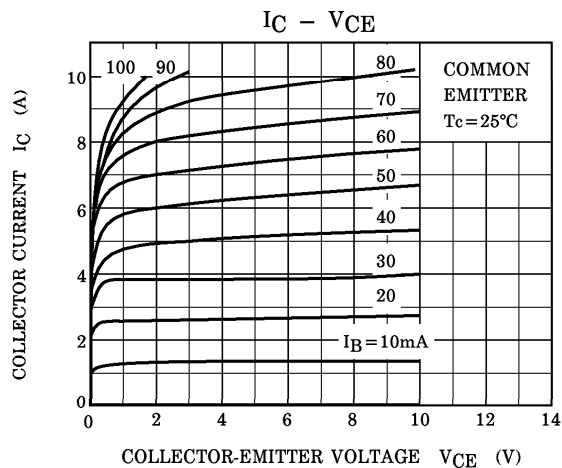
CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	12	A
Base Current	I_B	2	A
Collector Power Dissipation ($T_c=25^{\circ}C$)	P_C	30	W
Junction Temperature	T_j	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	$-55\sim150$	$^{\circ}C$

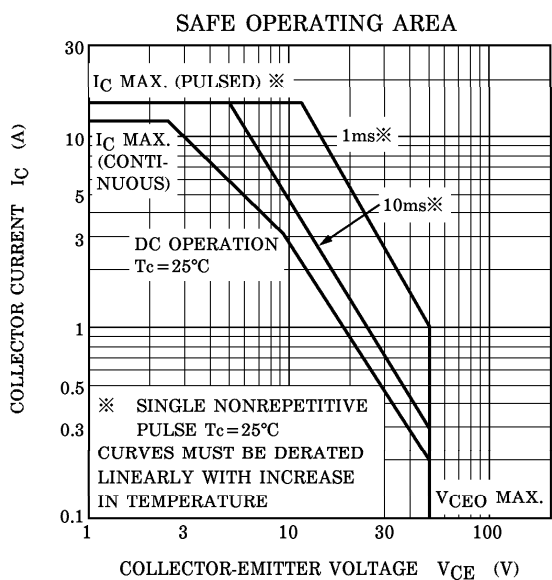
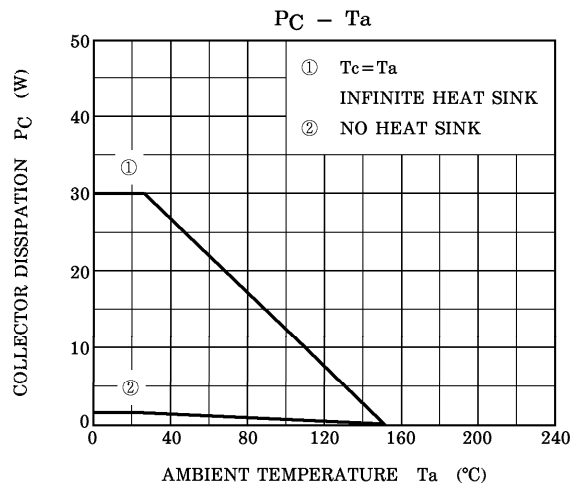
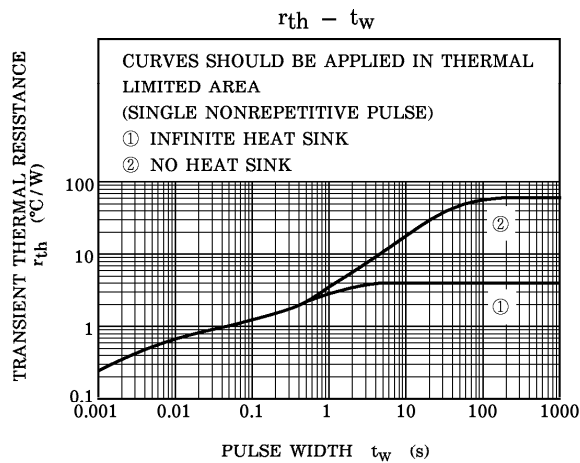
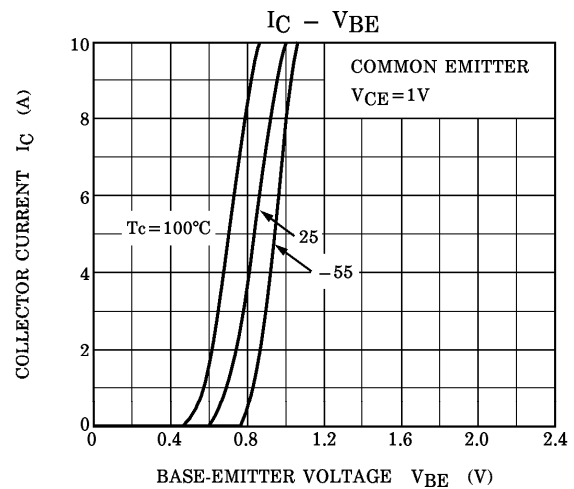
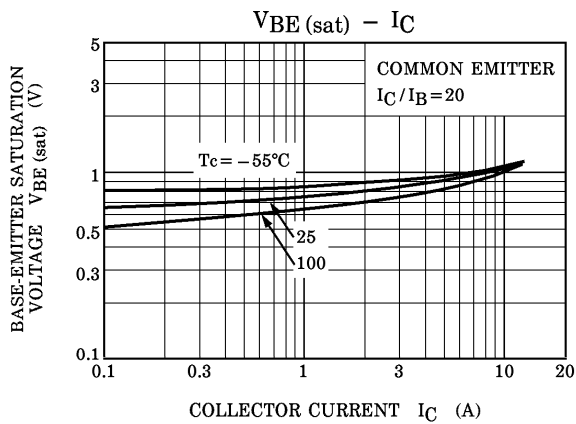


ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = 60\text{V}, I_E = 0$	—	—	10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = 6\text{V}, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 50\text{mA}, I_B = 0$	50	—	—	V
DC Current Gain	$h_{FE(1)}$ (Note)		$V_{CE} = 1\text{V}, I_C = 1\text{A}$	70	—	240	
	$h_{FE(2)}$		$V_{CE} = 1\text{V}, I_C = 6\text{A}$	40	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 6\text{A}, I_B = 0.3\text{A}$	—	0.25	0.4	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 6\text{A}, I_B = 0.3\text{A}$	—	0.9	1.2	V
Transition Frequency		f_T	$V_{CE} = 5\text{V}, I_C = 1\text{A}$	—	90	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	180	—	pF
Switching Time	Turn-on Time	t_{on}	 20μs I_{B1} INPUT I_{B2} OUTPUT 5Ω $V_{CC} \doteq 30\text{V}$ $I_{B1} = -I_{B2} = 0.3\text{A}$, DUTY CYCLE $\leq 1\%$	—	0.2	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.2	—	

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





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