

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

2SD2092

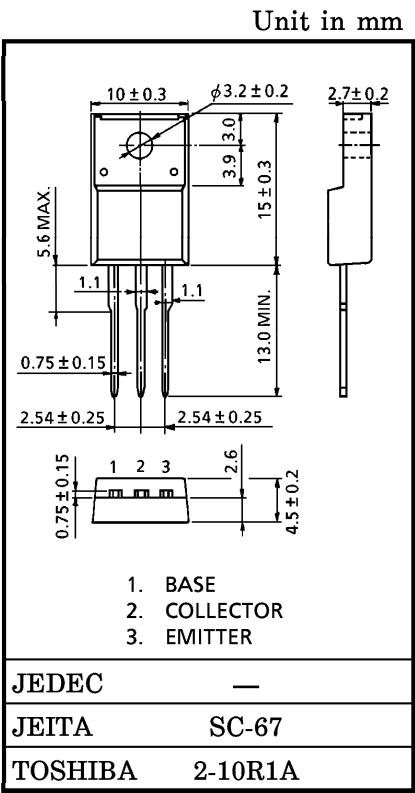
SWITCHING APPLICATIONS

LAMP, SOLENOID DRIVE APPLICATIONS

- High DC Current Gain : $h_{FE(1)}=500\sim1500$
- Low Collector Saturation Voltage
: $V_{CE(sat)}=0.3V$ (Max.)

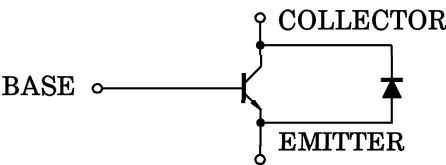
MAXIMUM RATINGS (Tc = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	100	V
Collector-Emitter Voltage		V_{CEO}	100	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	3	A
	Pulse	I_{CP}	5	
Base Current		I_B	1	A
Collector Power Dissipation	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		25	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	-55~150	°C

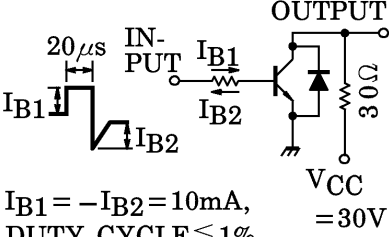


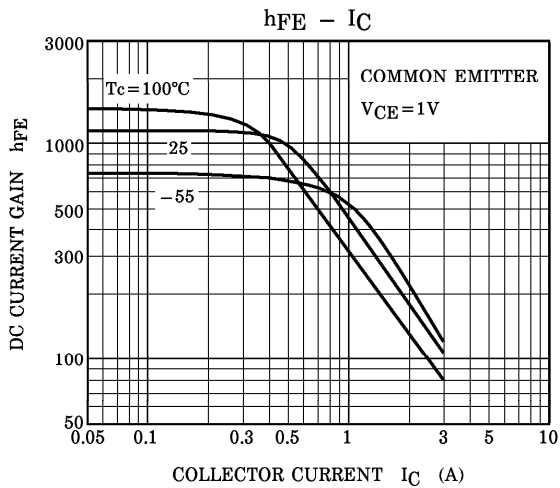
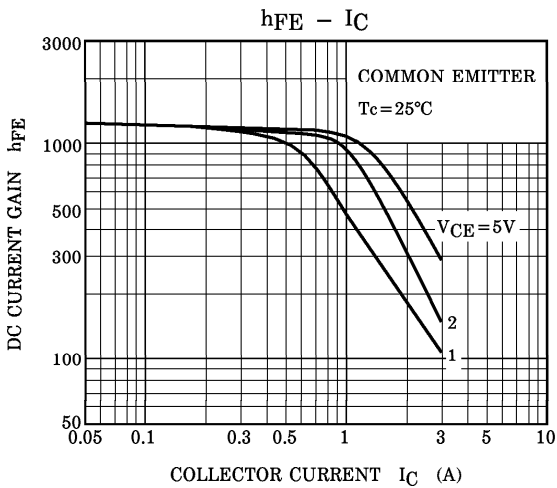
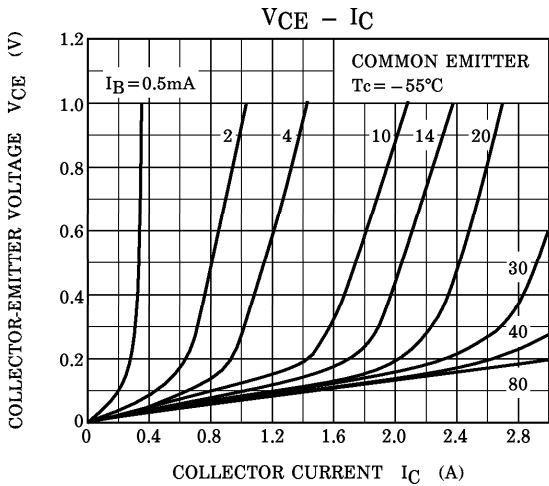
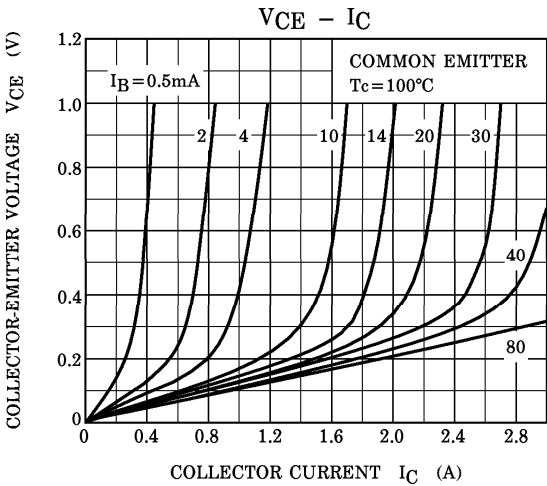
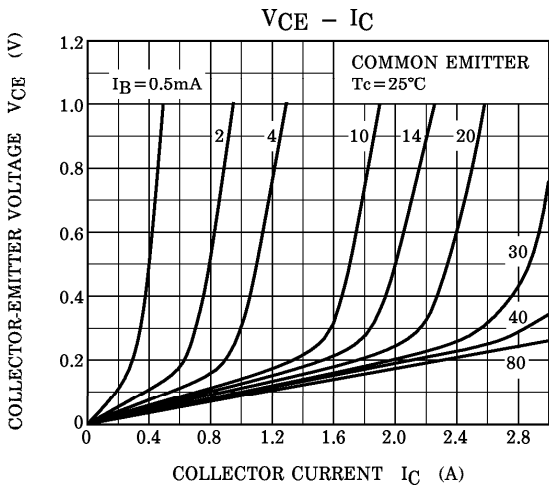
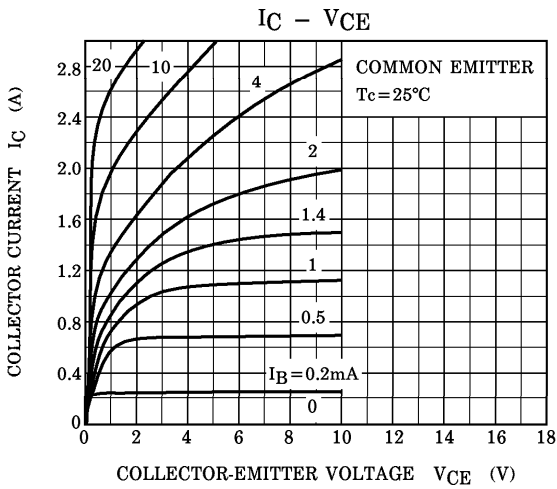
Weight : 1.7g (Typ.)

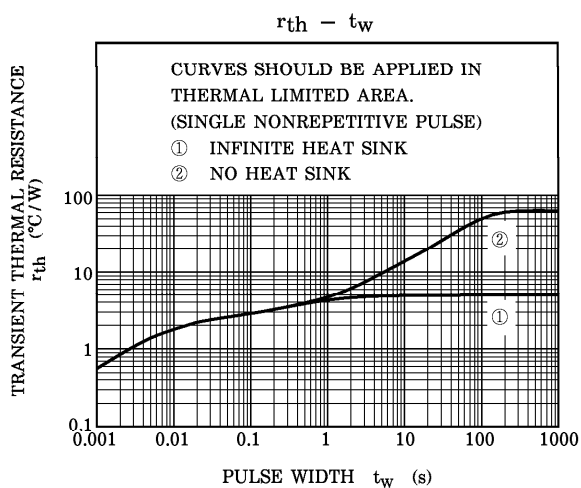
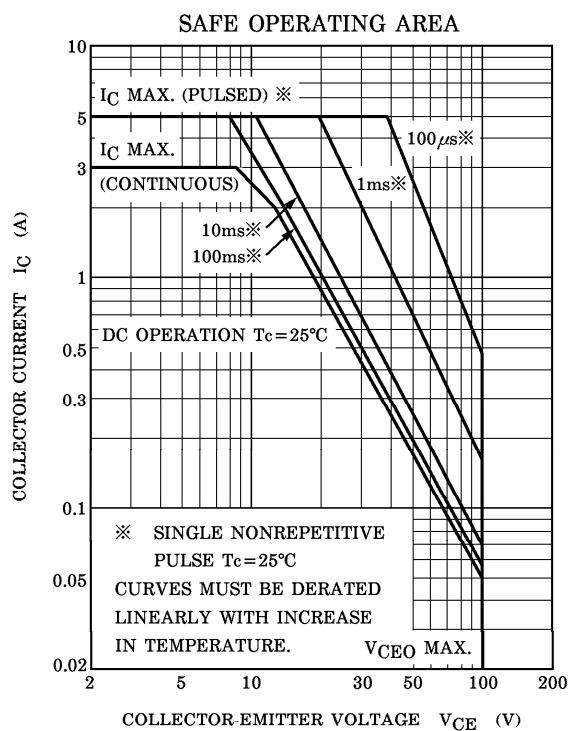
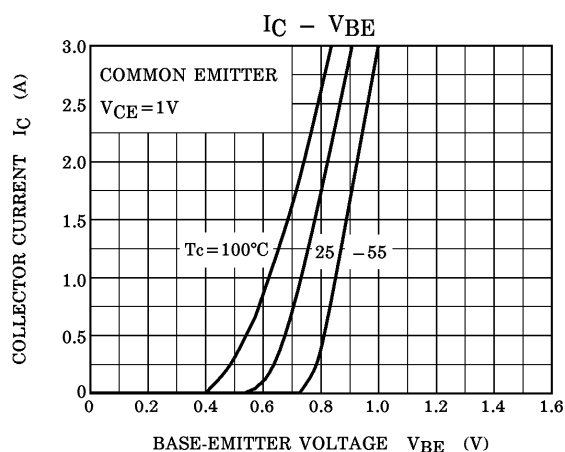
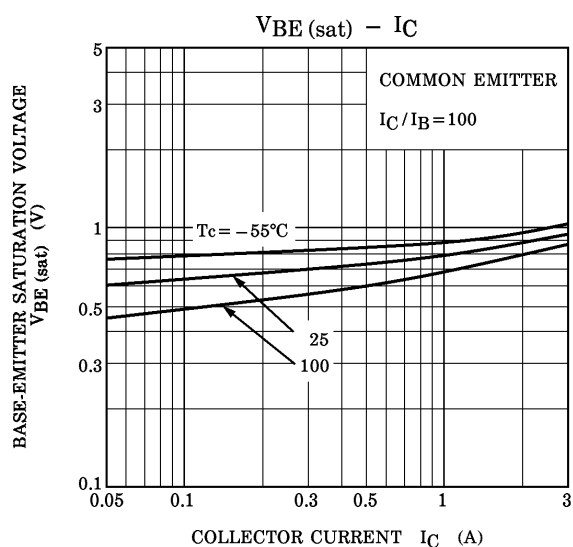
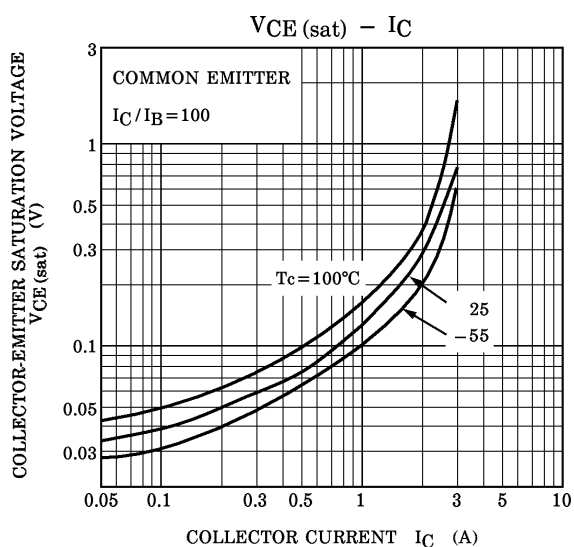
EQUIVALENT CIRCUIT



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}	$V_{EB} = 7\text{V}, I_C = 0$	—	—	10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	$I_C = 50\text{mA}, I_B = 0$	100	—	—	V
DC Current Gain		$h_{FE(1)}$	$V_{CE} = 1\text{V}, I_C = 0.5\text{A}$	500	—	1500	
		$h_{FE(2)}$	$V_{CE} = 1\text{V}, I_C = 1\text{A}$	150	—	—	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	$I_C = 1\text{A}, I_B = 10\text{mA}$	—	—	0.3	V
Base-Emitter Saturation Voltage		$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 10\text{mA}$	—	—	1.2	V
Collector-Emitter Forward Voltage		V_{ECF}	$I_E = 1\text{A}, I_B = 0$	—	—	2.0	V
Transition Frequency		f_T	$V_{CE} = 5\text{V}, I_C = 0.5\text{A}$	—	140	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	30	—	pF
Switching Time	Turn-on Time	t_{on}	 $I_{B1} = -I_{B2} = 10\text{mA}$, DUTY CYCLE $\leq 1\%$	—	0.5	—	μs
	Storage Time	t_{stg}		—	5	—	
	Fall Time	t_f		—	0.7	—	





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