

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

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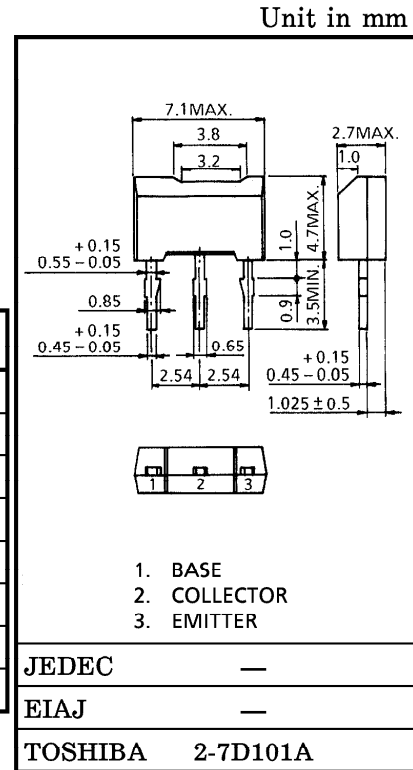
SWITCHING APPLICATIONS

SOLENOID DRIVE APPLICATIONS

- High DC Current Gain : $h_{FE} = 500$ (Min.)
- Low Saturation Voltage : $V_{CE(sat)} = 0.5V$ (Max.)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	40	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	2	A
Base Current	I_B	0.5	A
Collector Power Dissipation	P_C	1000	mW
Junction Temperature	T_j	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55~150	$^\circ C$



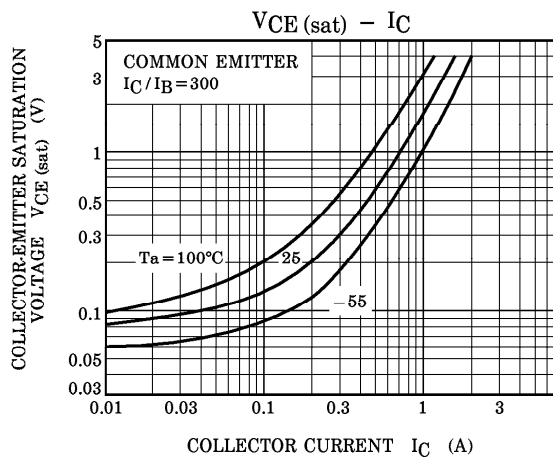
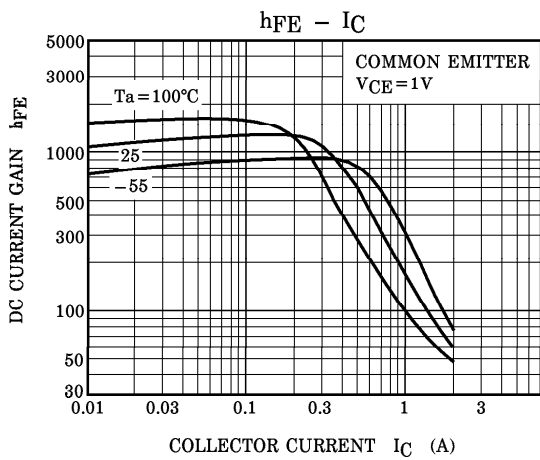
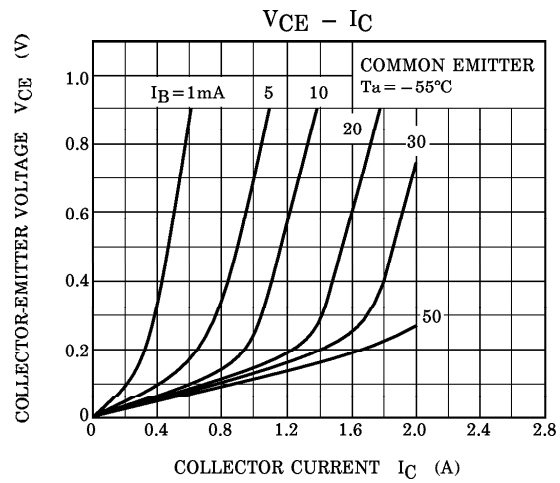
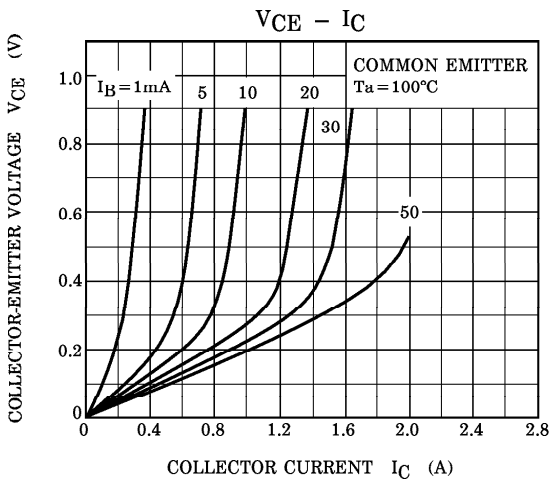
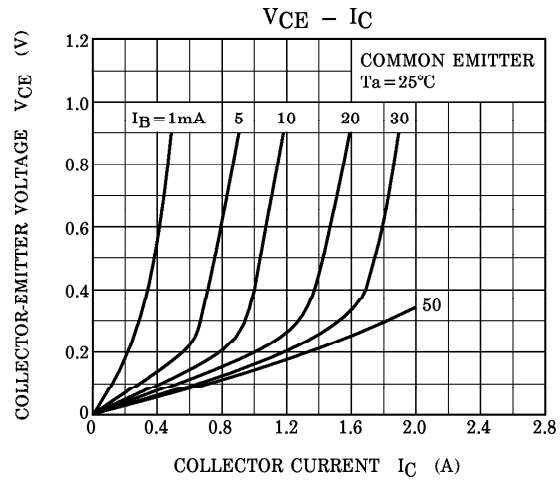
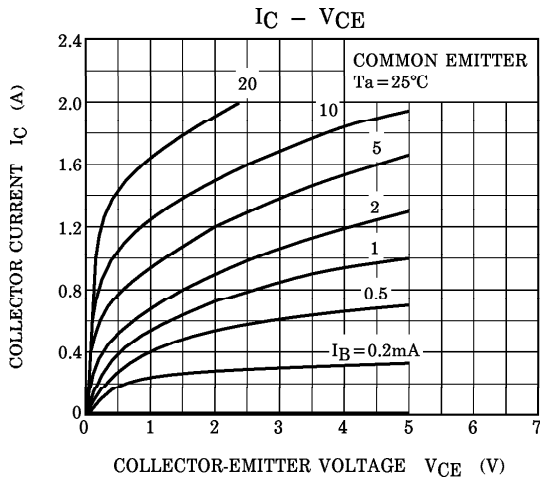
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ C$)

Weight : 0.2g (Typ.)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Current	I_{CBO}	$V_{CB} = 40V, I_E = 0$	—	—	10	μA	
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 7V, I_C = 0$	—	—	1	μA	
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	40	—	—	V	
DC Current Gain	h_{FE}	$V_{CE} = 1V, I_C = 400mA$	500	—	—		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 300mA, I_B = 1mA$	—	0.3	0.5	V	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 300mA, I_B = 1mA$	—	—	1.1	V	
Transition Frequency	f_T	$V_{CE} = 2V, I_C = 100mA$	—	220	—	MHz	
Collector Output Capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	—	20	—	pF	
Switching Time	Turn-on Time	t_{on}					
	Storage Time	t_{stg}	—	1.0	—	μs	
	Fall Time	t_f	—	3.0	—		
		$I_{B1} = -I_{B2} = 1mA,$ DUTY CYCLE $\leq 1\%$	—	1.2	—		

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