TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

2SA1451A

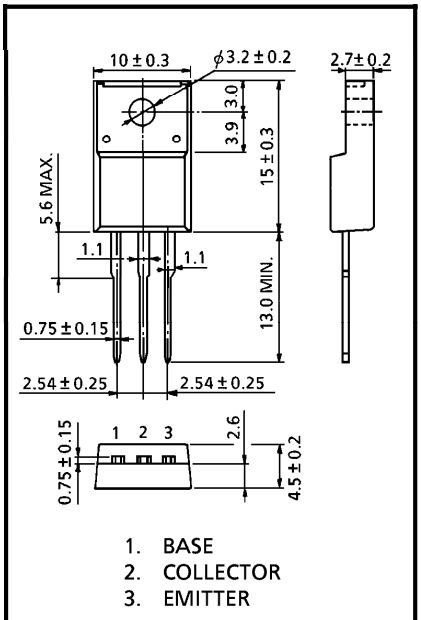
HIGH SPEED, HIGH CURRENT SWITCHING APPLICATIONS

- Low Collector Saturation Voltage
  : $V_{CE\ (sat)} = -0.4V$ (Max.) (at $I_C = -6A$)
- High Speed Switching Time : $t_{stg} = 1.0\mu s$ (Typ.)
- Complementary to 2SC3709A

MAXIMUM RATINGS (Tc = 25°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 (Tc = 25°C)	P_C	30	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

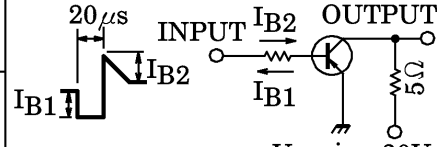
Unit in mm



JEDEC	—
JEITA	—
TOSHIBA	2-10R1A

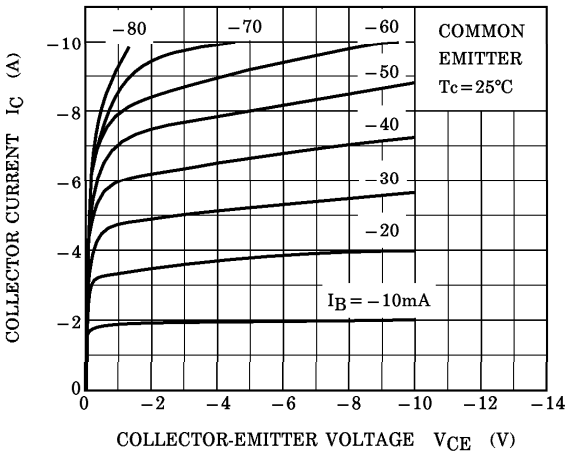
Weight : 1.7g (Typ.)

ELECTRICAL CHARACTERISTICS (Tc = 25°C)

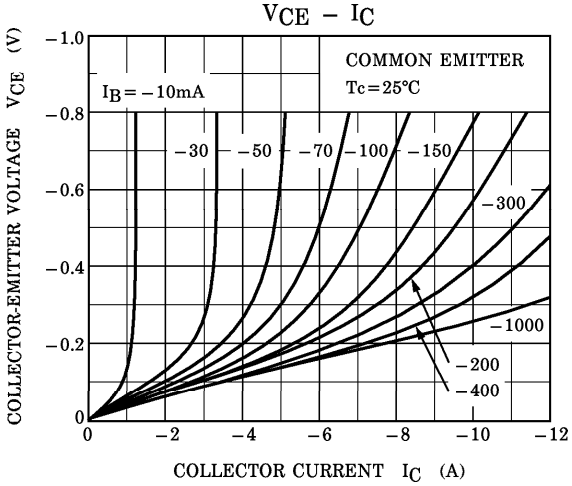
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB} = -60V$, $I_E = 0$	—	—	−10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB} = -6V$, $I_C = 0$		—	−10	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	$I_C = -50mA$, $I_B = 0$	−50	—	—	V
DC Current Gain		$h_{FE\,(1)}$ (Note)	$V_{CE} = -1V$, $I_C = -1A$	70	—	240	
		$h_{FE\,(2)}$	$V_{CE} = -1V$, $I_C = -6A$	40	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE\,(sat)}$	$I_C = -6A$, $I_B = -0.3A$	—	−0.15	−0.4	V
	Base-Emitter	$V_{BE\,(sat)}$	$I_C = -6A$, $I_B = -0.3A$	—	−0.9	−1.2	
Transition Frequency		f_T	$V_{CE} = -5V$, $I_C = -1A$	—	70	—	MHz
Collector Output Capacitance		C_{ob}	$V_{CB} = -10V$, $I_E = 0$, f = 1MHz	—	320	—	pF
Switching Time	Turn-on Time	t_{on}	 $-I_{B1} = I_{B2} = 0.3A$ DUTY CYCLE ≦ 1%	—	0.3	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.2	—	

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

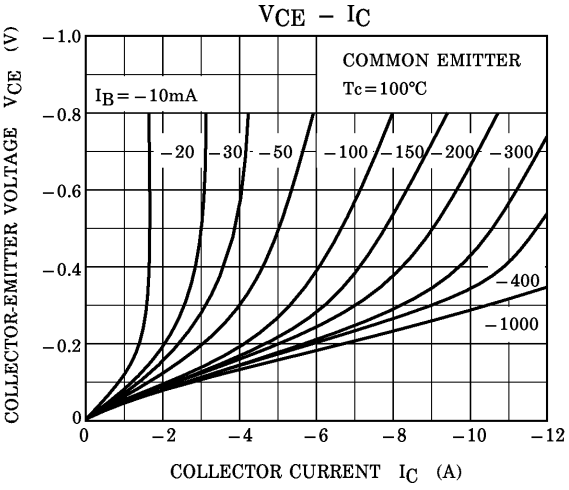
$I_C - V_{CE}$



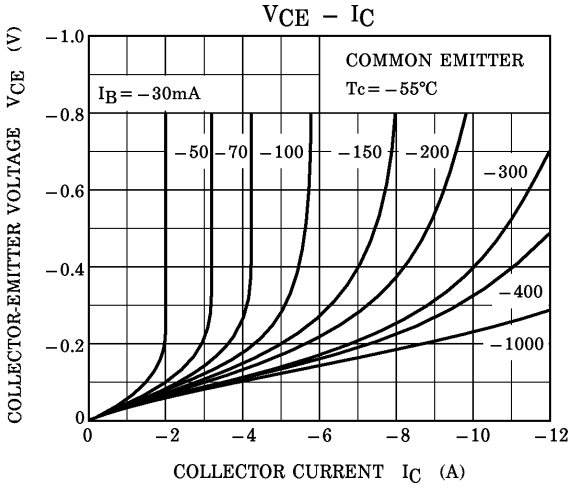
$V_{CE} - I_C$



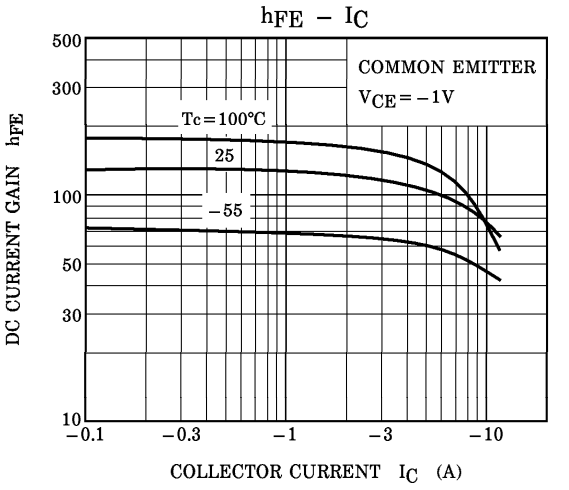
$V_{CE} - I_C$



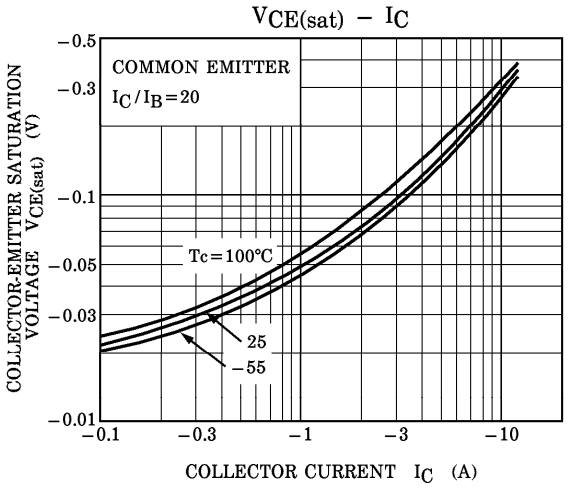
$V_{CE} - I_C$



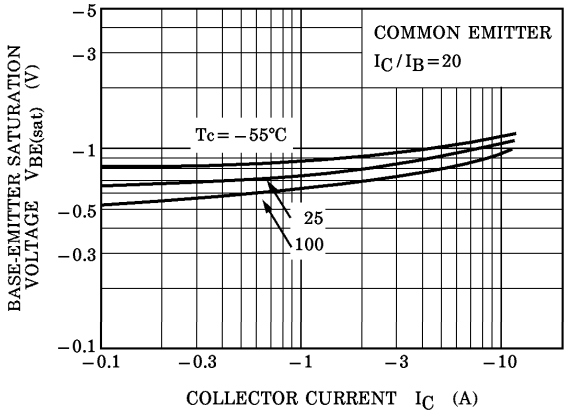
$h_{FE} - I_C$



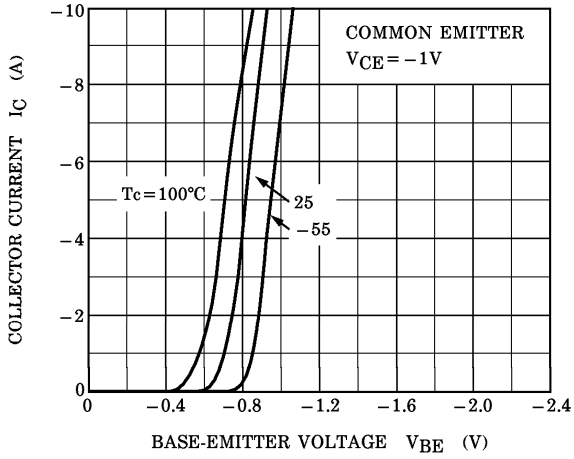
$V_{CE(sat)} - I_C$



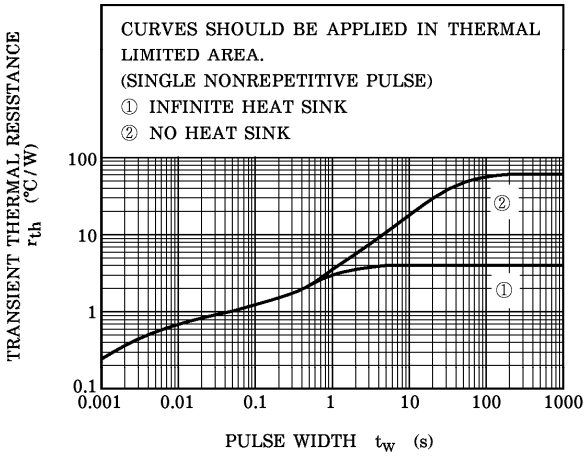
$V_{BE(sat)}$ – I_C



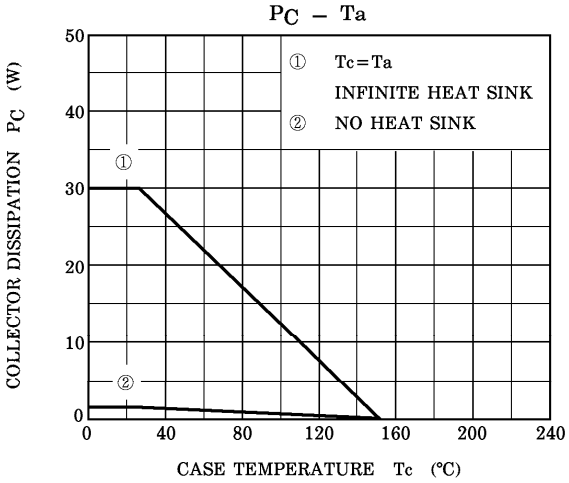
I_C – V_{BE}



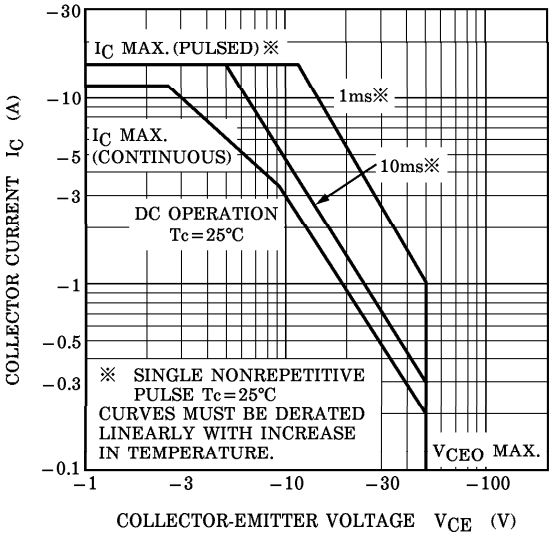
r_{th} – t_w



P_C – Ta



SAFE OPERATING AREA



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