TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

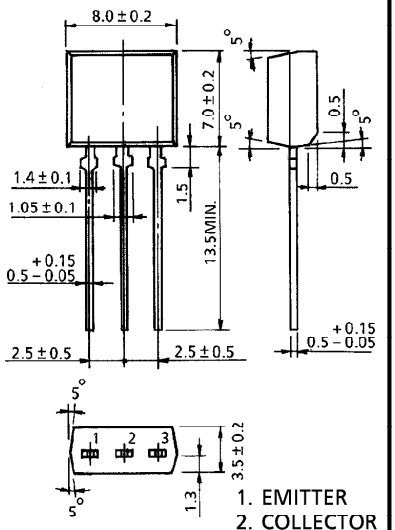
2SC5029

POWER AMPLIFIER APPLICATIONS

POWER SWITCHING APPLICATIONS

- Low Saturation Voltage
  : $V_{CE\,(sat)}$ = 0.5V (Max.)
- High Collector Power Dissipation : P_C = 1.3W (Ta = 25°C)
- High Speed Switching : t_{stg} = 1.0μs (Typ.)
- Complementary to 2SA1892

Unit in mm



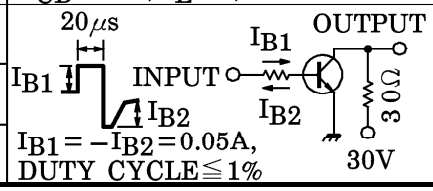
JEDEC	—
EIAJ	—
TOSHIBA	2-8M1A

Weight : 0.55g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	50	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current	I_C	3	A
Base Current	I_B	0.2	A
Collector Power Dissipation	P_C	1.3	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 50V, I_E = 0	—	—	1.0	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 5V, I_C = 0	—	—	1.0	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	I_C = 10mA, I_B = 0	50	—	—	V
DC Current Gain		$h_{FE\,(1)}$ (Note)	V_{CE} = 2V, I_C = 0.5A	70	—	240	
		$h_{FE\,(2)}$	V_{CE} = 2V, I_C = 1.5A	40	—	—	
Saturation Voltage	Collector-Emitter	$V_{CE\,(sat)}$	I_C = 1A, I_B = 0.05A	—	—	0.5	V
	Base-Emitter	$V_{BE\,(sat)}$	I_C = 1A, I_B = 0.05A	—	—	1.2	
Transition Frequency		f_T	V_{CE} = 2V, I_C = 0.5A	—	100	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	30	—	pF
Switching Time	Turn-on Time	t_{on}		—	0.1	—	μs
	Storage Time	t_{stg}		—	1.0	—	
	Fall Time	t_f		—	0.1	—	

$I_{B1} = -I_{B2} = 0.05A$, DUTY CYCLE ≦ 1%

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

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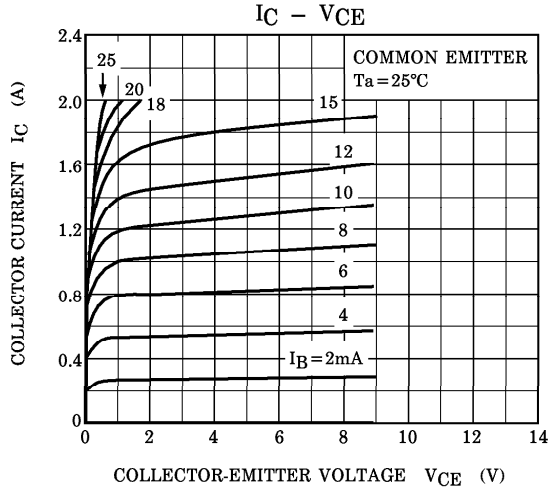
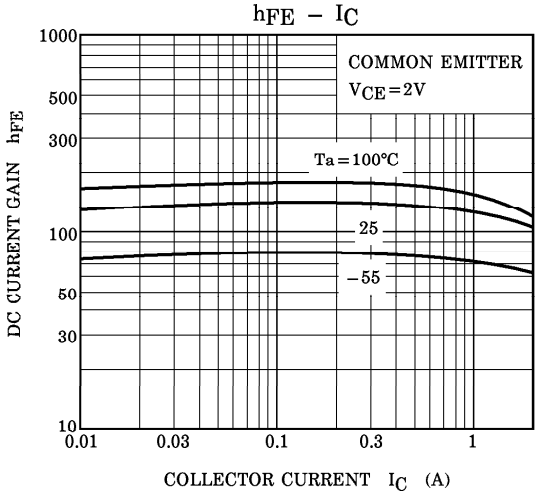
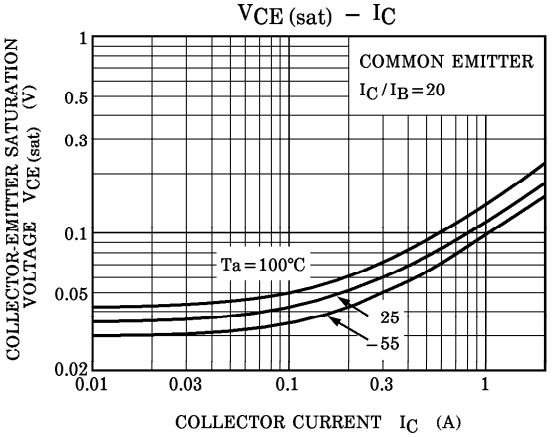
$I_C - V_{CE}$



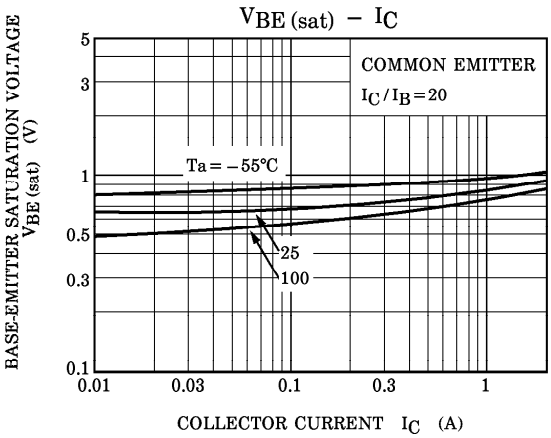
$h_{FE} - I_C$



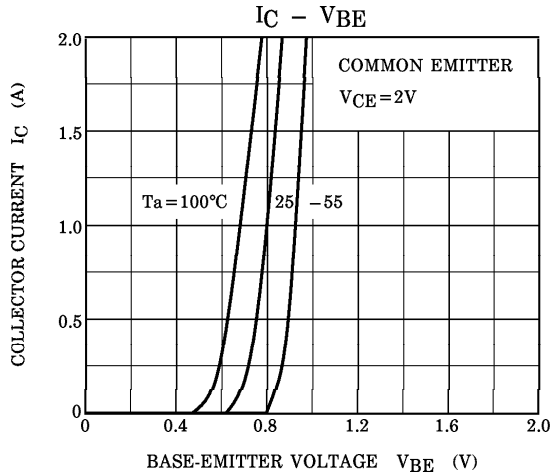
$V_{CE\,(sat)} - I_C$



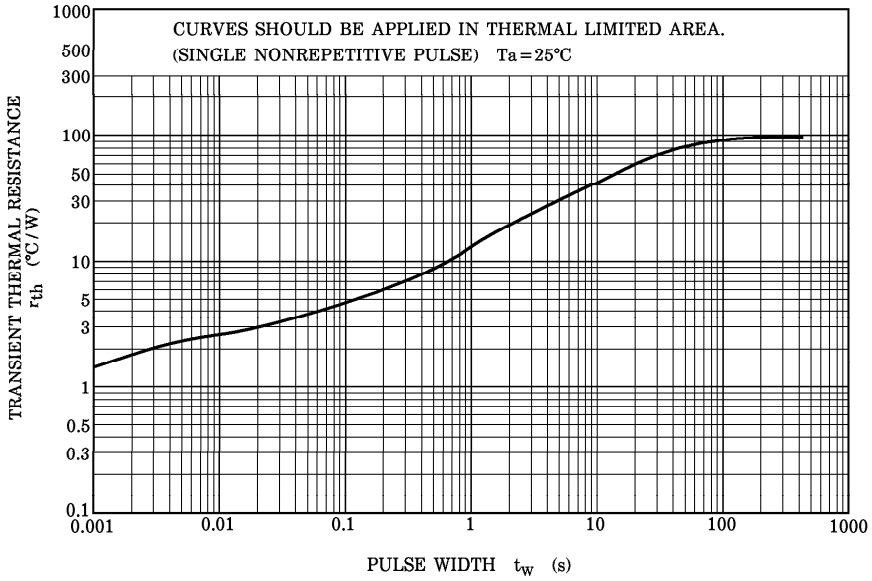
$V_{BE\,(sat)} - I_C$



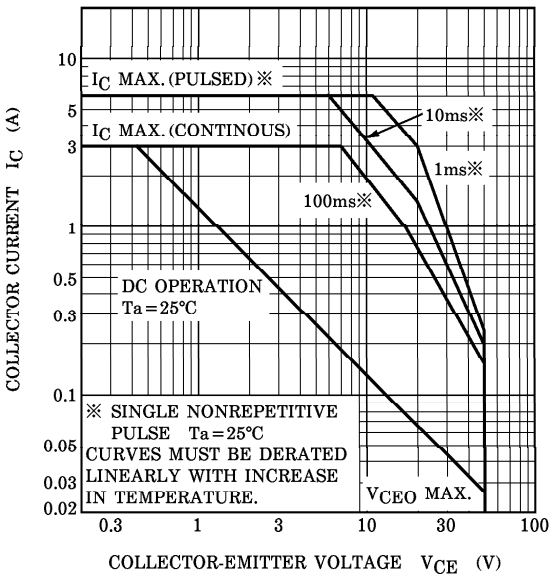
$I_C - V_{BE}$



r_{th} – t_w



SAFE OPERATING AREA



P_C – Ta