TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

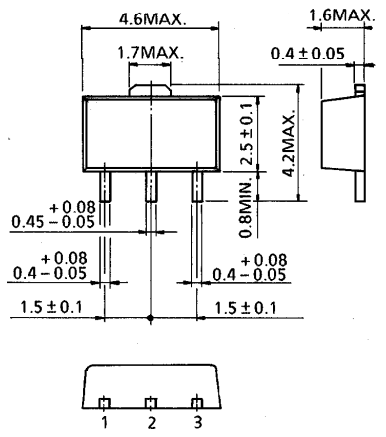
2SC4541

POWER AMPLIFIER APPLICATIONS

POWER SWITCHING APPLICATIONS

- Low Saturation Voltage : $V_{CE\,(sat)}$ = 0.5V (Max.) (I_C = 1.5A)
- High Speed Switching Time : t_{stg} = 0.5μs (Typ.)
- Small Flat Package
- P_C = 1~2W (Mounted on Ceramic Substrate)
- Complementary to 2SA1736

Unit in mm



1. BASE
2. COLLECTOR (HEAT SINK)
3. EMITTER

JEDEC	—
EIAJ	SC-62
TOSHIBA	2-5K1A

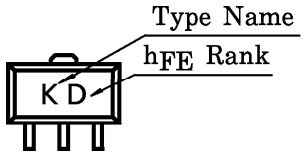
Weight : 0.05g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	50	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3	A
Base Current	I_B	0.6	A
Collector Power Dissipation	P_C	500	mW
Collector Power Dissipation	P_C (Note)	1000	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55~150	°C

(Note) : Mounted on ceramic substrate (250mm²×0.8t)

MARKING



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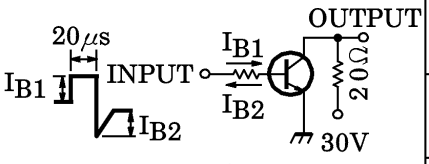
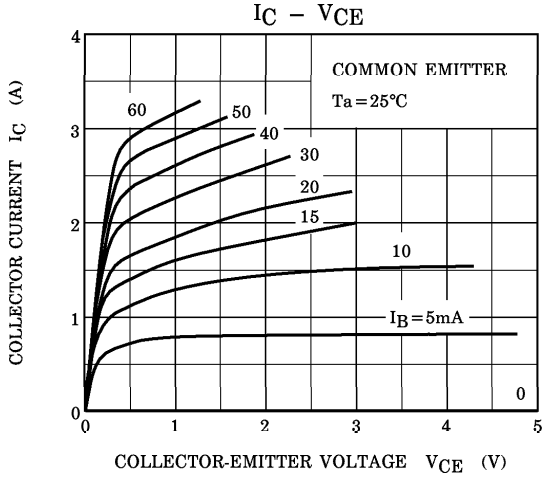
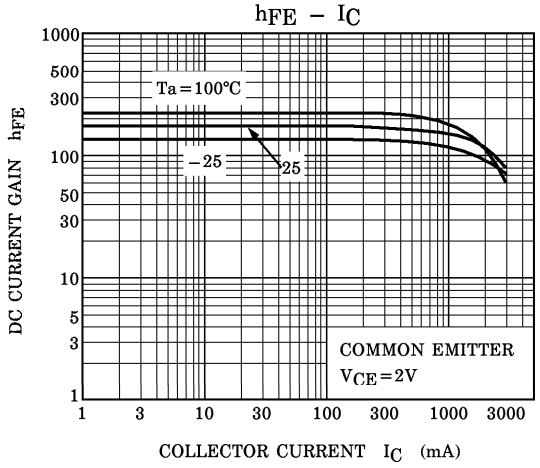
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 80V, I_E = 0	—	—	0.1	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 6V, I_C = 0	—	—	0.1	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	I_C = 10mA, I_B = 0	50	—	—	V
DC Current Gain		$h_{FE\,(1)}$	V_{CE} = 2V, I_C = 100mA	120	—	400	
		$h_{FE\,(2)}$	V_{CE} = 2V, I_C = 2A	40	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	I_C = 1.5A, I_B = 75mA	—	—	0.5	V
Base-Emitter Saturation Voltage		$V_{BE\,(sat)}$	I_C = 1.5A, I_B = 75mA	—	—	1.2	V
Transition Frequency		f_T	V_{CE} = 2V, I_C = 100mA	—	100	—	MHz
Collector Output Capacitance		C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	20	—	pF
Switching Time	Turn-on Time	t_{on}	 $I_{B1} = -I_{B2}$ = 75mA, DUTY CYCLE ≦ 1%	—	0.1	—	μs
	Storage Time	t_{stg}		—	0.5	—	
	Fall Time	t_f		—	0.1	—	

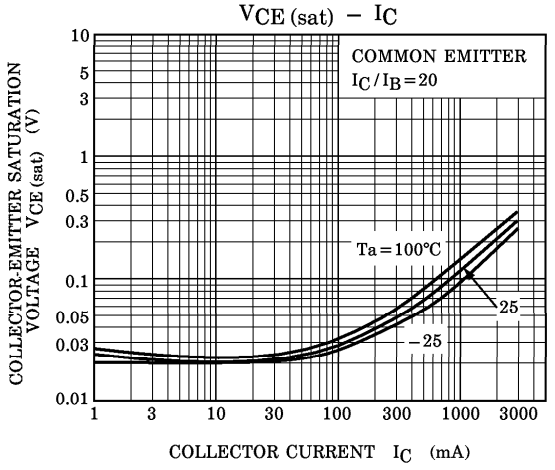
$I_C - V_{CE}$



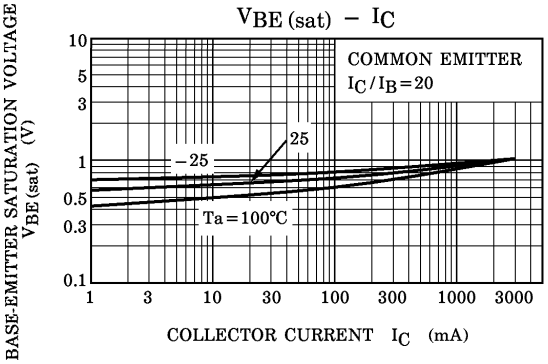
$h_{FE} - I_C$



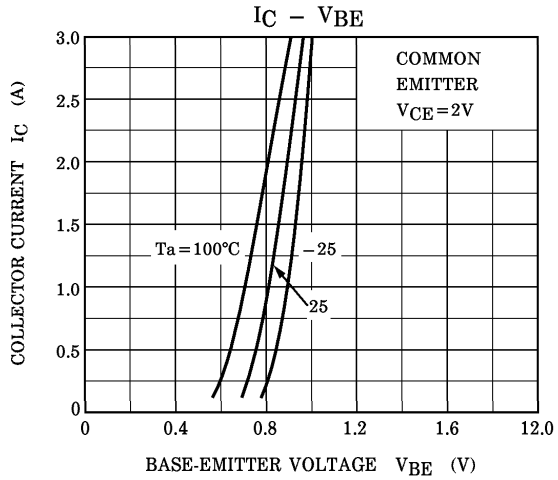
$V_{CE\,(sat)} - I_C$



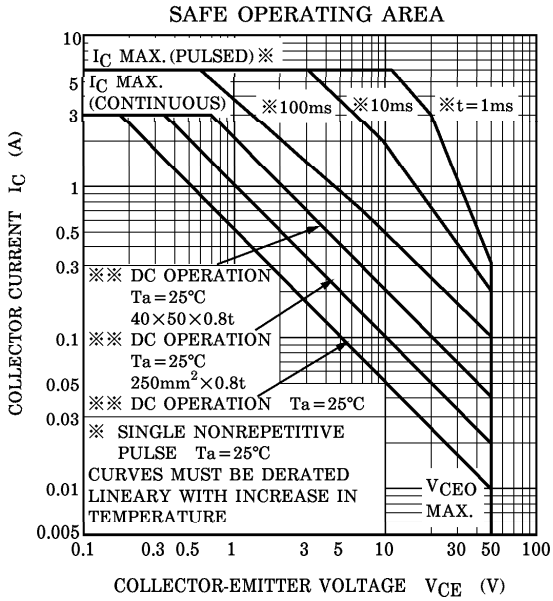
$V_{BE\,(sat)} - I_C$

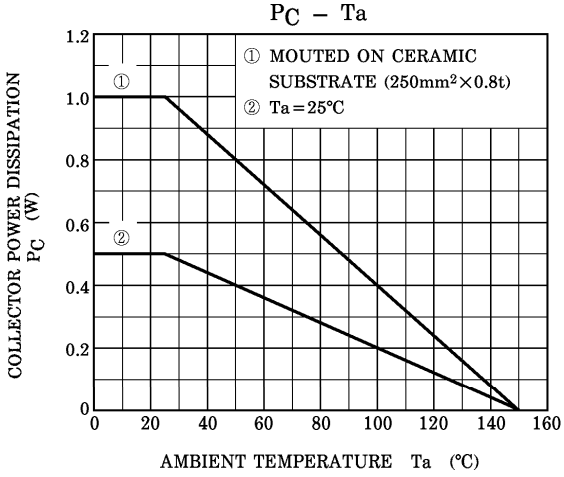


$I_C - V_{BE}$



SAFE OPERATING AREA




P_C – Ta
① MOUTED ON CERAMIC SUBSTRATE (250mm²×0.8t)
② Ta=25°C
COLLECTOR POWER DISSIPATION P_C (W)
1.2
1.0
0.8
0.6
0.4
0.2
0
0 20 40 60 80 100 120 140 160
AMBIENT TEMPERATURE Ta (°C)