

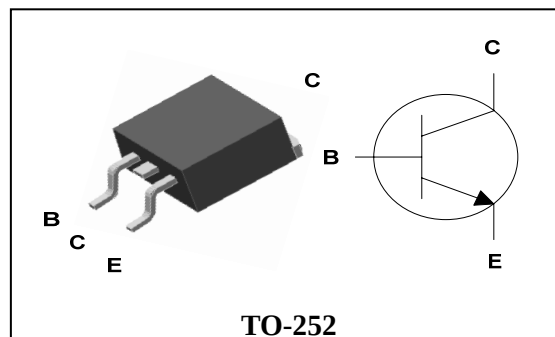
Applications

- Power amplifier application
- High current switching application

Features

- Power Transistor General Purpose application
- Low saturation voltage
: $V_{CE(sat)} = 0.4V$ Typ.
- High Voltage : $V_{CEO} = 65V$ Min.

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STC503D	STC503	TO-252

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Collector-Base voltage	V_{CBO}	80	V
Collector-Emitter voltage	V_{CEO}	65	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	3	A(DC)
	I_{CP}^*	6	A(Pulse)
Collector Power dissipation	$P_C(T_a = 25^\circ C)$	1	W
	$P_C(T_C = 25^\circ C)$	10	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55 ~ 150	°C

*: Single pulse, $t_p = 300 \mu s$

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-a)}$	-	125.0	°C/W
Thermal resistance	Junction-case	$R_{th(J-c)}$	-	12.5	°C/W

Electrical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter breakdown voltage	BV_{CEO}	$I_C = 1mA, I_B = 0$	65	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 65V, I_E = 0$	-	-	50	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	-	-	50	μA
DC current gain	h_{FE}^*	$V_{CE} = 5V, I_C = 0.5A$	300	-	500	-
Base-Emitter on voltage	$V_{BE(ON)}$	$V_{CE} = 5V, I_C = 0.5A$	-	0.7	1	V
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2A, I_B = 0.2A$	-	0.4	1	V
Transition frequency	f_T	$V_{CB} = 5V, I_C = 50mA$	-	250	-	MHz
Collector output capacitance	C_{ob}	$V_{CB} = 10V, I_E = 0, f = 1MHz$	-	15	-	pF

* h_{FE} rank : 300~500 Only

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

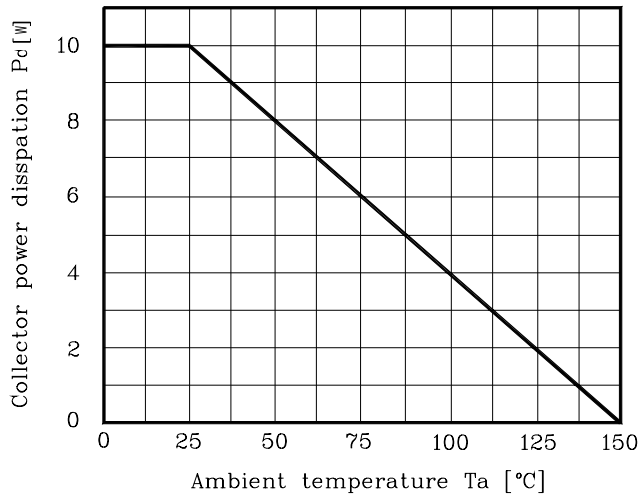


Fig. 2 $I_C - V_{BE}$

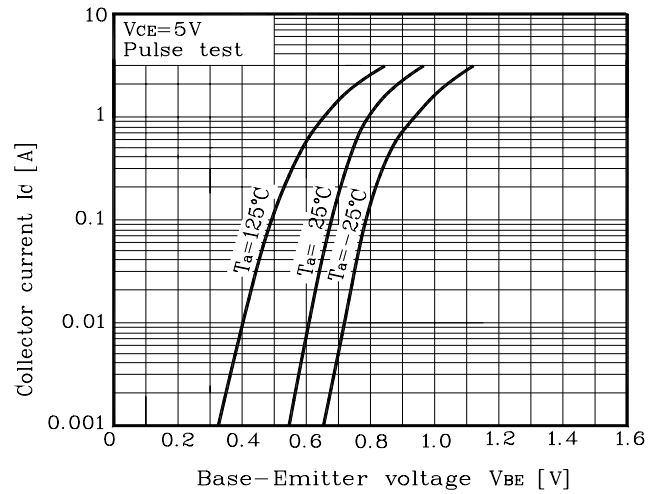


Fig. 3 $V_{CE(sat)} - I_C$

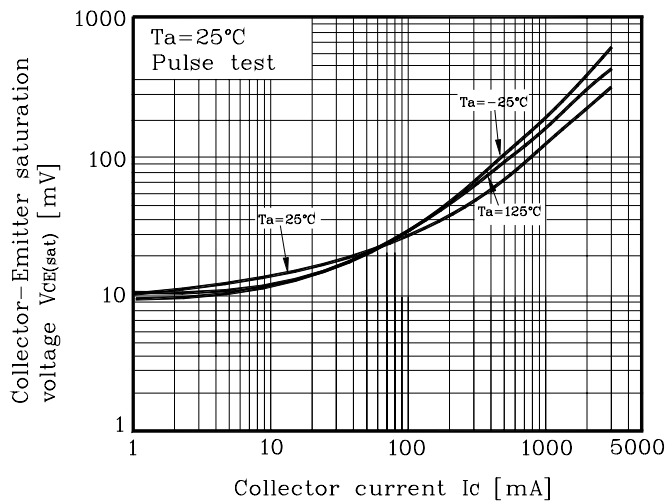


Fig. 4 $I_C - V_{CE}$

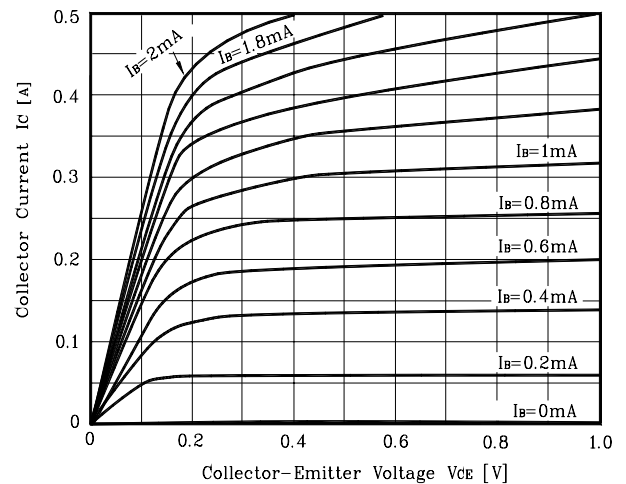


Fig. 5 $I_C - V_{CE}$

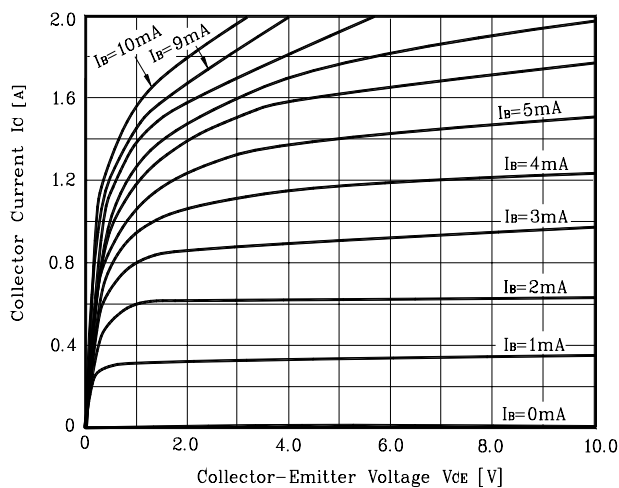
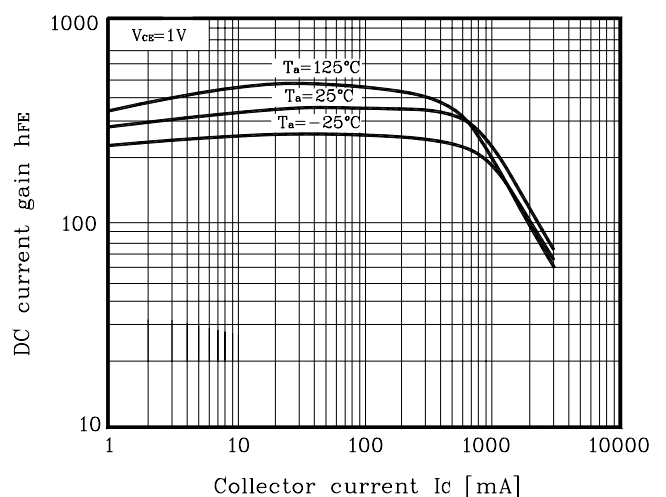


Fig. 6 $h_{FE} - I_C$



Electrical Characteristic Curves

Fig. 7 $h_{FE}-I_C$

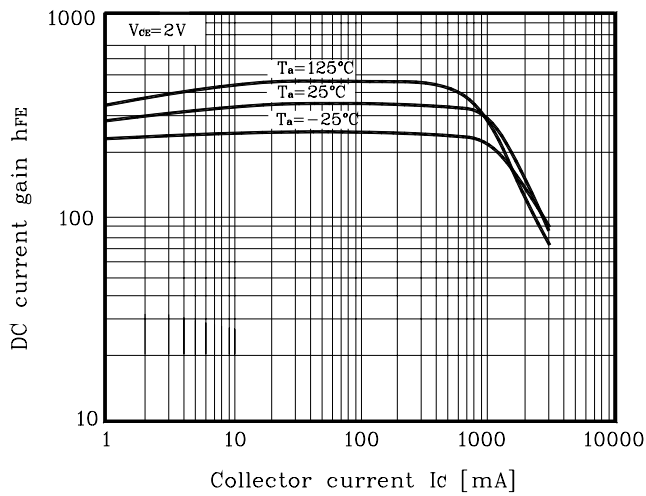


Fig. 8 $h_{FE}-I_C$

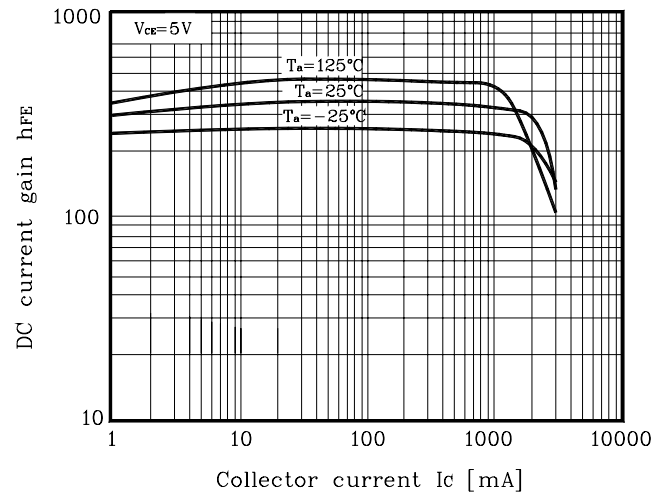


Fig. 9 $C_{ob}-V_{CB}$

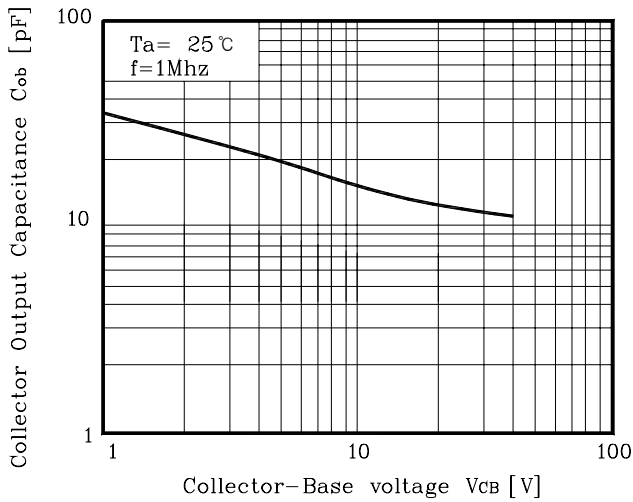


Fig. 10 f_T-I_C

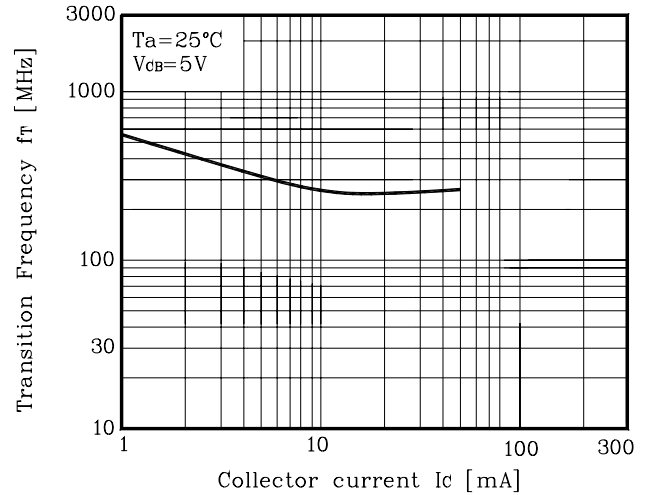
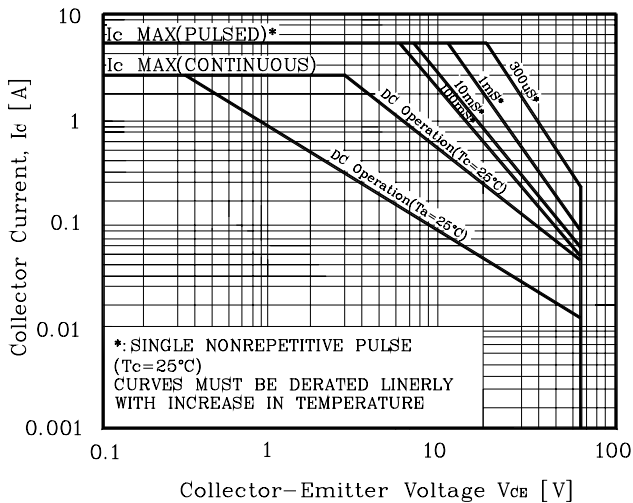
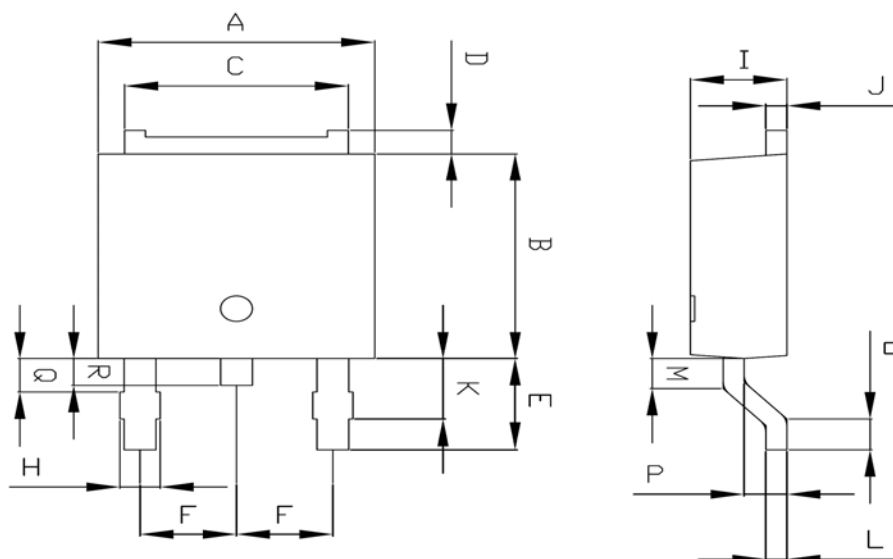


Fig. 11 Safe Operating Area

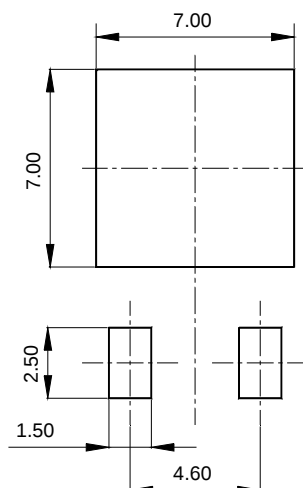


Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	6.40	6.60	6.80	
B	5.90	6.10	6.30	
C	5.04	5.34	5.64	
D	0.50	0.70	0.90	
E	2.50	2.70	2.90	
F	2.10	2.30	2.50	
H	0.96 MAX			
I	2.20	2.30	2.40	
J	0.40	0.50	0.60	
K	1.60	1.80	2.00	
L	0.40	0.50	0.60	
M	0.81	0.91	1.01	
O	0.80	0.90	1.00	
P	0.90	1.00	1.10	
Q	0.95 MAX			
R	0.60	0.80	1.00	

※Recommend PCB solder land [Unit: mm]



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