

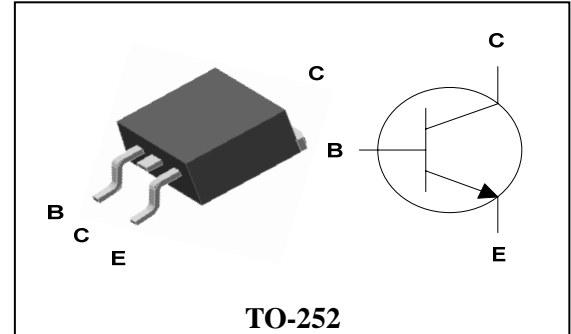
## Applications

- 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

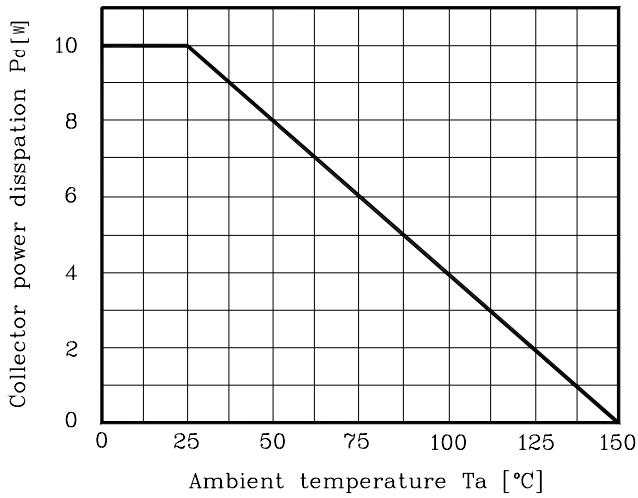
(Ta=25°C)

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

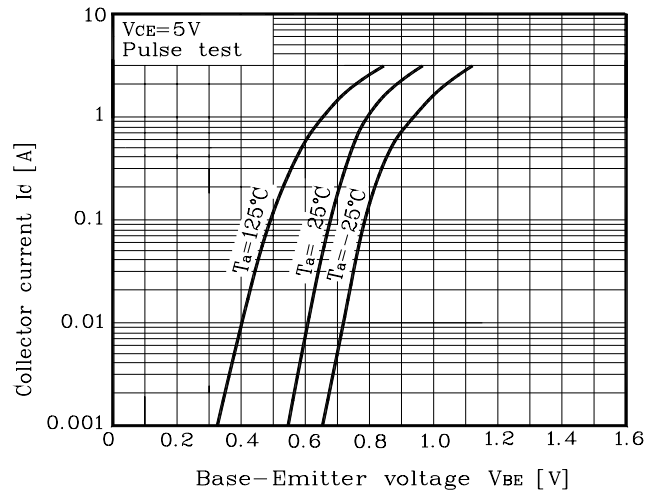
 \*  $h_{FE}$  rank : 300~500 Only

## Electrical Characteristic Curves

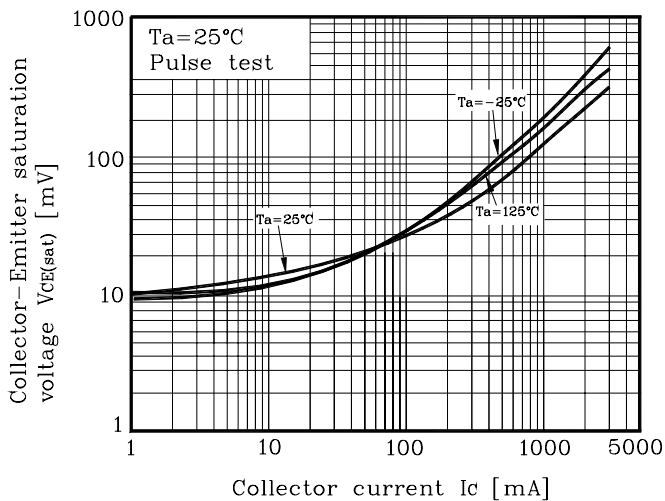
**Fig. 1  $P_C - T_a$**



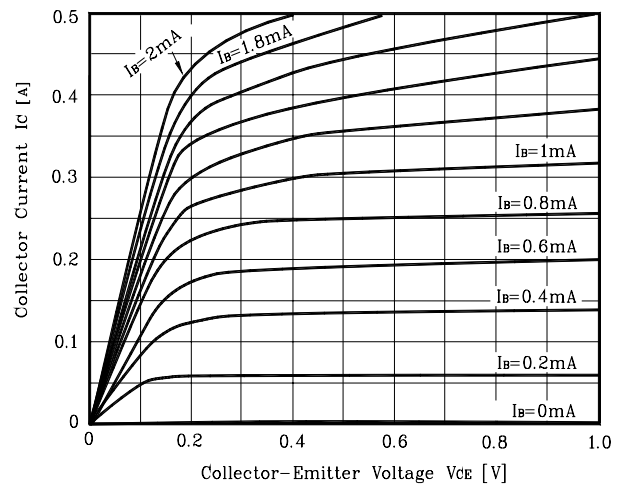
**Fig. 2  $I_C - V_{BE}$**



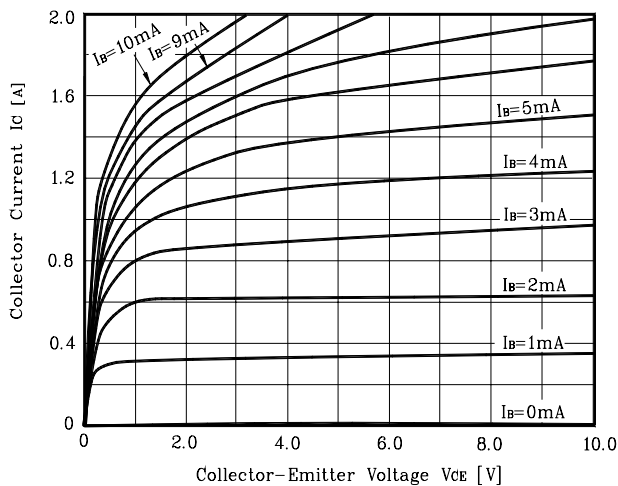
**Fig. 3  $V_{CE(sat)} - I_C$**



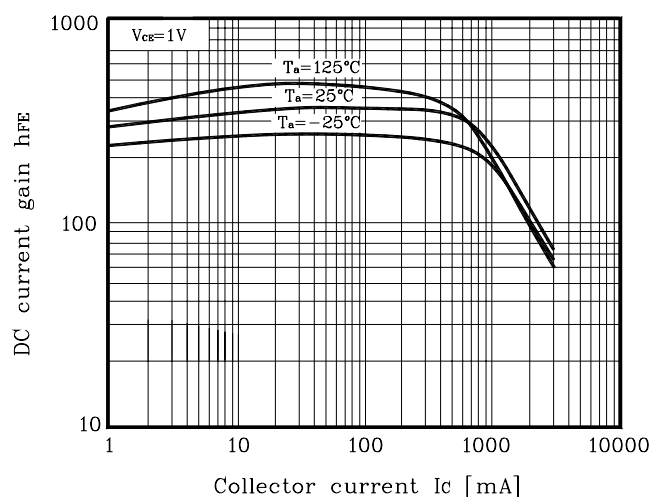
**Fig. 4  $I_C - V_{CE}$**



**Fig. 5  $I_C - V_{CE}$**



**Fig. 6  $h_{FE} - I_C$**



Electrical Characteristic Curves

Fig. 7  $h_{FE}-I_C$

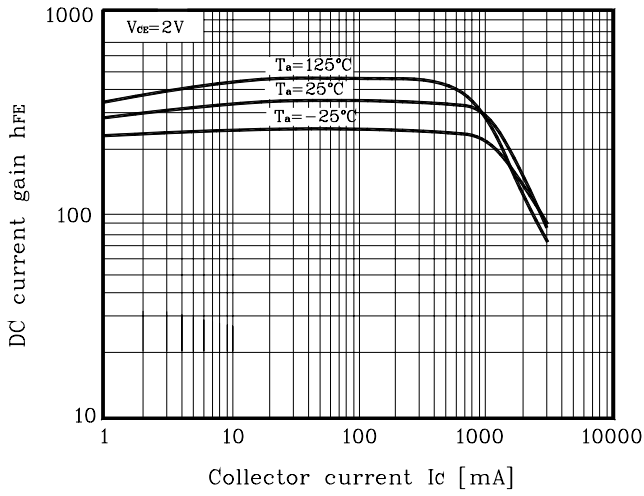


Fig. 8  $h_{FE}-I_C$

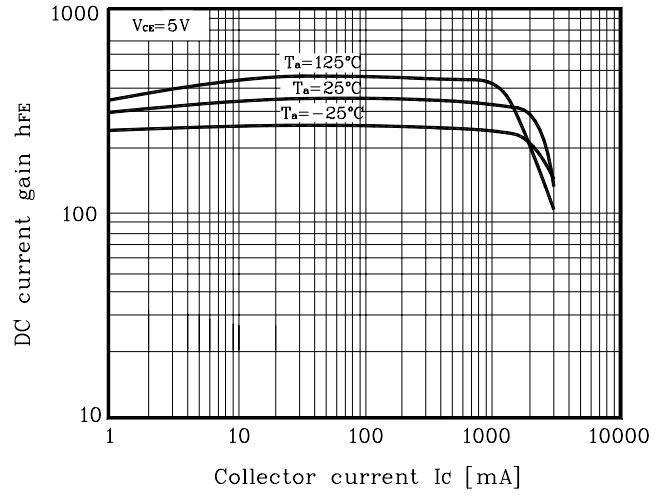


Fig. 9  $C_{ob} - V_{CB}$

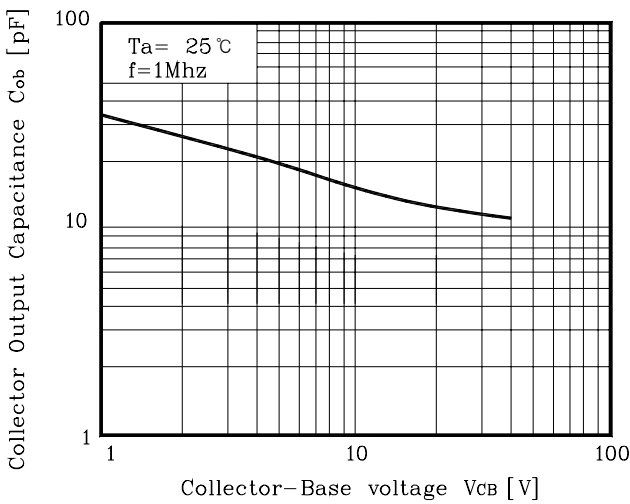


Fig. 10  $f_T - I_C$

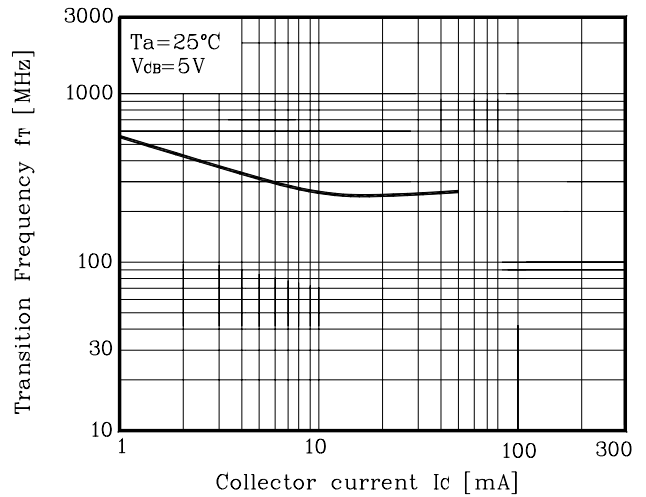
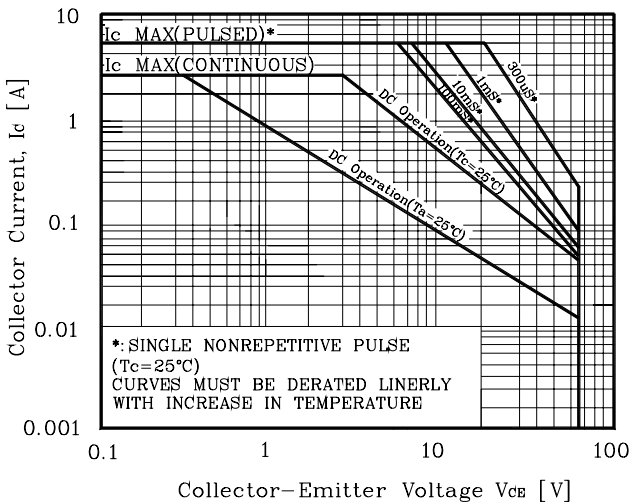
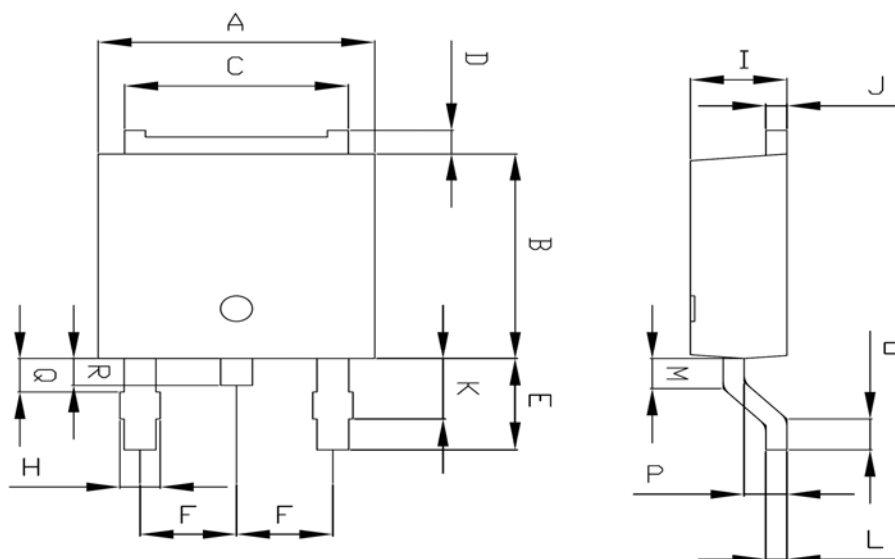


Fig. 11 Safe Operating Area

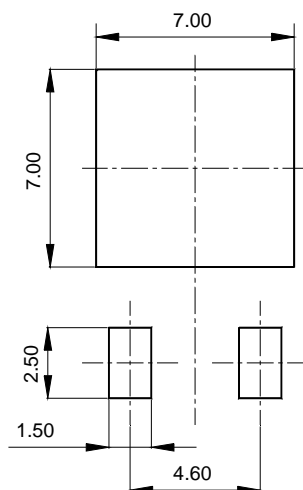


Outline Dimension



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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