

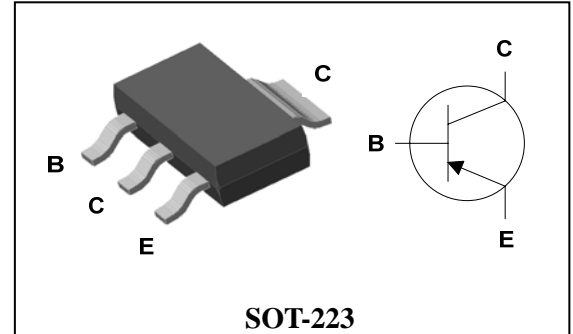
## Applications

- Power amplifier application
- High current switching application

## Features

- Low saturation voltage:  
 $V_{CE(sat)} = -0.15V$  Typ. @  $I_C = -1A$ ,  $I_B = -50mA$
- Large collector current capacity:  $I_C = -2A$
- Small and compact SMD type package

## PIN Connection



## Ordering Information

Type NO.	Marking	Package Code
STA3250Q	STA3250□	SOT-223

□ : Year & Week Code

## Absolute 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	$I_C$	-2	A
Collector Power dissipation	$P_C$	1.1	W
	$P_C^*$	1.5	W
Junction temperature	$T_J$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-A)}$	-	113.6	°C/W
		$R_{th(J-A)}^*$	-	83.3	

\* Device mounted on ceramic substrate (250mm<sup>2</sup> × 0.8t)

## Electrical Characteristics

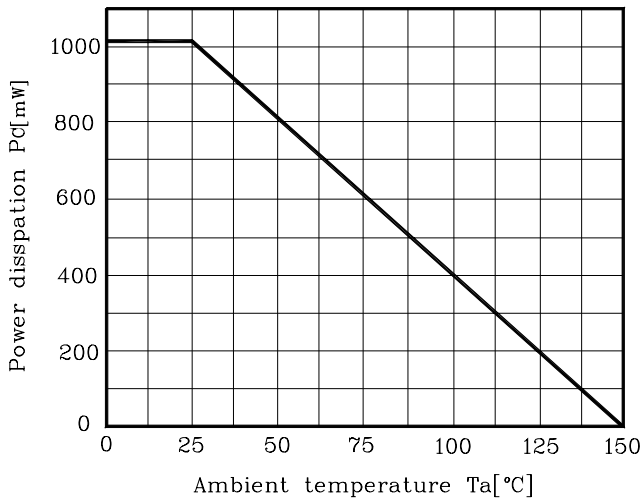
[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = -1\text{mA}, I_B = 0$	-50	-	-	V	
Collector cut-off current	$I_{CBO}$	$V_{CB} = -50\text{V}, I_E = 0$	-	-	-0.1	$\mu\text{A}$	
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -5\text{V}, I_C = 0$	-	-	-0.1	$\mu\text{A}$	
DC current gain	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -0.5\text{A}^*$	120	-	240		
	$h_{FE}$	$V_{CE} = -2\text{V}, I_C = -1.5\text{A}^*$	40	-	-		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1\text{A}, I_B = -0.05\text{A}^*$	-	-	-0.35	V	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1\text{A}, I_B = -0.05\text{A}^*$	-	-	-1.2	V	
Transition frequency	$f_T$	$V_{CE} = -2\text{V}, I_C = -0.05\text{A}$	-	215	-	MHz	
Collector output capacitance	$C_{ob}$	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	-	24	-	pF	
Switching Time	Turn-on Time	$t_{on}$	<p><math>- I_B  =  I_C  = 0.05\text{A}</math> DUTY CYCLE <math>\leq 1\%</math></p>	-	100	-	nS
	Storage Time	$t_{stg}$		-	300	-	
	Fall Time	$t_f$		-	50	-	

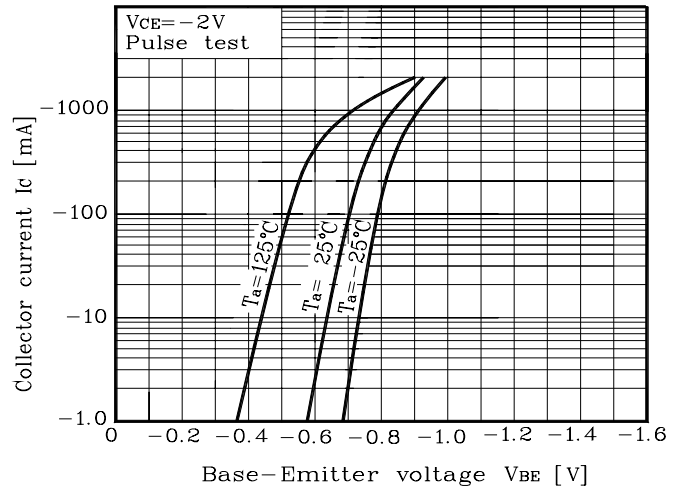
\*: Pulse test :  $t_p \leq 300\mu\text{s}$ , Duty cycle  $\leq 2\%$

## Electrical Characteristic Curves

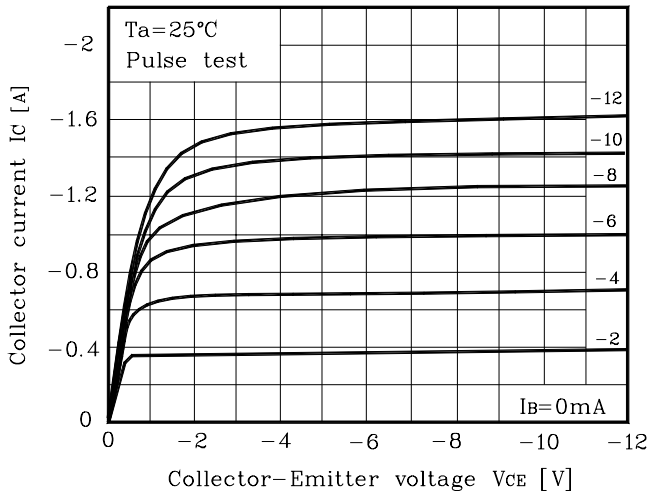
**Fig. 1**  $P_C - T_a$



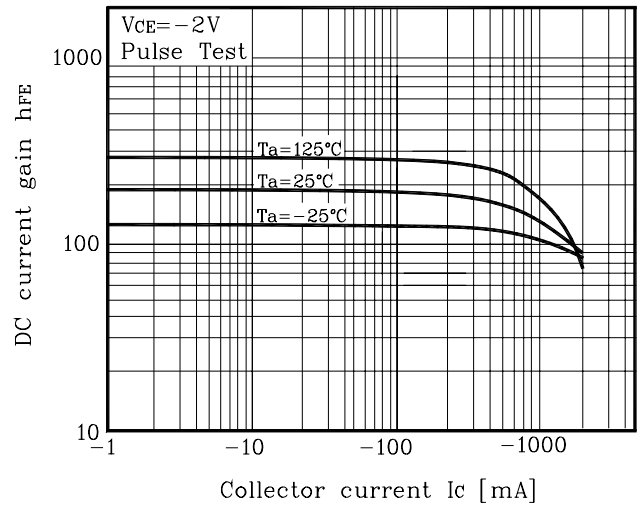
**Fig. 2**  $I_C - V_{BE}$



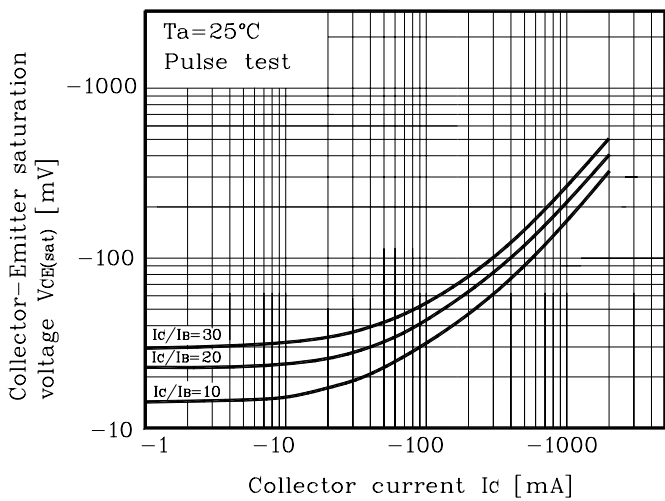
**Fig. 3**  $I_C - V_{CE}$



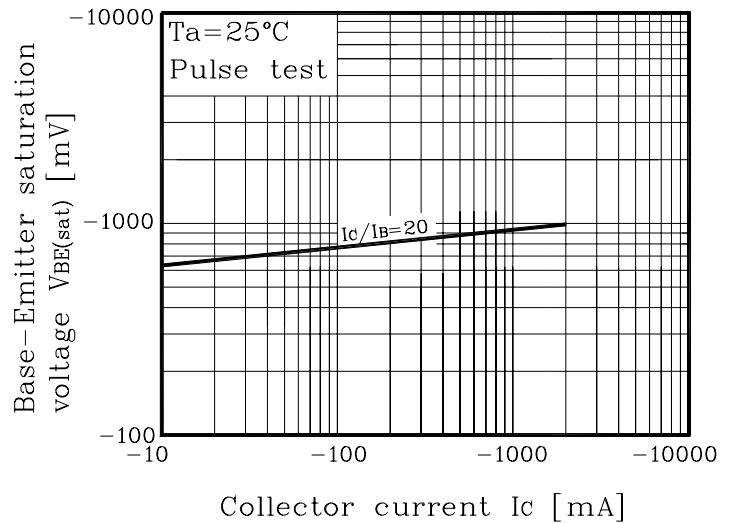
**Fig. 4**  $h_{FE} - I_C$



**Fig. 5**  $V_{CE(sat)} - I_C$



**Fig. 6**  $V_{BE(sat)} - I_C$



Electrical Characteristic Curves

Fig. 7  $C_{ob} - V_{CB}$

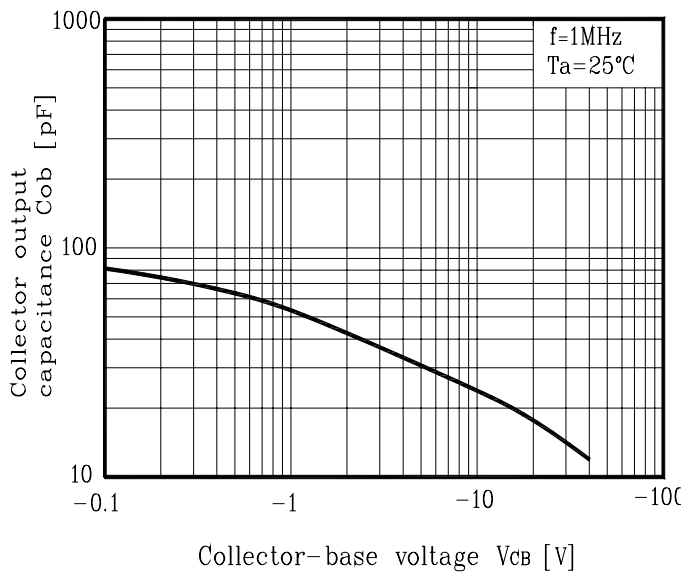
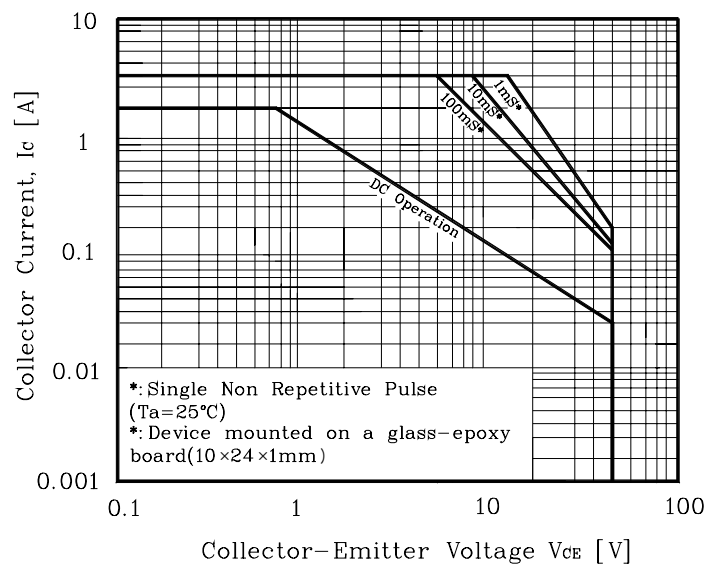
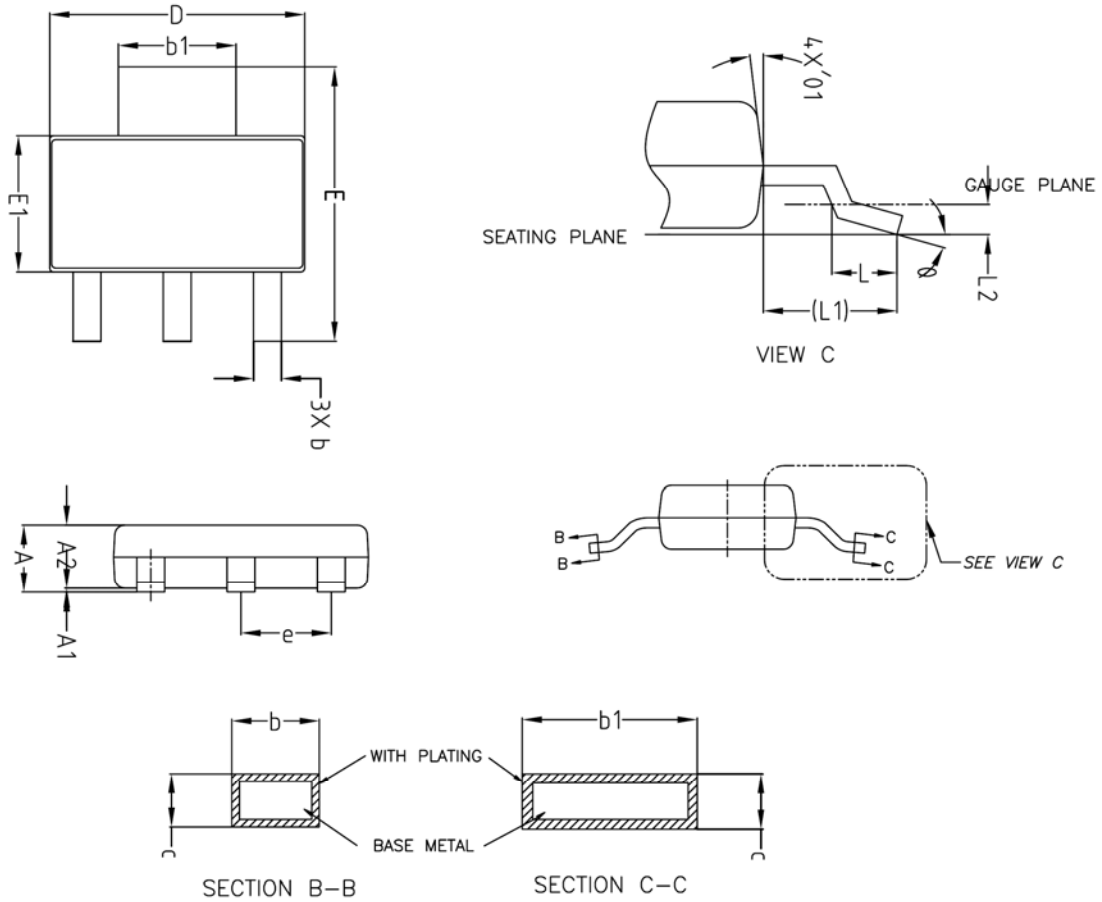


Fig. 8 Safe Operating Area

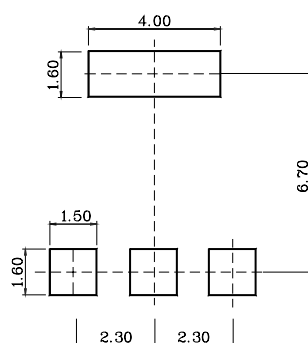


## Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	1.80	
A1	0.00	—	0.10	
A2	1.60	1.65	1.70	
b	0.68	—	0.76	
b1	2.95	—	3.07	
c	0.23	—	0.28	
D	6.40	6.50	6.60	
E	6.80	7.00	7.20	
E1	3.40	3.50	3.60	
e	2.30 BSC			
L	0.45	—	0.65	
L1	1.75 REF			
L2	0.10 BSC			
$\theta$	0°	—	10°	
$\theta 1$	5°	—	10°	

※ Recommend PCB solder land [Unit: mm]



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