KODENSHI AUK

STC221F

NPN Silicon Transistor

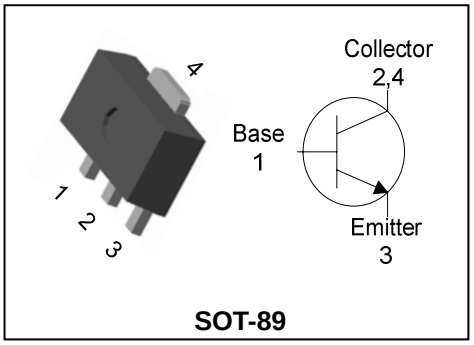
Descriptions

- General purpose amplifier
- High current application

Features

- High h_{FE} : h_{FE}=160~320
- Low collector saturation voltage
  : $V_{CE(sat)}$=0.5V(MAX.)

PIN Connection



SOT-89

Ordering Information

Type No.	Marking	Package Code
STC221F	C221 YWW	SOT-89

C221: DEVICE CODE, YWW(Y : Year code, WW : Weekly code)

Absolute maximum ratings

(Ta=25°C)

Characteristic	Symbol	Ratings	Unit
Collector-Base voltage	V_{CBO}	45	V
Collector-Emitter voltage	V_{CEO}	40	V
Emitter-Base voltage	V_{EBO}	5	V
Collector current	I_C	0.8	A(DC)
	I_{CP}*	1.6	A(Pulse)
Collector power dissipation	P_C	0.5	W
	P_C**	1	
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55~150	°C

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-A)}$	-	250.0	℃/W
		$R_{th(J-A)}$**	-	125.0	

* : Single pulse, tp= 300 μs

** : When mounted on ceramic substrate(250 ㎟×0.8t)

Electrical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV_{CBO}	I_C=100μA, I_E=0	45	-	-	V
Collector-Emitter breakdown voltage	BV_{CEO}	I_C=1mA, I_B=0	40	-	-	V
Emitter-Base breakdown voltage	BV_{EBO}	I_E=10μA, I_C=0	5	-	-	V
Collector cut-off current	I_{CBO}	V_{CB}=45V, I_E=0	-	-	0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=5V, I_C=0	-	-	0.1	μA
DC current gain	h_{FE}*	V_{CE}=1V, I_C=100mA	160	-	320	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	I_C=500mA, I_B=50mA	-	-	0.5	V
Transition frequency	f_T	V_{CE}=5V, I_C=10mA	-	150	-	MHz
Collector output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	-	8	-	pF

* Note 1) hFE Rank : 160~320 only

* Note 2) Pulse Tester : Pulse Width ≤300μs, Duty Cycle ≤2.0%

Electrical Characteristic Curves

Fig. 1 P_C - T_a

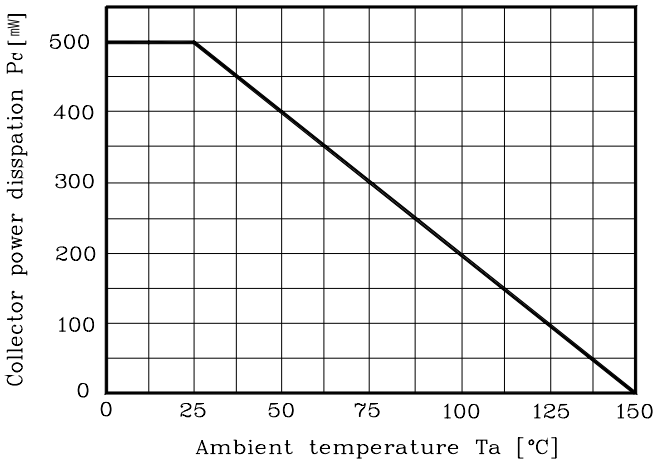


Fig. 2 I_C - V_{BE}

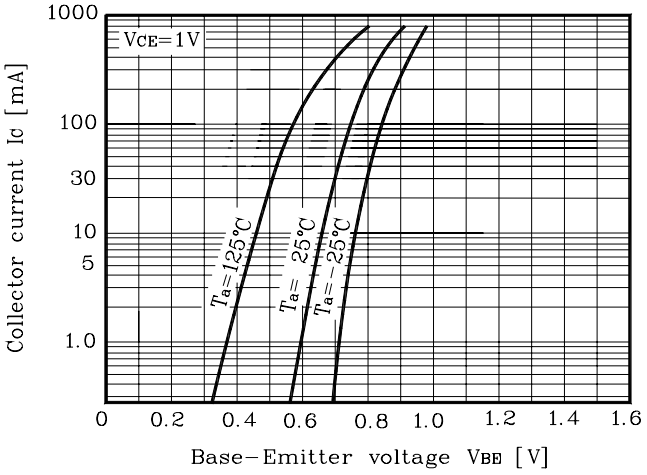


Fig. 3 $V_{CE(sat)}$ - I_C

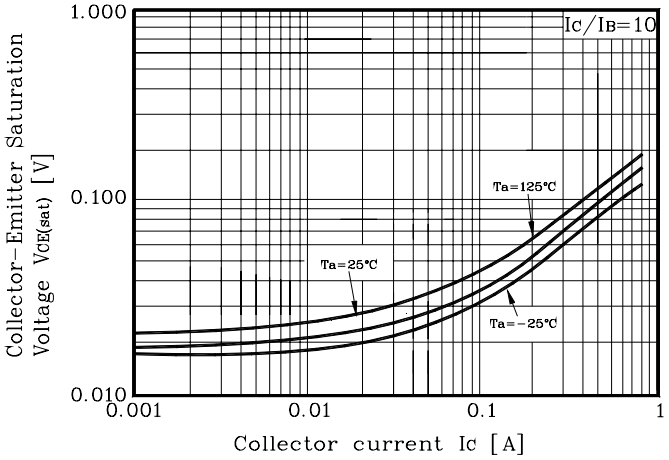


Fig. 4 I_C - V_{CE}

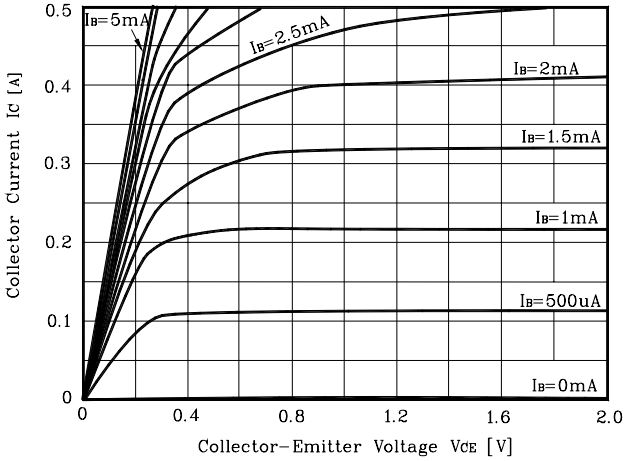


Fig. 5 I_C -V_{CE}

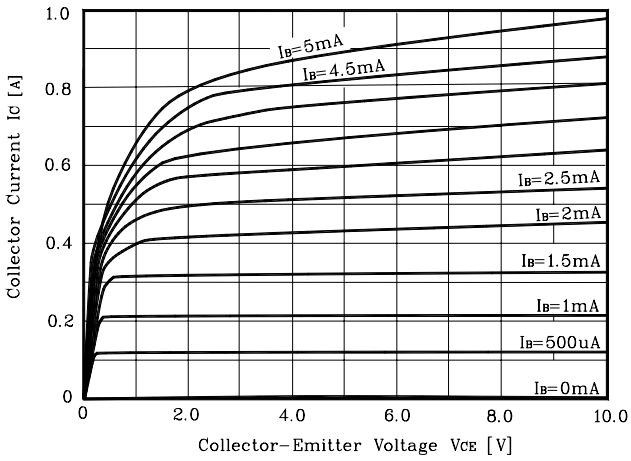


Fig. 6 h_{FE} - I_C

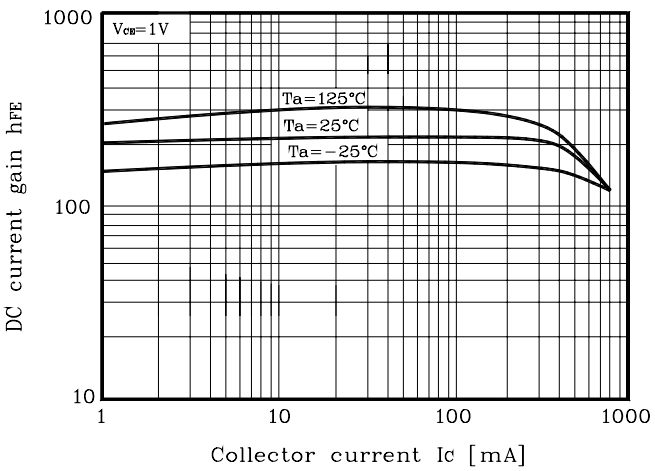


Fig. 7 h_{FE} - I_C

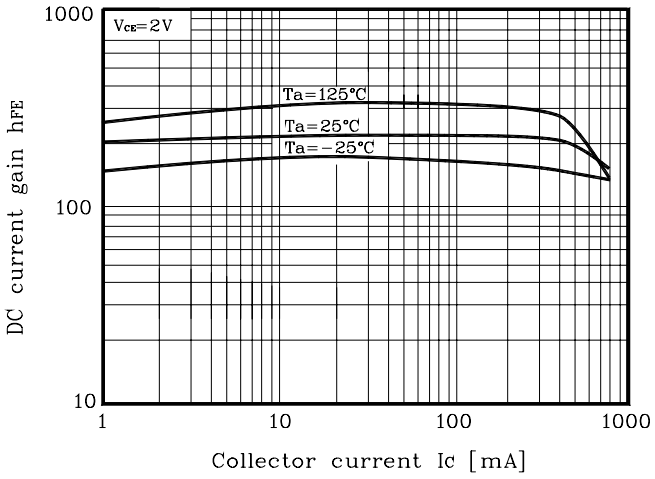


Fig. 8 h_{FE} - I_C

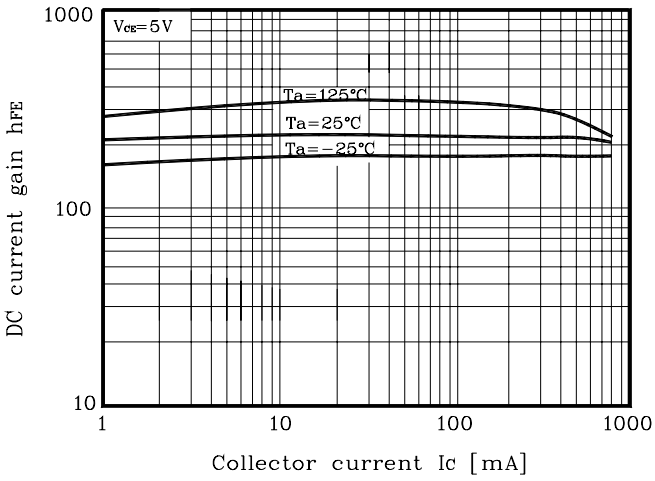


Fig. 9 Cob - V_{CB}

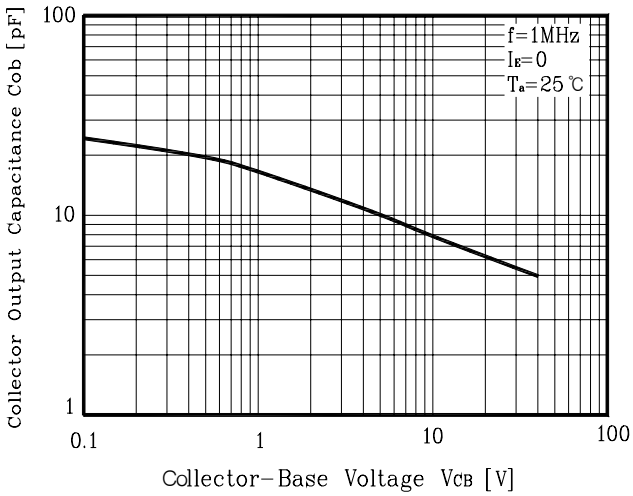


Fig. 10 f_T - I_C

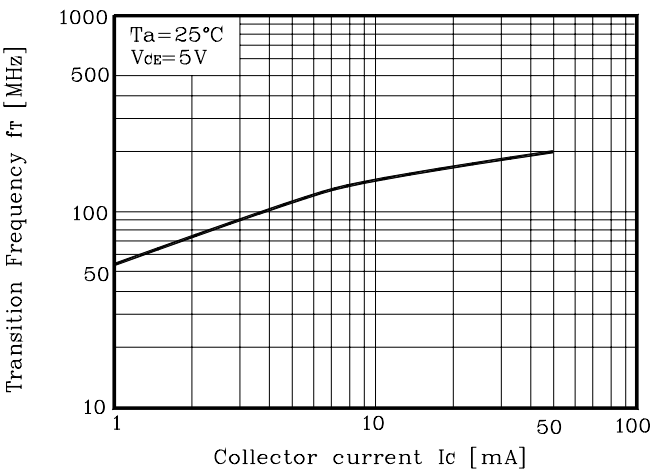
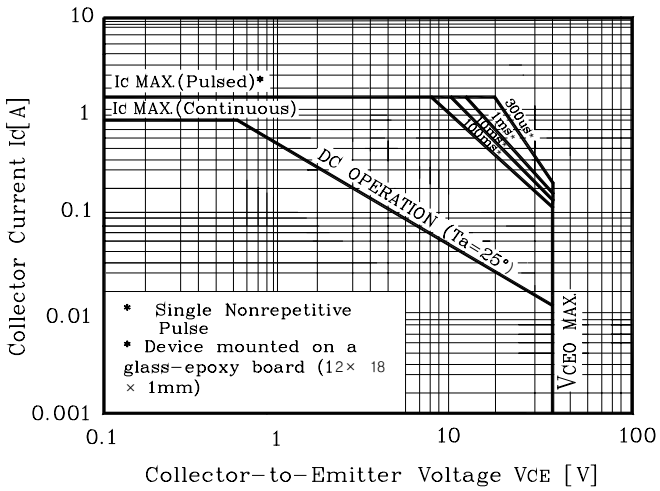
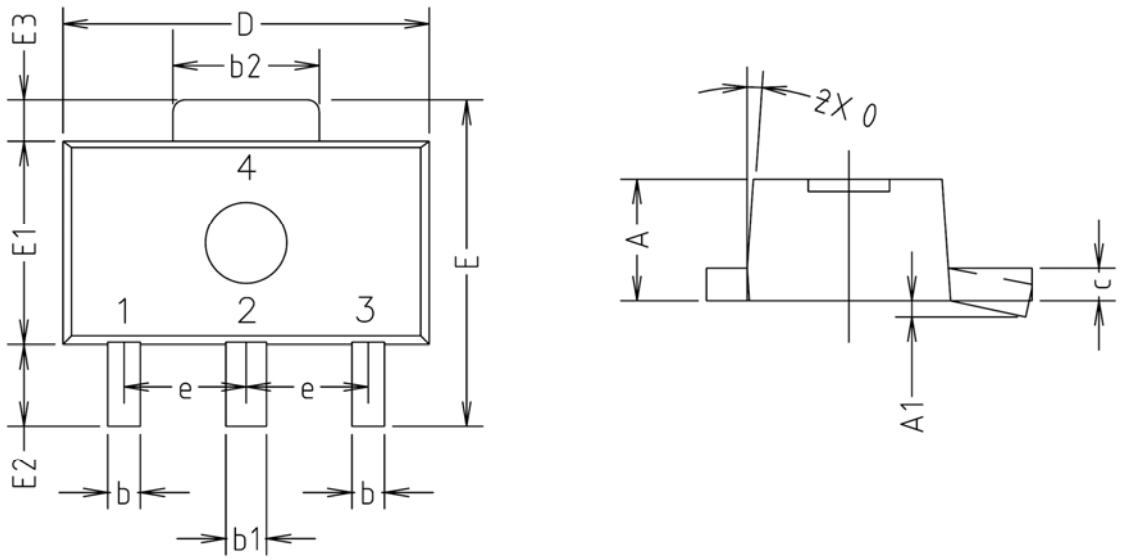


Fig. 11 Safe operating Area

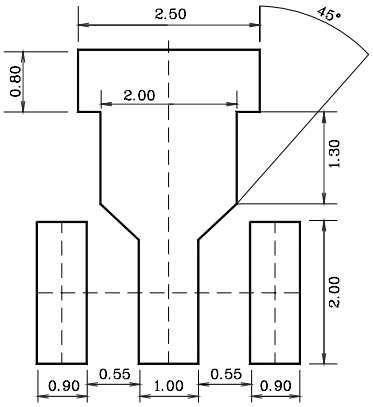


Outline Dimension(mm)



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	1.40	1.50	1.60	
A1	0.00	–	0.10	
b	0.38	0.42	0.48	
b1	0.48	0.52	0.58	
b2	1.79	1.82	1.87	
c	0.40	0.42	0.46	
D	4.40	4.50	4.70	
E	3.70	4.00	4.30	
E1	2.40	2.50	2.70	
E2	0.80	1.00	1.20	
E3	0.40	0.50	0.60	
e	1.50 TYP.			
θ	4° TYP.			

※Recommend PCB solder land [Unit: mm]



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