AUK Semiconductor

STC4250F

NPN Silicon Transistor

Applications

- Power amplifier application
- High current switching application

Features

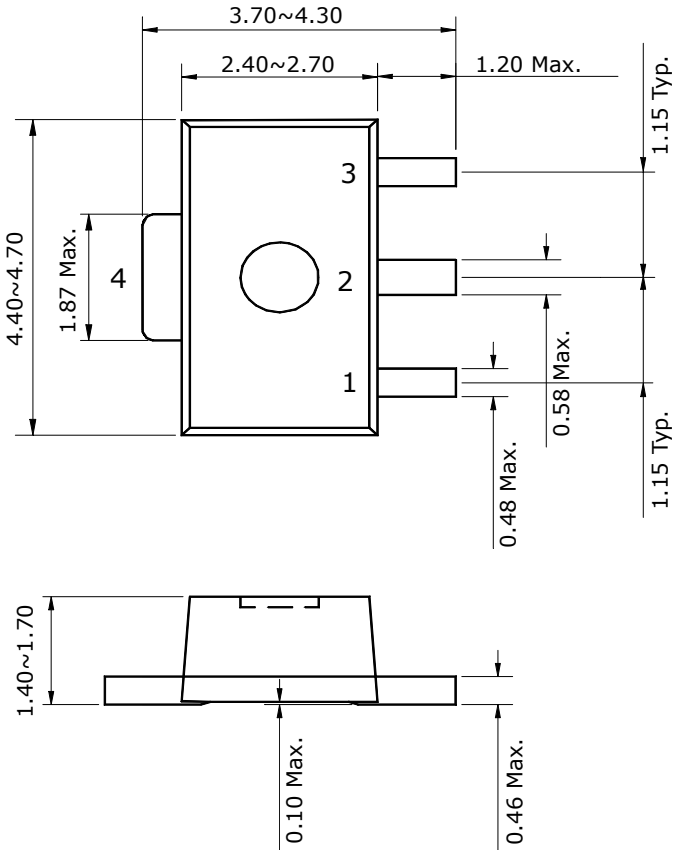
- Low saturation voltage: $V_{CE(sat)}$=0.15V Typ. @ I_C=1A, I_B=50mA
- Large collector current capacity: I_C=2A
- Small and compact SMD type package
- Complementary pair with STA3250F

Ordering Information

Type NO.	Marking	Package Code
STC4250F	HW2	SOT-89

Outline Dimensions

unit : mm



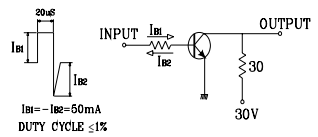
PIN Connections
1. Base
2,4. Collector
3. Emitter

Absolute Maximum Ratings [Ta=25℃]

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	0.5	W
	P_C※	1	W
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-55~150	°C

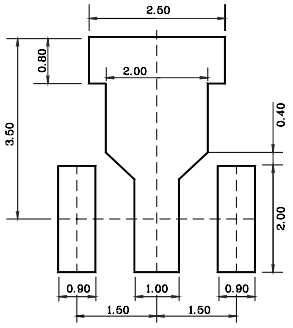
※ Device mounted on ceramic substrate ($250mm^2$ x 0.8t)

Electrical Characteristics [Ta=25℃]

Characteristic		Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage		BV_{CEO}	I_C=10mA, I_B=0	50	-	-	V
Collector cut-off current		I_{CBO}	V_{CB}=50V, 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}=2V, I_C=0.5A*	120	-	240	
		h_{FE}	V_{CE}=2V, I_C=1.5A*	40	-	-	
Collector-emitter saturation voltage		$V_{CE(sat)}$	I_C=1A, I_B=0.05A*	-	-	0.35	V
Base-emitter saturation voltage		$V_{BE(sat)}$	I_C=1A, I_B=0.05A*	-	-	1.2	V
Transition frequency		f_T	V_{CE}=2V, I_C=50mA	-	240	-	MHz
Collector output capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	-	15	-	pF
Switching Time	Turn-on Time	t_{on}		-	100	-	nS
	Storage Time	t_{stg}		-	300	-	
	Fall Time	t_f		-	50	-	

*: Pulse test: $t_P \leq 300\mu s$, Duty cycle≤2%

※ Recommend PCB solder land [Unit: mm]



Electrical Characteristic Curves

Fig. 1 P_C - T_a

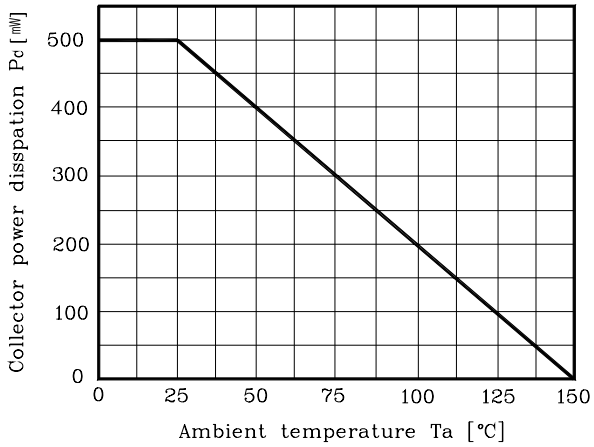


Fig. 2 I_C - V_{BE}

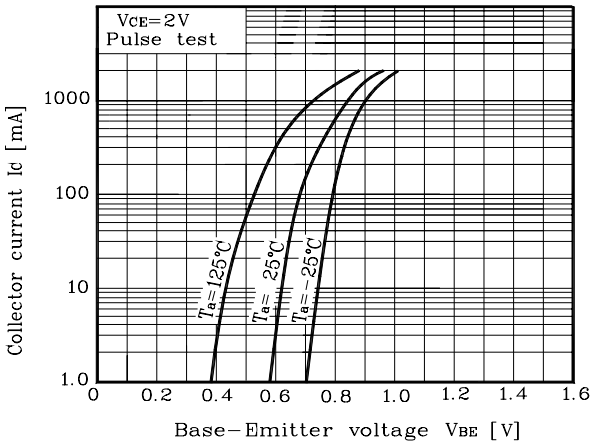


Fig. 3 I_C - V_{CE}

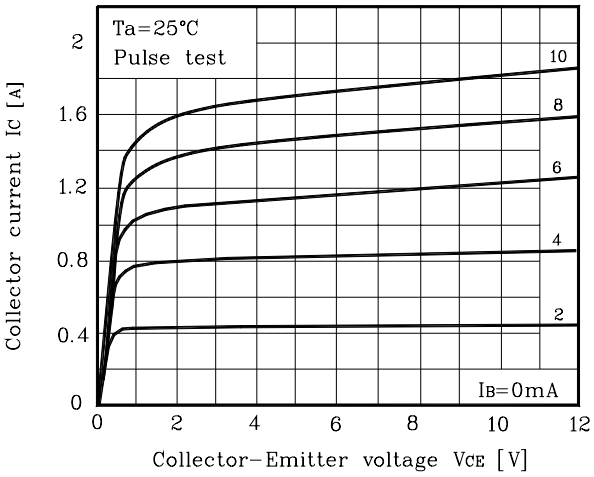


Fig. 4 h_{FE} - I_C

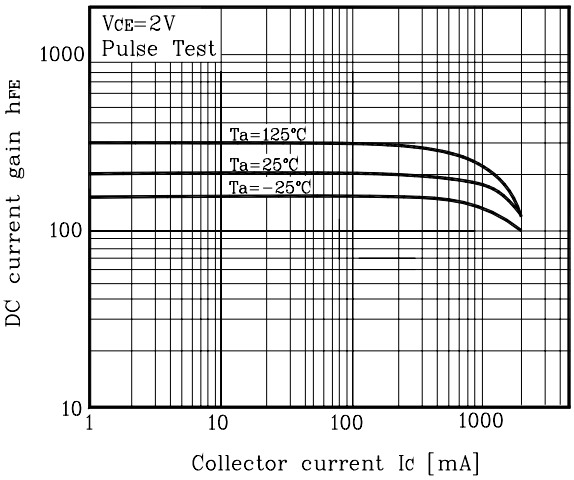


Fig. 5 $V_{CE(sat)}$ - I_C

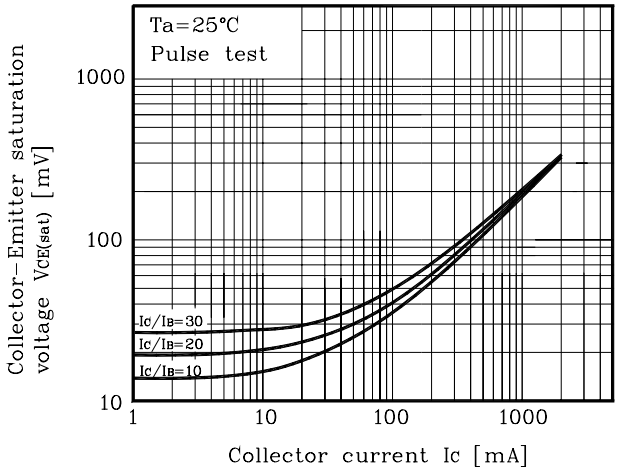
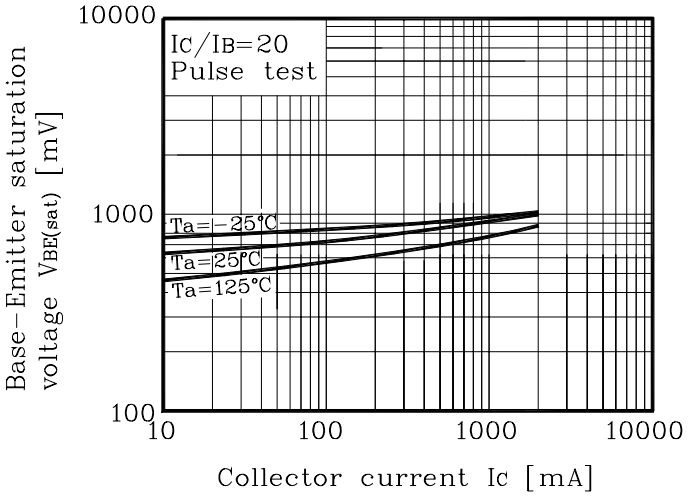


Fig. 6 $V_{BE(sat)}$ - I_C



Electrical Characteristic Curves

Fig. 7 C_{Ob} - V_{CB}

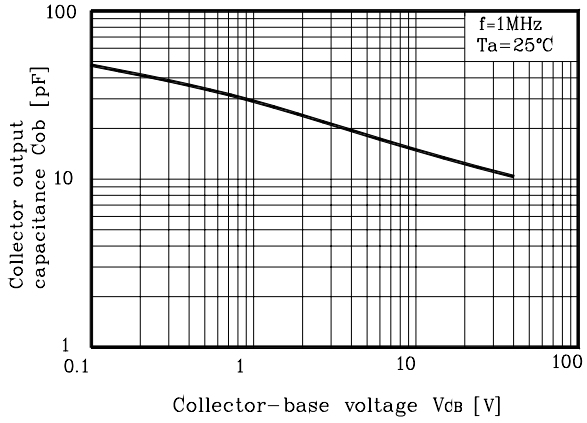


Fig. 8 Safe Operating Area