

## Descriptions

- General purpose application
- Switching application

## Features

- Excellent  $h_{FE}$  linearity
- Complementary pair with STA9012SF

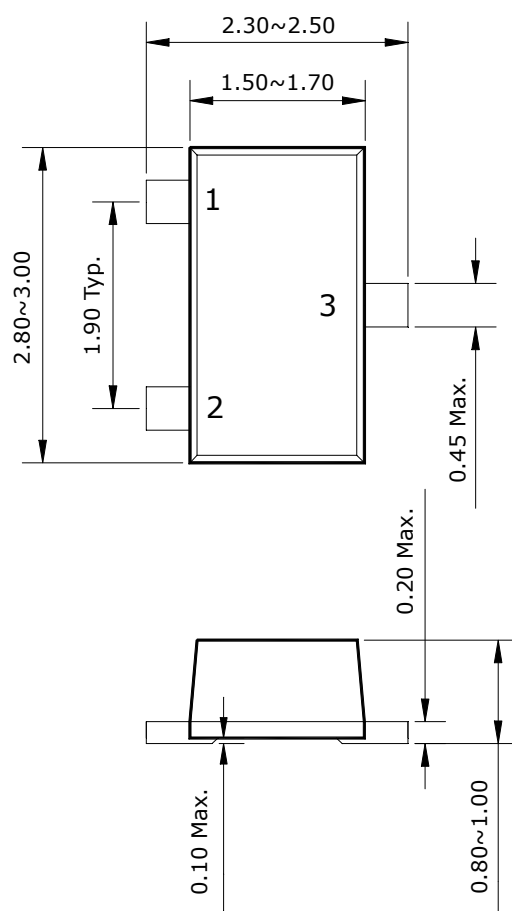
## Ordering Information

Type NO.	Marking	Package Code
STC9013SF	9B□	SOT-23F

□ :  $h_{FE}$  rank

## Outline Dimensions

unit : mm



### PIN Connections

1. Base
2. Emitter
3. Collector

## Absolute Maximum Ratings

(Ta=25°C)

Characteristic	Symbol	Rating	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	30	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	500	mA
Collector power dissipation	$P_C^*$	350	mW
Junction temperature	$T_J$	150	°C
Storage temperature range	$T_{stg}$	-55~150	°C

\* : Package mounted on 99.5% Alumina 10×8×0.6mm

## Electrical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C=1mA, I_B=0$	30	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=40, I_E=0$	-	-	0.1	μA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$	-	-	0.1	μA
DC current gain	$h_{FE}^*$	$V_{CE}=1V, I_C=50mA$	96	-	246	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100mA, I_B=10mA$	-	0.1	0.25	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=1V, I_C=100mA$	-	0.75	1.0	V
Transition frequency	$f_T$	$V_{CE}=6V, I_C=20mA$	-	200	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=6V, I_E=0, f=1MHz$	-	7.0	-	pF

\* :  $h_{FE}$  Rank / F : 96~135, G : 118~166, H : 144~202, I : 176~246.

# Electrical Characteristic Curves

Fig. 1  $P_c - T_a$

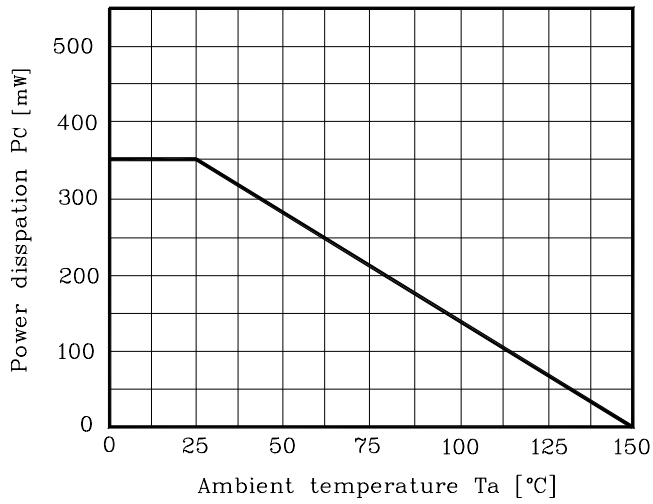


Fig. 2  $I_c - V_{BE}$

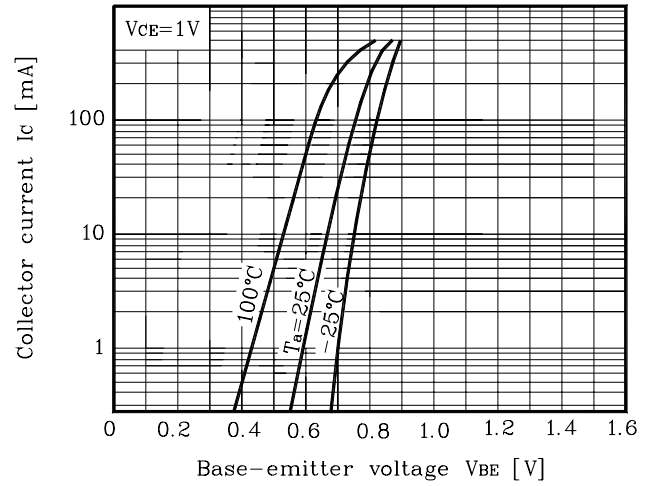


Fig. 3  $I_c - V_{CE}$

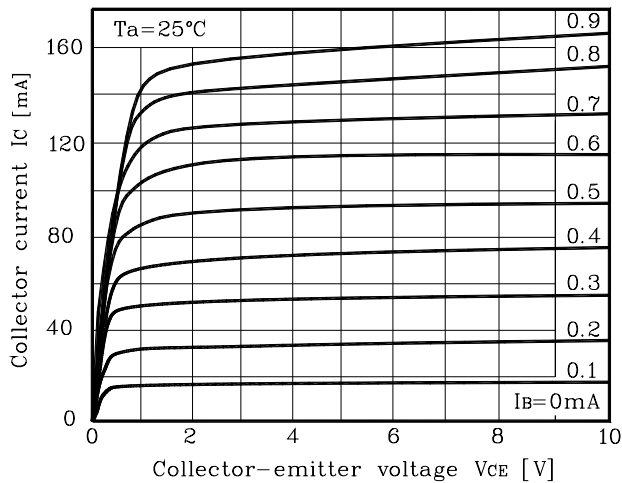


Fig. 4  $V_{CE(sat)} - I_c$

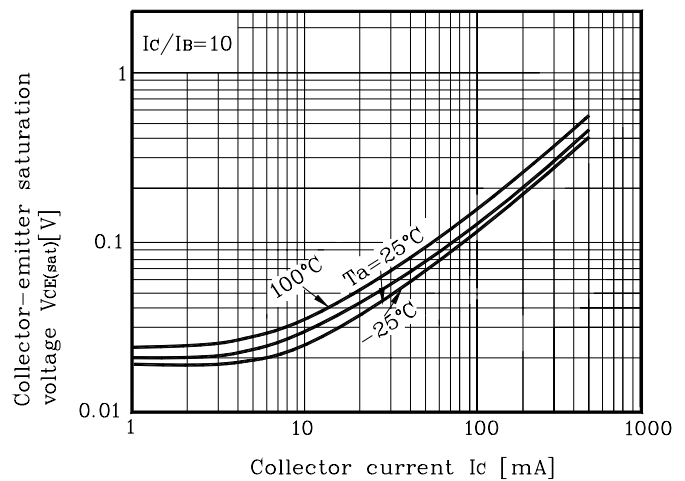


Fig. 5  $h_{FE} - I_c$

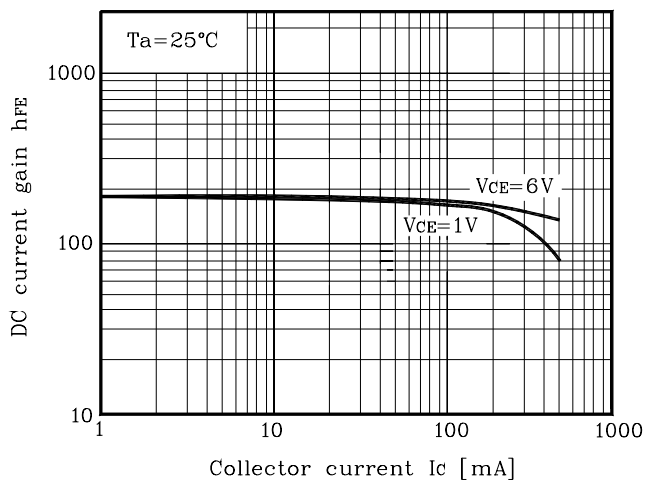
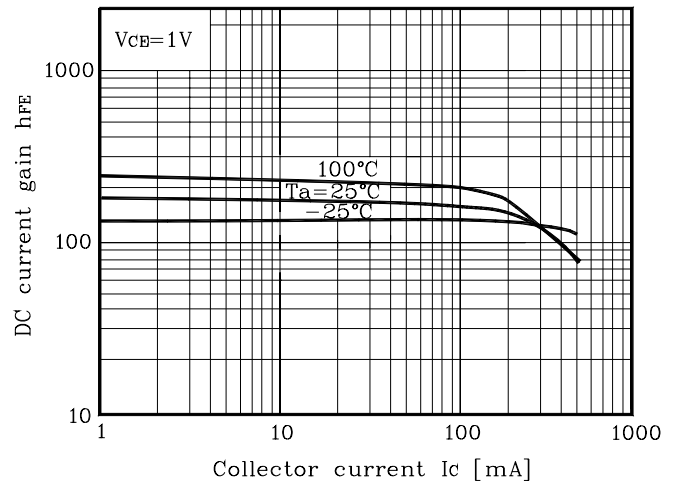


Fig. 6  $h_{FE} - I_c$



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