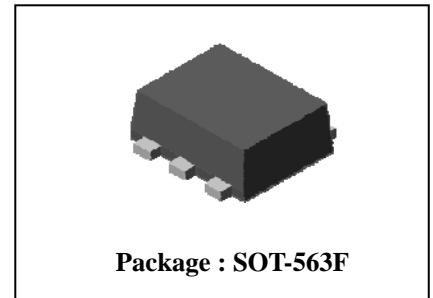


## Description

- Complex type bipolar transistor

## Feature

- Very small package save PCB area
- Reduce quantity of parts and mounting cost
- Both 2SA1980 chip and 2SC5343 chip in SOT-563F package

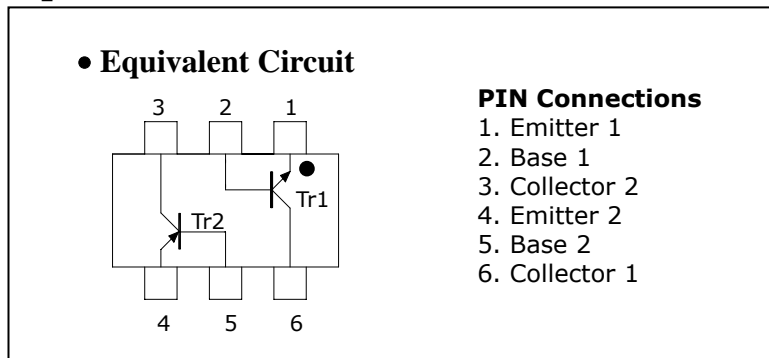


## Ordering Information

Type NO.	Marking	Package Code
SUT509EF	3X□	SOT-563F

□ : Year & Week Code

## Equivalent circuit & PIN Connections



## Absolute Maximum Ratings [Tr1, Tr2]

(Ta=25°C)

Characteristic	Symbol	Rating		Unit
		Tr1	Tr2	
Collector-base voltage	$V_{CBO}$	60	-50	V
Collector-emitter voltage	$V_{CEO}$	50	-50	V
Emitter-base voltage	$V_{EBO}$	5	-5	V
Collector current	$I_C$	150	-150	mA
Collector power dissipation	$P_C^{**}$	150		mW
Junction temperature	$T_J$	150		°C
Storage temperature range	$T_{stg}$	-55~150		°C

※: Total rating

**Electrical Characteristics [Tr1]**

(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	$I_{CBO}$	$V_{CB}=60\text{V}, I_E=0$	-	-	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	$h_{FE}$	$V_{CE}=6\text{V}, I_C=2\text{mA}$	120	-	400	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=100\text{mA}, I_B=10\text{mA}$	-	-	0.25	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=6\text{V}, I_C=2\text{mA}$	-	0.65	-	V
Transition frequency	$f_T$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	-	200	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	-	2	-	pF

**Electrical Characteristics [Tr2]**

(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	$h_{FE}$	$V_{CE}=-6\text{V}, I_C=-2\text{mA}$	120	-	400	-
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=-100\text{mA}, I_B=-10\text{mA}$	-	-	-0.3	V
Base-emitter voltage	$V_{BE}$	$V_{CE}=-6\text{V}, I_C=-2\text{mA}$	-	-0.65	-	V
Transition frequency	$f_T$	$V_{CE}=-10\text{V}, I_C=-10\text{mA}$	-	200	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, I_E=0, f=1\text{MHz}$	-	4	-	pF

Electrical Characteristic Curves

[Tr1]

Fig. 1  $I_C - V_{BE}$

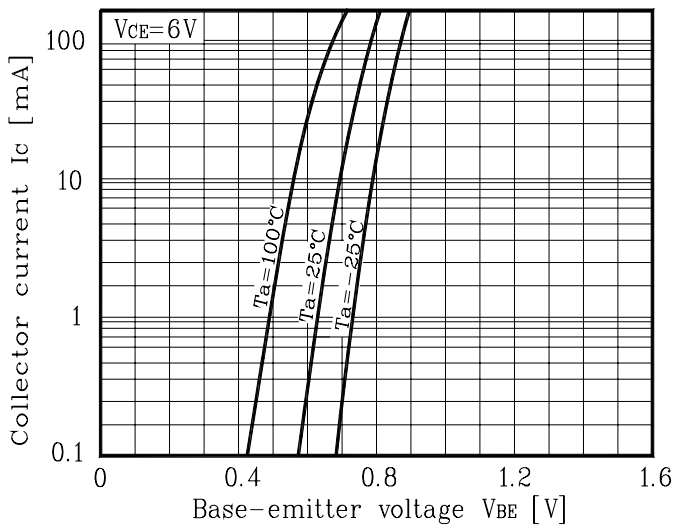


Fig. 2  $I_C - V_{CE}$

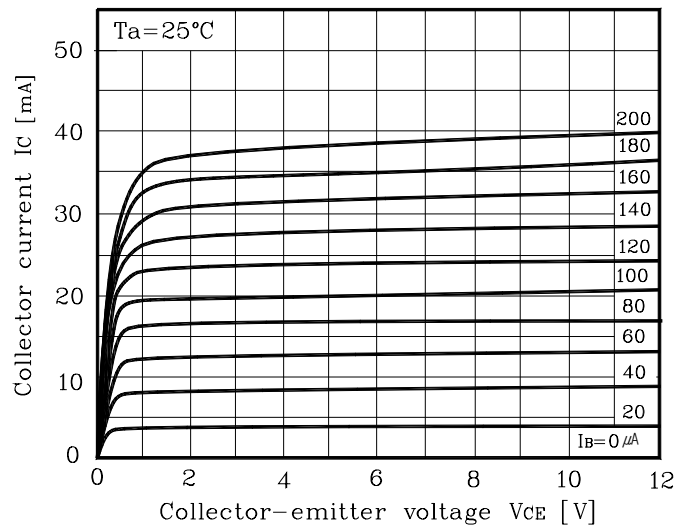


Fig. 3  $h_{FE} - I_C$

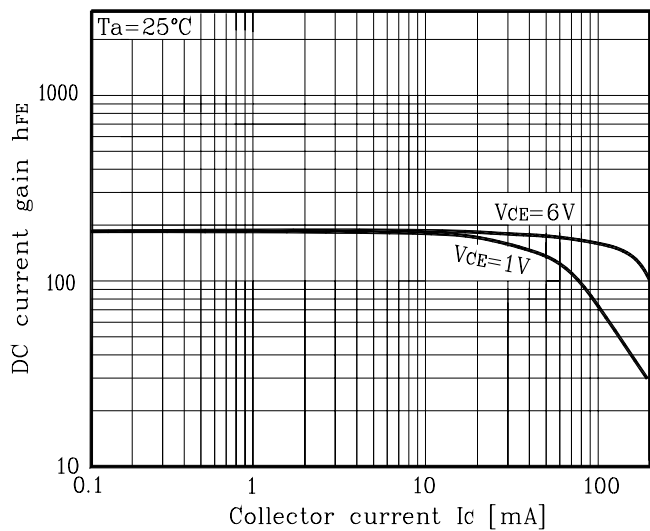
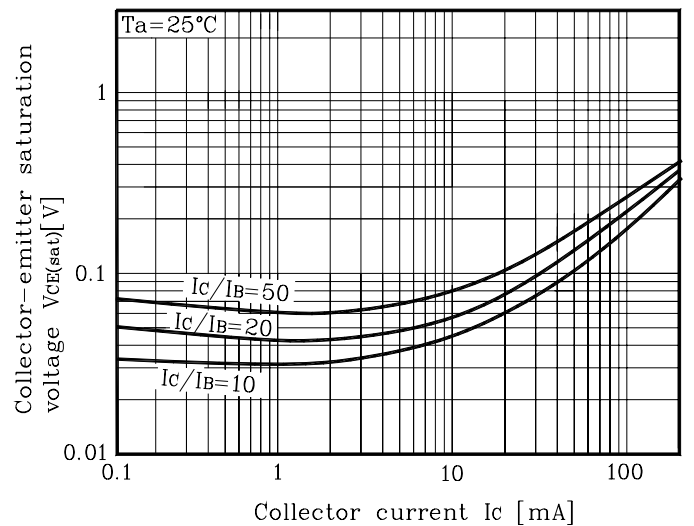


Fig. 4  $V_{CE(sat)} - I_C$



[Tr2]

Fig. 1  $I_C - V_{BE}$

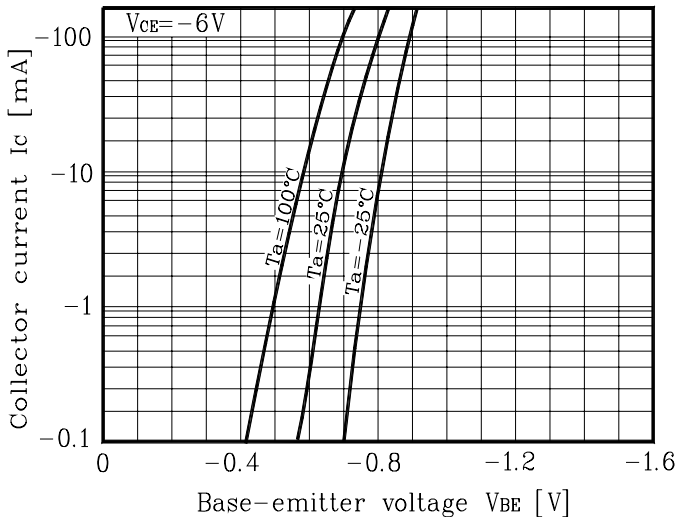
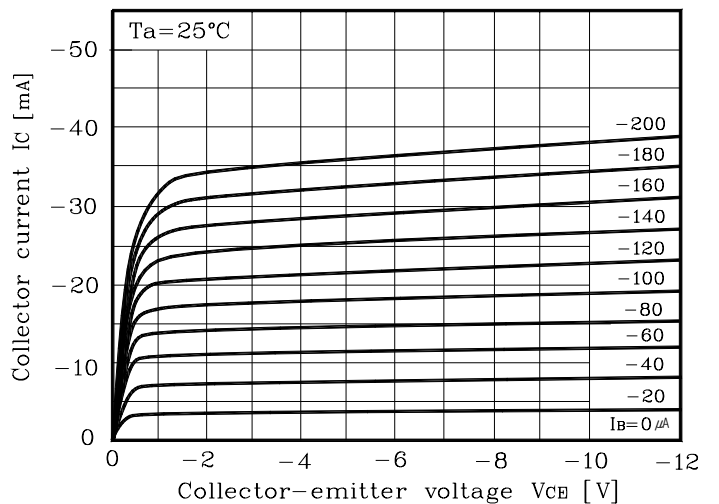


Fig. 2  $I_C - V_{CE}$



Electrical Characteristic Curves

Fig. 3  $h_{FE}-I_C$

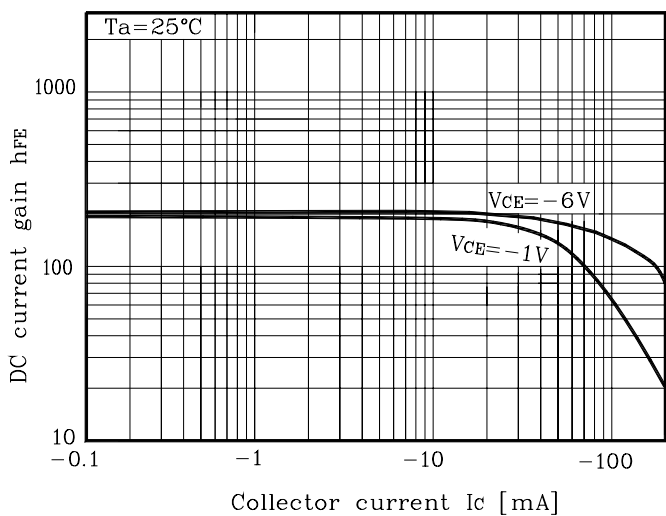
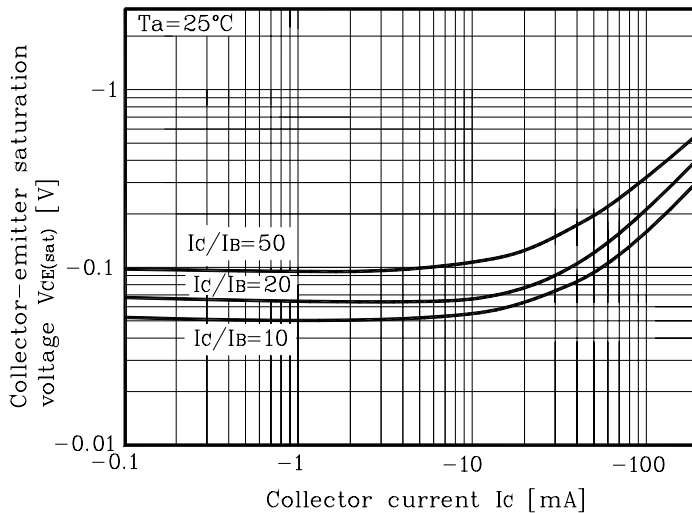
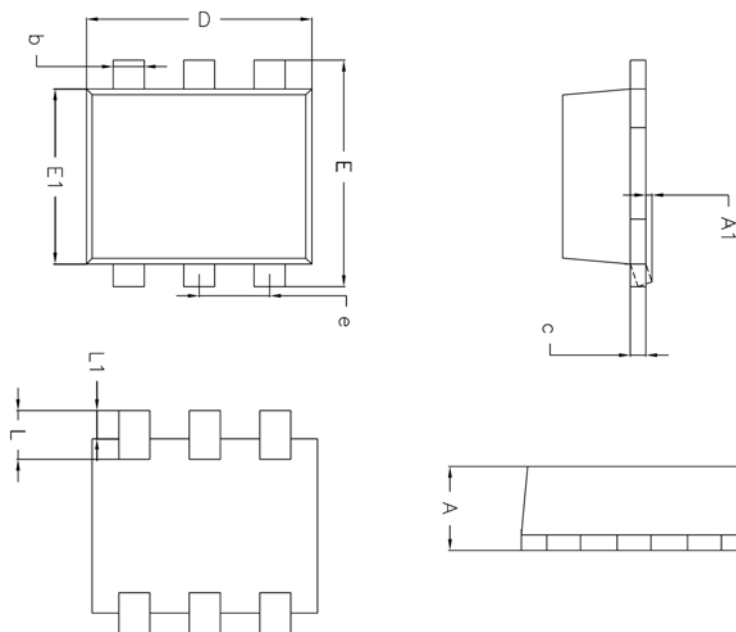


Fig. 4  $V_{CE(sat)}-I_C$

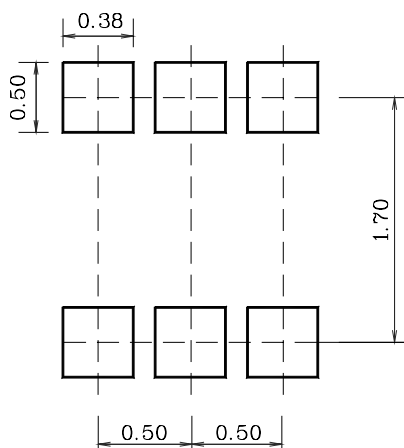


## Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	0.53	0.58	0.62	
A1	0.00	—	0.10	
A2	—	—	—	
b	0.15	0.20	0.30	
c	0.10	0.11	0.18	
D	1.50	1.60	1.70	
E	1.50	1.60	1.70	
E1	1.10	1.20	1.30	
e	0.50 BSC			
L	0.25	0.35	0.45	
L1	0.13	0.20	0.27	

※ Recommend PCB solder land [Unit: mm]



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