

**Description**

- General purpose transistor

**Feature**

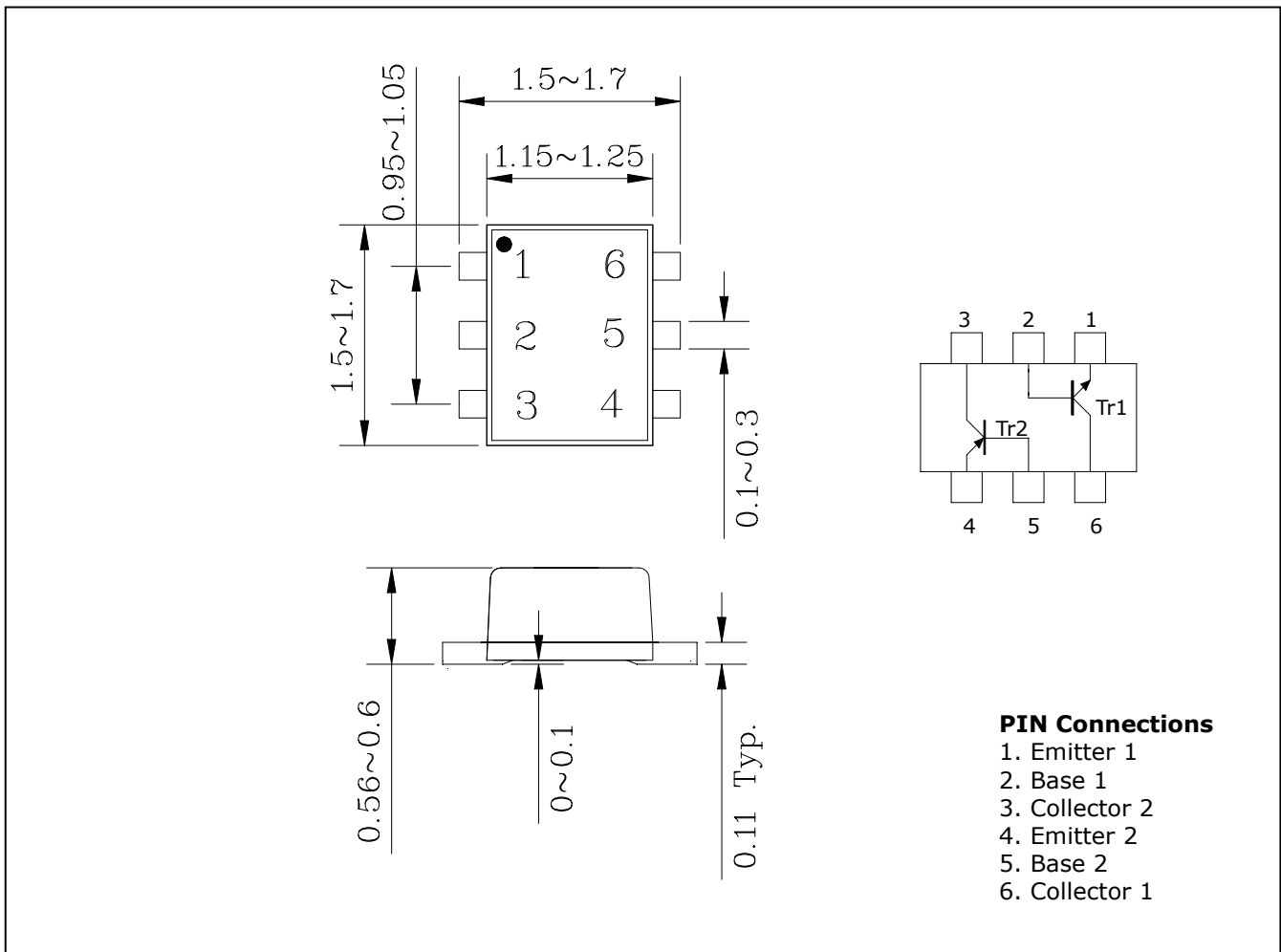
- Both 2SA1980 chip and 2SC5343 chip in SOT-563F package

**Ordering Information**

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

**Outline Dimensions**

**unit : mm**



## Absolute maximum ratings (Tr1, Tr2)

Ta=25°C

Characteristic	Symbol	Ratings		Unit
		Tr1	Tr2	
Collector-Base voltage	V <sub>CBO</sub>	60	-50	V
Collector-Emitter voltage	V <sub>CEO</sub>	50	-50	V
Emitter-base voltage	V <sub>EBO</sub>	5	-5	V
Collector current	I <sub>C</sub>	150	-150	mA
Collector dissipation	P <sub>C</sub>	100		mW
Junction temperature	T <sub>j</sub>	150		°C
Storage temperature range	T <sub>stg</sub>	-55~150		°C

## Electrical Characteristics (Tr1 : NPN)

Ta=25°C

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV <sub>CBO</sub>	I <sub>C</sub> =100μA, I <sub>E</sub> =0	60	-	-	V
Collector-Emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> =1mA, I <sub>B</sub> =0	50	-	-	V
Emitter-Base breakdown voltage	BV <sub>EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	5	-	-	V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0	-	-	0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0	-	-	0.1	μA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> =6V, I <sub>C</sub> =2mA	70	-	700	-
Collector-Emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA	-	-	0.25	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1mA, f=100MHZ	80	-	-	MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz	-	2	3.5	pF

## Electrical Characteristics (Tr2 : PNP)

Ta=25°C

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV <sub>CBO</sub>	I <sub>C</sub> =-100μA, I <sub>E</sub> =0	-50	-	-	V
Collector-Emitter breakdown voltage	BV <sub>CEO</sub>	I <sub>C</sub> =-1mA, I <sub>B</sub> =0	-50	-	-	V
Emitter-Base breakdown voltage	BV <sub>EBO</sub>	I <sub>E</sub> =-10μA, I <sub>C</sub> =0	-5	-	-	V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =-50V, I <sub>E</sub> =0	-	-	-0.1	μA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =-5V, I <sub>C</sub> =0	-	-	-0.1	μA
DC current gain	h <sub>FE</sub>	V <sub>CE</sub> =-6V, I <sub>C</sub> =-2mA	120	-	400	-
Collector-Emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA	-	-	-0.3	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-10V, I <sub>C</sub> =-1mA, f=100MHZ	80	-	-	MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz	-	4	7	pF

Electrical Characteristic Curves

Tr1 : NPN

Fig. 1  $I_C - V_{BE}$

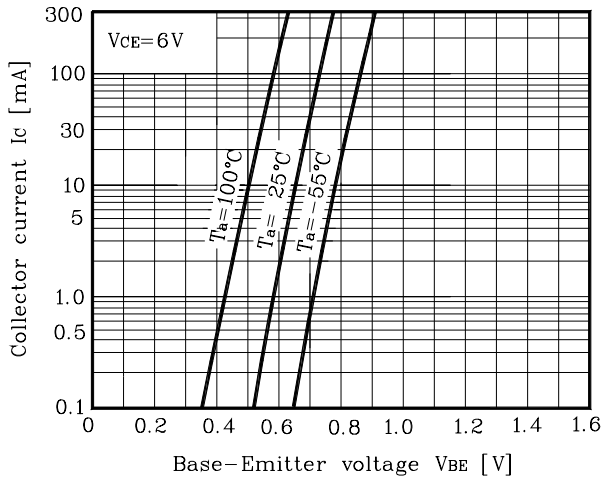


Fig. 2  $I_C - V_{CE}$

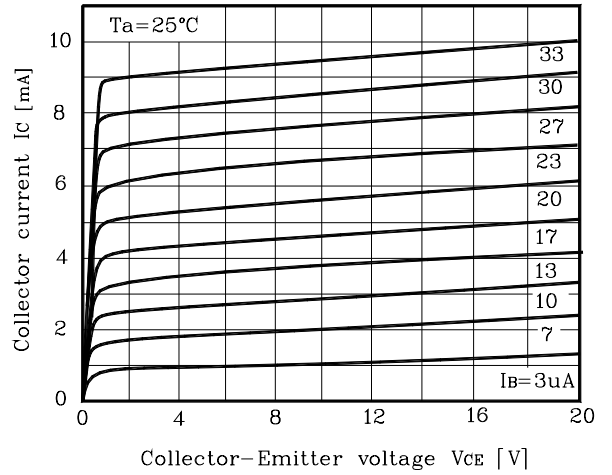


Fig. 3  $h_{FE} - I_C$

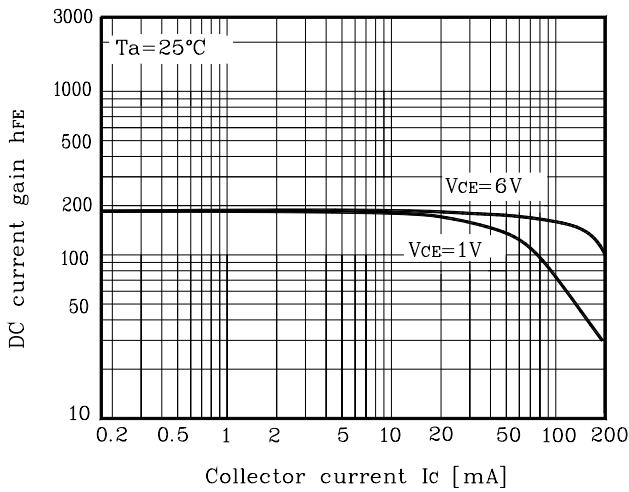
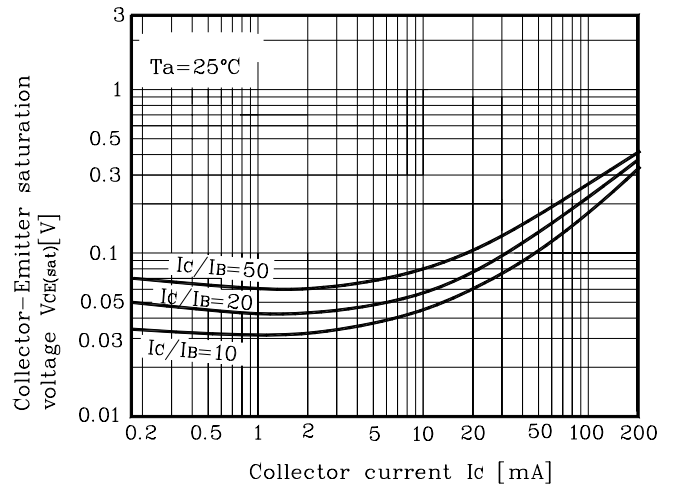


Fig. 4  $V_{CE(sat)} - I_C$



Tr2 : PNP

Fig. 1  $I_C - V_{BE}$

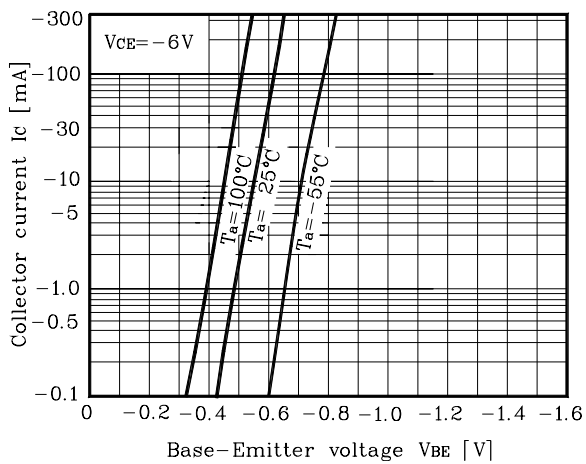
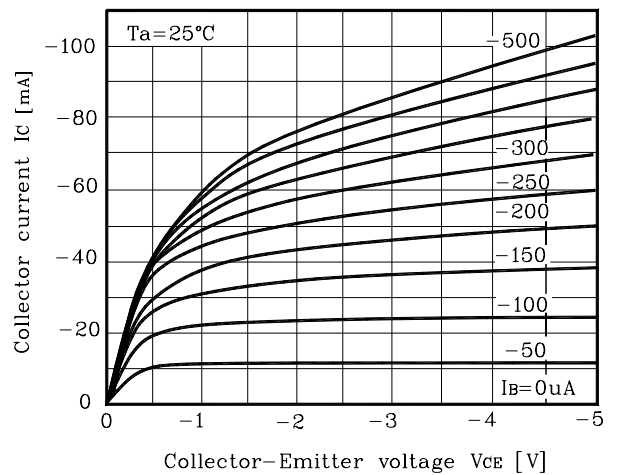


Fig. 2  $I_C - V_{CE}$



Electrical Characteristic Curves

Fig. 3  $h_{FE}-I_C$

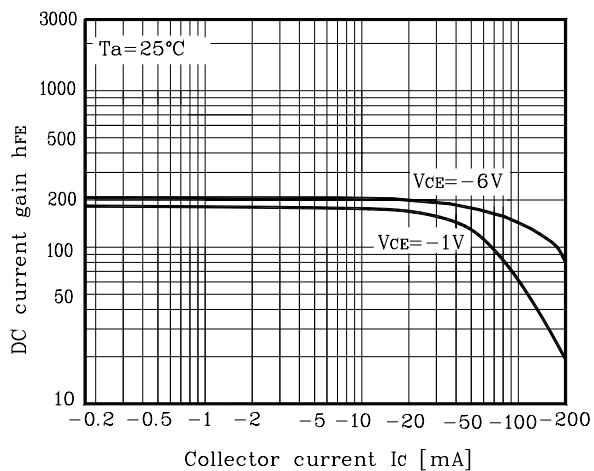
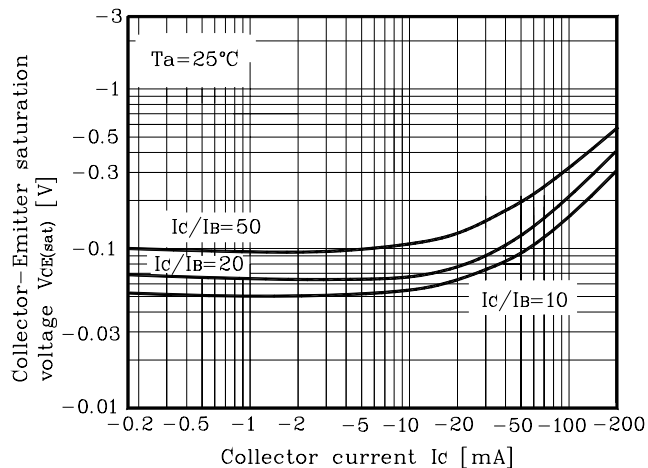


Fig. 4  $V_{CE(sat)}-I_C$



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