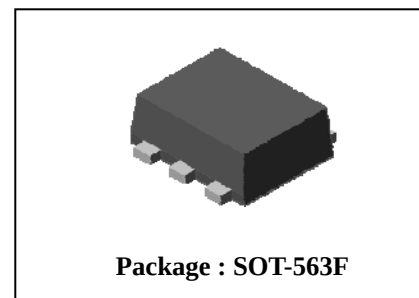


Description

- Complex type bipolar transistor

Feature

- Small package save PCB area
- Reduce quantity of parts and mounting cost
- Both SBT3906 chip and SBT3904 chip in SOT-563F package



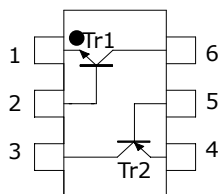
Ordering Information

Type NO.	Marking	Package Code
SUT394EF	UX□	SOT-563F

□ : Year & Week Code

Equivalent circuit & PIN Connections

• Equivalent Circuit



PIN Connections

1. Emitter 1
2. Base 1
3. Collector 2
4. Emitter 2
5. Base 2
6. Collector 1

Absolute Maximum Ratings [Tr1, Tr2]

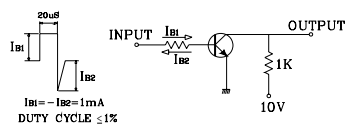
(Ta=25°C)

Characteristic	Symbol	Rating		Unit
		Tr1	Tr2	
Collector-base voltage	V_{CBO}	60	-40	V
Collector-emitter voltage	V_{CEO}	40	-40	V
Emitter-base voltage	V_{EBO}	6	-5	V
Collector current	I_C	200	-200	mA
Collector power dissipation	P_C^*	150		mW
Junction temperature	T_J	150		°C
Storage temperature range	T_{stg}	-55~150		°C

※: Total rating

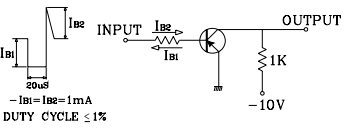
Electrical Characteristics [Tr1]

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV_{CBO}	$I_C=10\mu A, I_E=0$	60	-	-	V
Collector-Emitter breakdown voltage	BV_{CEO}	$I_C=1mA, I_B=0$	40	-	-	V
Emitter-Base breakdown voltage	BV_{EBO}	$I_E=10\mu A, I_C=0$	6	-	-	V
Collector cut-off current	I_{CEX}	$V_{CE}=30V, V_{EB}=3V$	-	-	50	nA
DC current gain	h_{FE}	$V_{CE}=1V, I_C=10mA$	100	-	300	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$I_C=50mA, I_B=5mA$	-	-	0.3	V
Transition frequency	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	-	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=5V, I_E=0, f=1MHz$	-	-	4	pF
Delay time	t_d		-	-	35	ns
Rise time	t_r		-	-	35	ns
Storage time	t_{stg}		-	-	200	ns
Fall Time	t_f		-	-	50	ns

Electrical Characteristics [Tr2]

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	BV_{CBO}	$I_C=-10\mu A, I_E=0$	-40	-	-	V
Collector-Emitter breakdown voltage	BV_{CEO}	$I_C=-1mA, I_B=0$	-40	-	-	V
Emitter-Base breakdown voltage	BV_{EBO}	$I_E=-10\mu A, I_C=0$	-5	-	-	V
Collector cut-off current	I_{CEX}	$V_{CE}=-30V, V_{EB}=-3V$	-	-	-50	nA
DC current gain	h_{FE}	$V_{CE}=-1V, I_C=-10mA$	100	-	300	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$I_C=-50mA, I_B=-5mA$	-	-	-0.4	V
Transition frequency	f_T	$V_{CE}=-20V, I_C=-10mA, f=100MHz$	250	-	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=-5V, I_E=0, f=1MHz$	-	-	4.5	pF
Delay time	t_d		-	-	35	ns
Rise time	t_r		-	-	35	ns
Storage time	t_{stg}		-	-	225	ns
Fall Time	t_f		-	-	75	ns

Electrical Characteristic Curves
[Tr1]

Fig. 1 $I_C - V_{BE}$

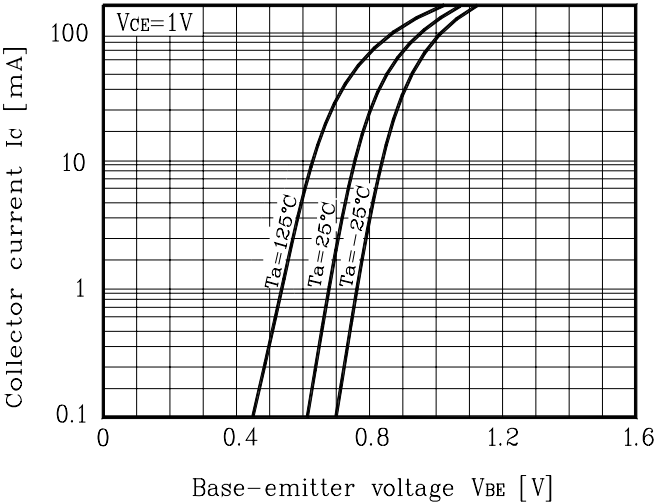


Fig. 2 $I_C - V_{CE}$

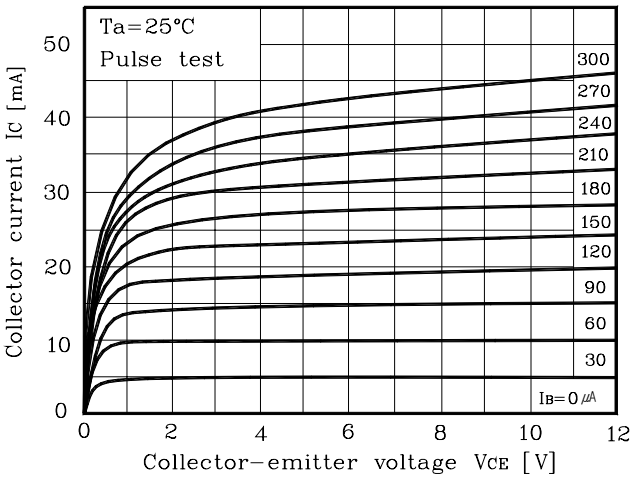


Fig. 3 $h_{FE} - I_C$

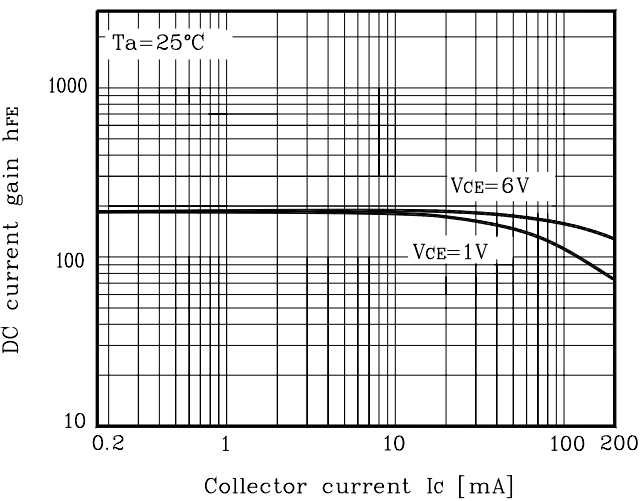
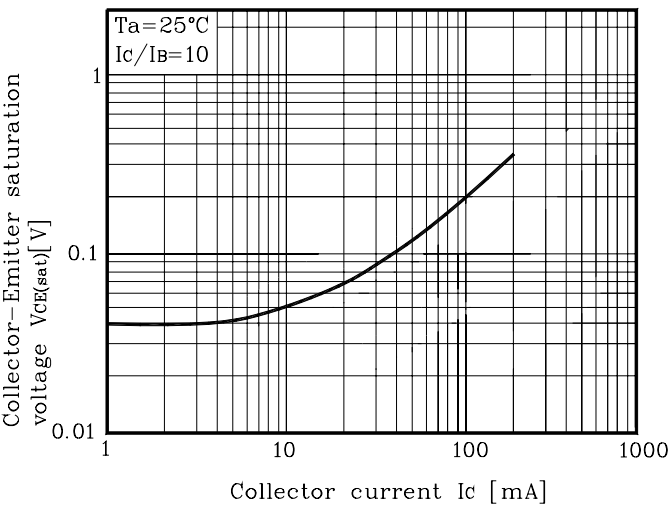


Fig. 4 $V_{CE(SAT)} - I_C$



Electrical Characteristic Curves

[Tr2]

Fig. 1 $I_C - V_{BE}$

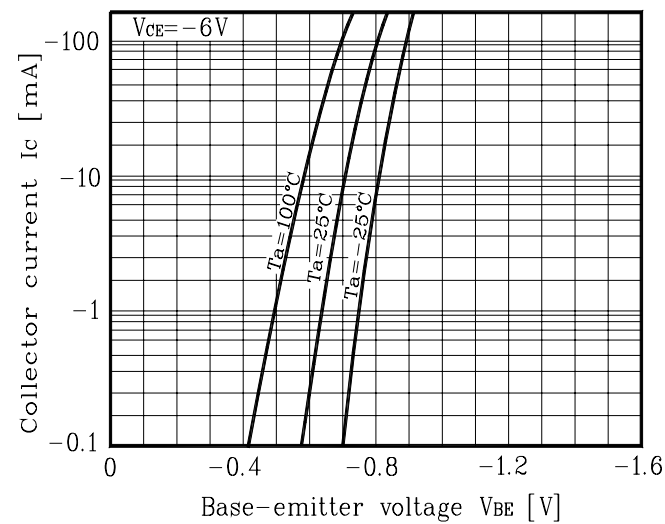


Fig. 2 $I_C - V_{CE}$

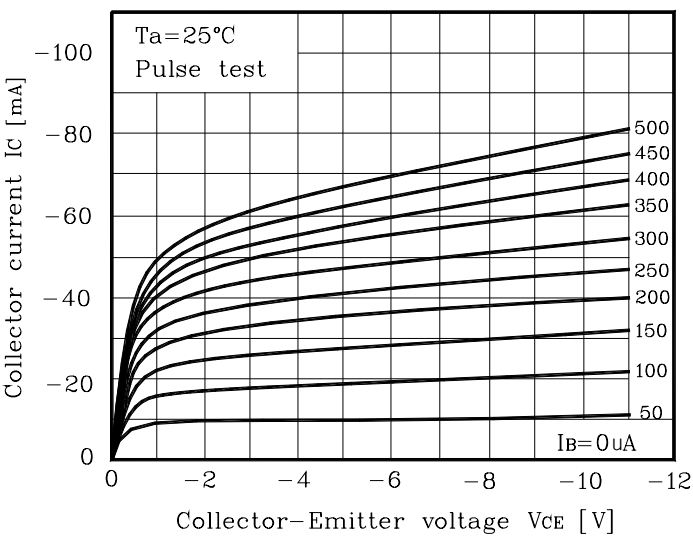


Fig. 3 $h_{FE} I_C$

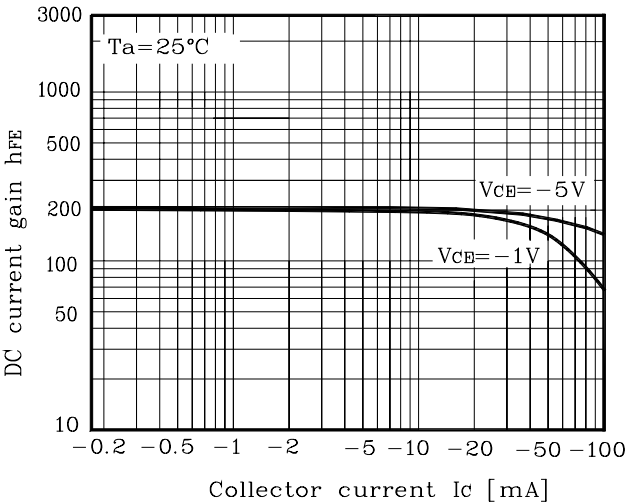
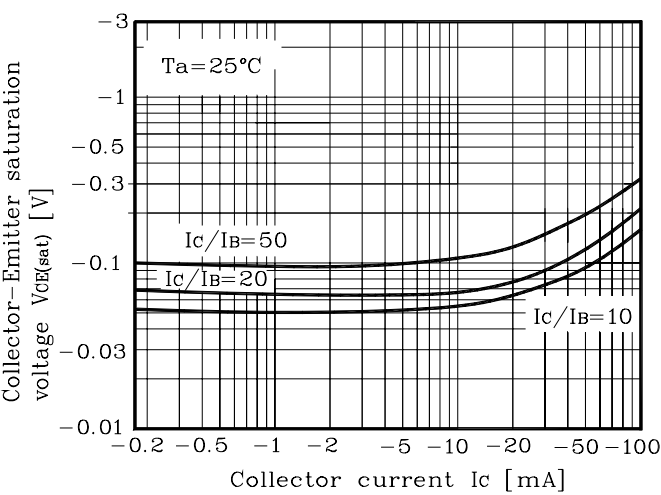
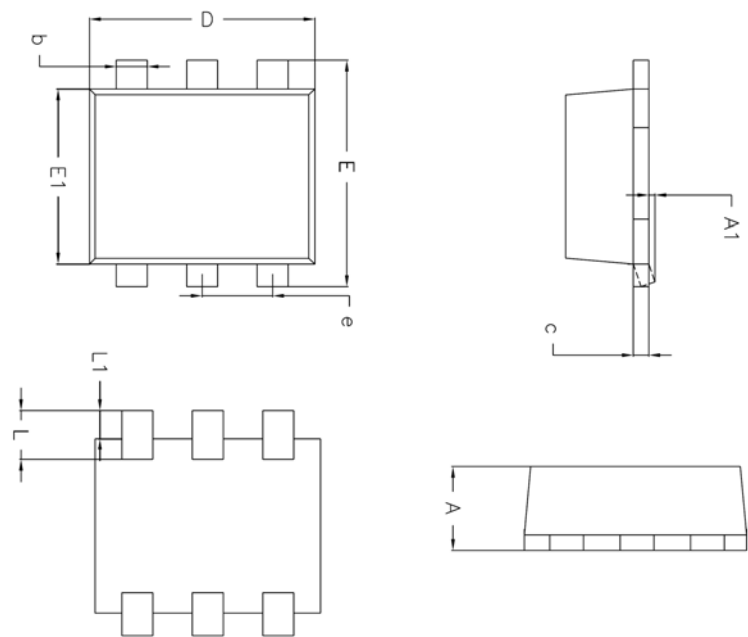


Fig. 4 $V_{CE(sat)} - I_C$

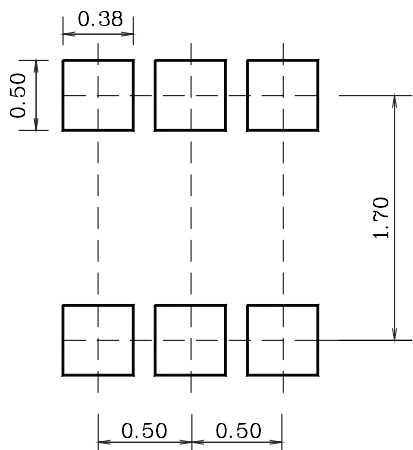


Outline Dimension



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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