



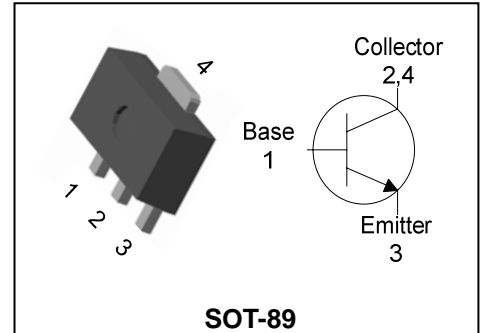
## Descriptions

- General purpose amplifier
- High voltage application

## Features

- High collector breakdown voltage  
:  $V_{CEO} = 120V$
- Low collector saturation voltage  
:  $V_{CE(sat)} = 0.5V(MAX.)$
- “Green” device and RoHS compliant device
- Available in full lead (Pb)-free device

## PIN Connection



## Ordering Information

Type No.	Marking	Package Code
STC4073F	M73 □YWW	SOT-89

M73: DEVICE CODE, □ :  $h_{FE}$  rank, YWW(Y : Year code, WW : Weekly code)

## Absolute maximum ratings

( $T_a = 25^\circ C$ )

Characteristic	Symbol	Ratings	Unit
Collector-Base voltage	$V_{CBO}$	120	V
Collector-Emitter voltage	$V_{CEO}$	120	V
Emitter-Base voltage	$V_{EBO}$	6	V
Collector current	$I_C$	1	A(DC)
	$I_{CP}^*$	2	A(Pulse)
Collector power dissipation	$P_C$	0.5	W
	$P_C^{**}$	1	
Junction temperature	$T_J$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 ~ 150	$^\circ C$

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-A)}$	-	250.0	$^\circ C/W$
		$R_{th(J-A)}^{**}$	-	125.0	

\* : Single pulse,  $t_p = 300 \mu s$

\*\* : When mounted on ceramic substrate( $250 \text{ mm}^2 \times 0.8 \text{ t}$ )

## Electrical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Base breakdown voltage	$BV_{CBO}$	$I_C=100\mu A, I_E=0$	120	-	-	V
Collector-Emitter breakdown voltage	$BV_{CEO}$	$I_C=1mA, I_B=0$	120	-	-	V
Emitter-Base breakdown voltage	$BV_{EBO}$	$I_E=100\mu A, I_C=0$	6	-	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=120V, I_E=0$	-	-	0.1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4V, I_C=0$	-	-	0.1	$\mu A$
DC current gain	$h_{FE}^{1)}$	$V_{CE}=5V, I_C=30mA$	200	-	400	-
Collector-Emitter saturation voltage	$V_{CE(sat)}^{2)}$	$I_C=500mA, I_B=50mA$	-	-	0.5	V
		$I_C=100mA, I_B=10mA$	-	-	0.1	V
		$I_C=120mA, I_B=2mA$	-	-	0.15	V
		$I_C=200mA, I_B=2mA$	-	-	0.3	V
Base-Emitter turn on voltage	$V_{BE(on)}^{2)}$	$V_{CE}=0.2V, I_C=200mA$	0.6	-	0.85	V
Base-Emitter saturation voltage	$V_{BE(sat)}^{2)}$	$I_C=500mA, I_B=50mA$	-	-	1.2	V
Transition frequency	$f_T$	$V_{CE}=5V, I_C=50mA$	-	170	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$	-	10	-	pF

\* Note 1) hFE Rank : 200~400 only

\* Note 2) Pulse Tester : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

Electrical Characteristic Curves

Fig. 1  $P_C - T_a$

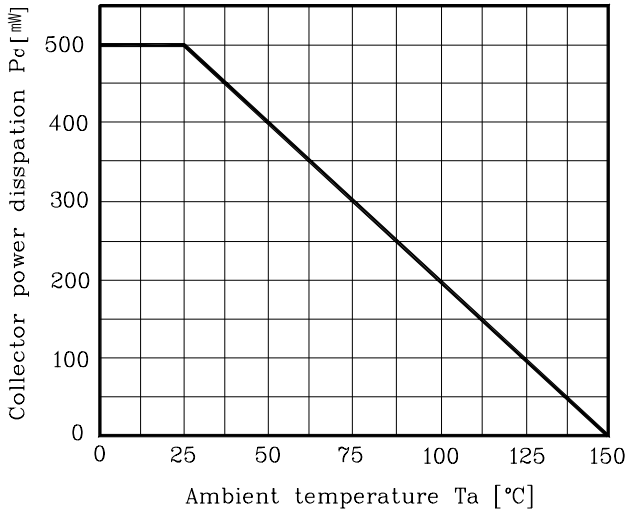


Fig. 2  $I_C - V_{BE}$

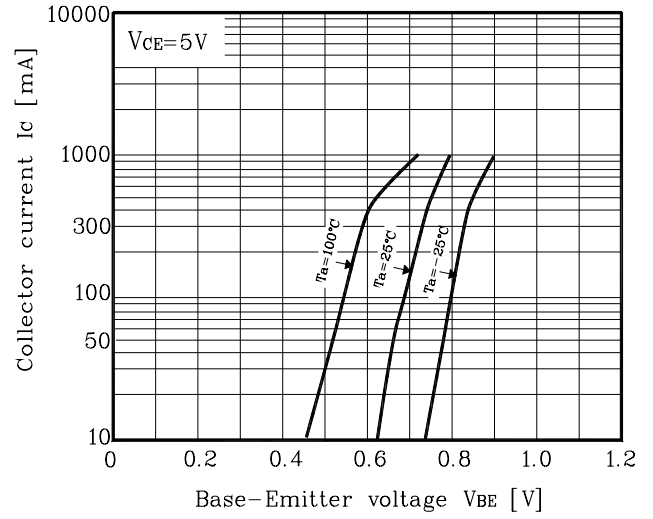


Fig. 3  $V_{CE(sat)} - I_C$

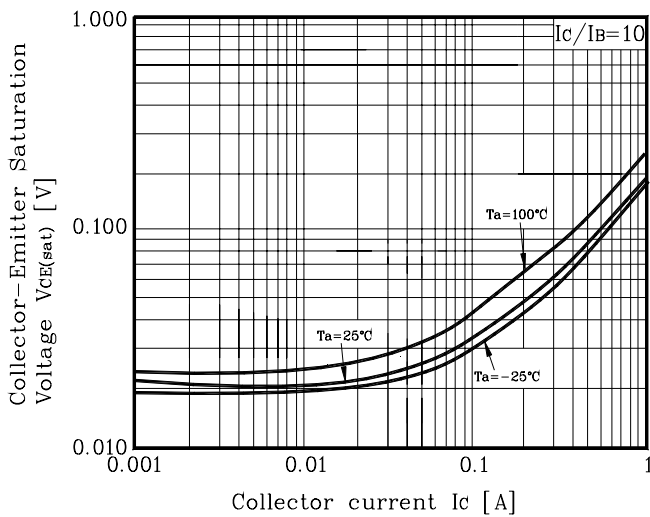


Fig. 4  $I_C - V_{CE}$

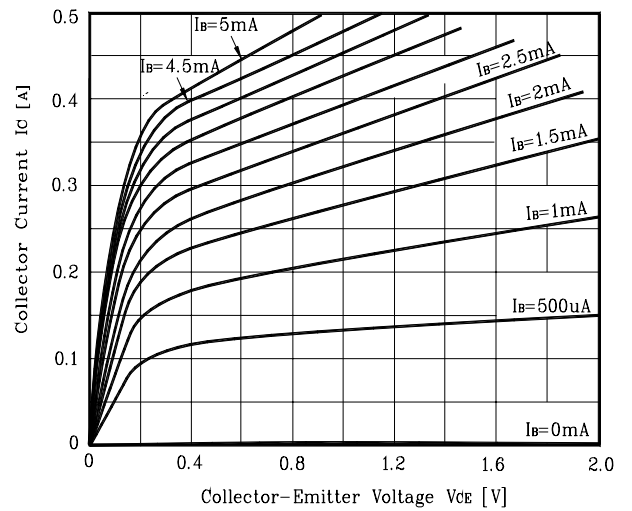


Fig. 5  $I_C - V_{CE}$

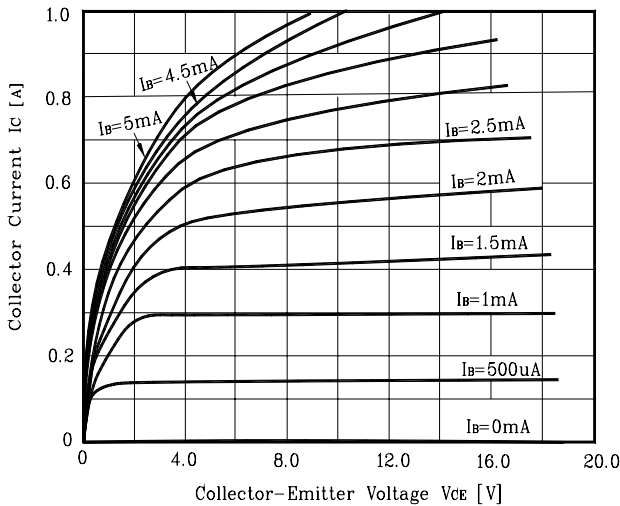
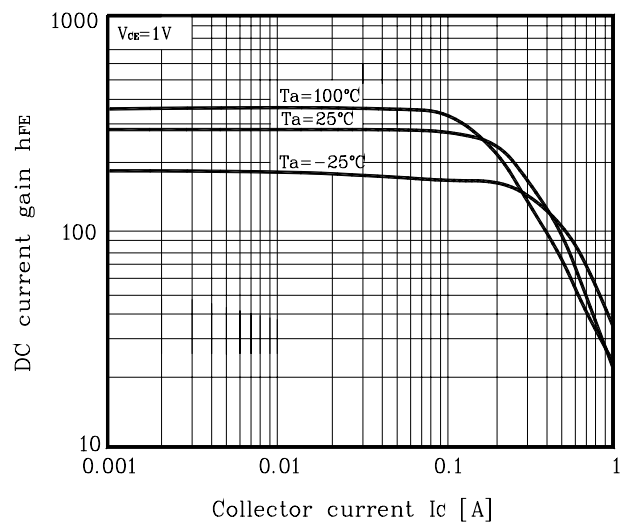
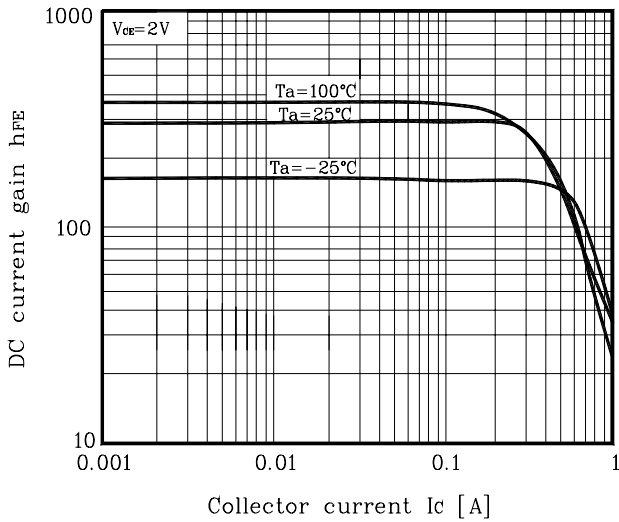


Fig. 6  $h_{FE} - I_C$

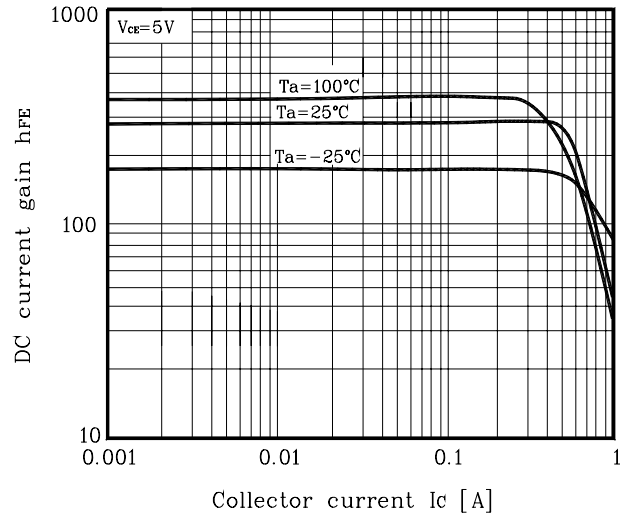


## Electrical Characteristic Curves

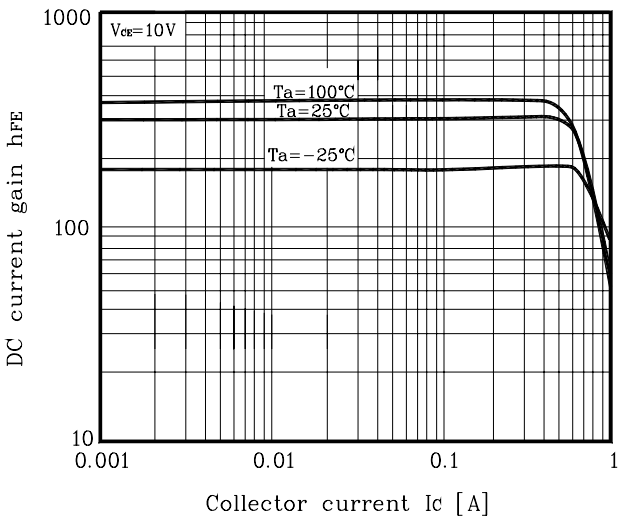
**Fig. 7  $h_{FE}-I_C$**



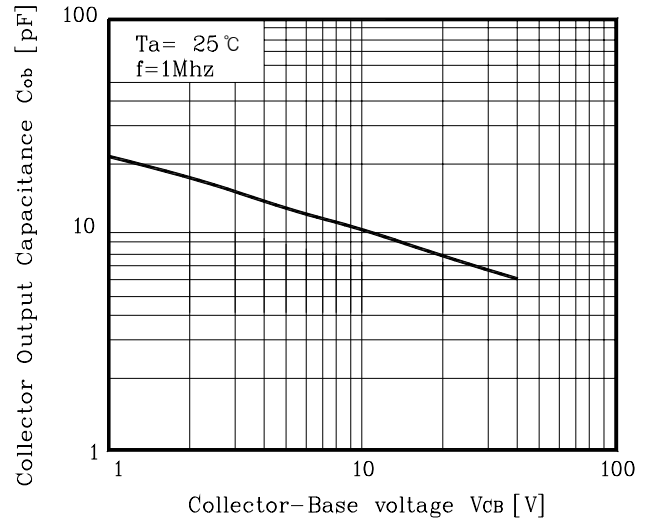
**Fig. 8  $h_{FE}-I_C$**



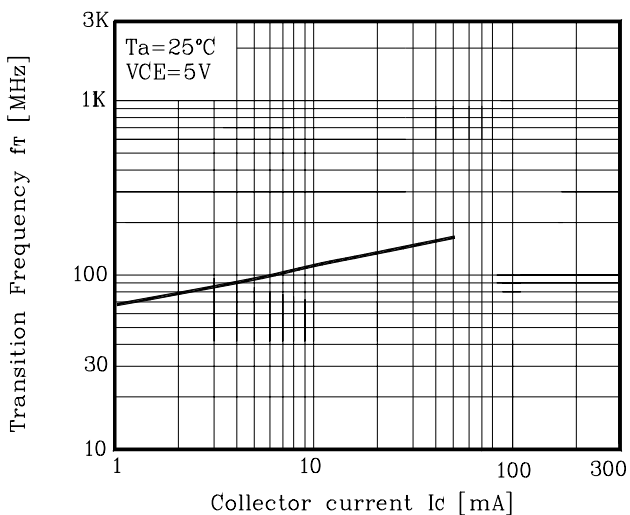
**Fig. 9  $h_{FE}-I_C$**



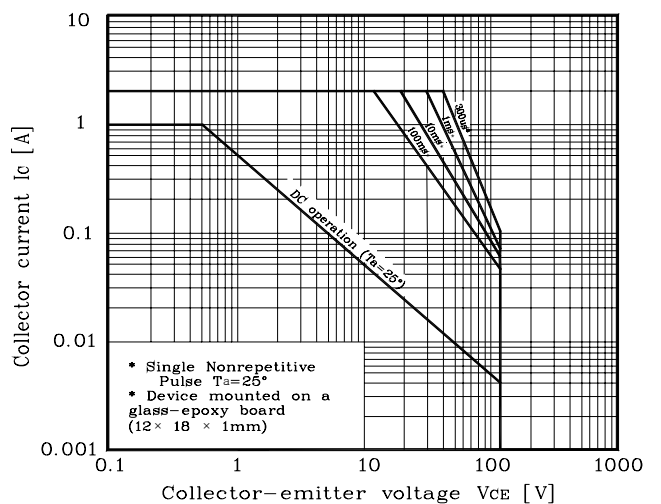
**Fig. 10  $C_{ob}-V_{CB}$**



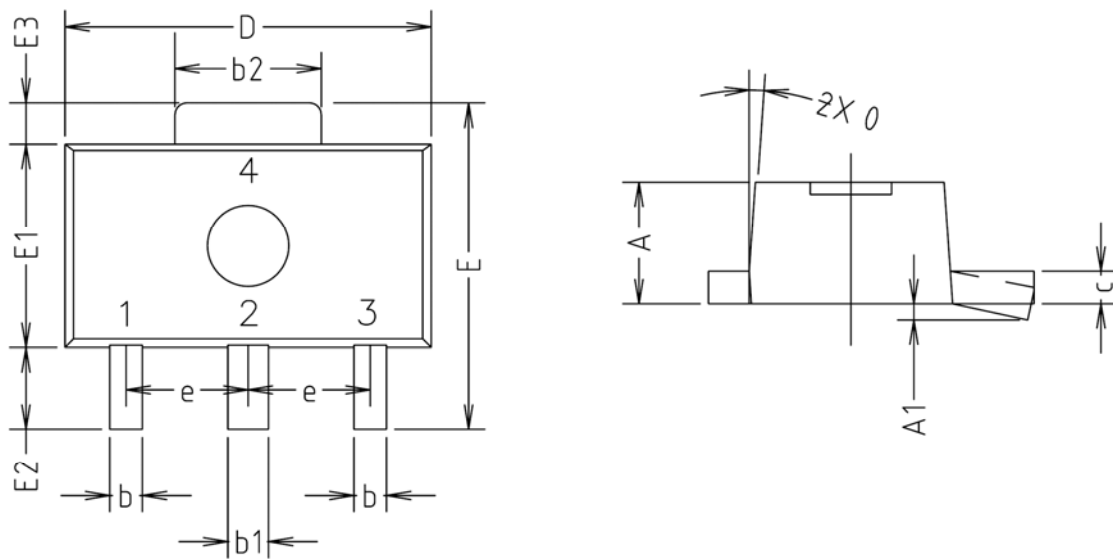
**Fig. 11  $f_T - I_C$**



**Fig. 12 Safe operating Area**

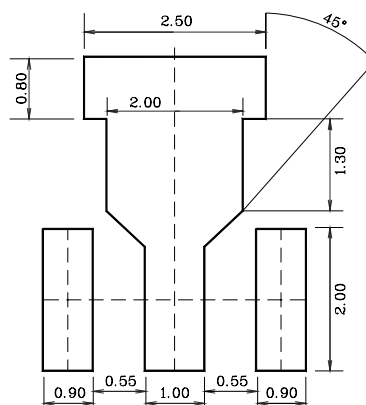


Outline Dimension(mm)



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	1.40	1.50	1.60	
A1	0.00	—	0.10	
b	0.38	0.42	0.48	
b1	0.48	0.52	0.58	
b2	1.79	1.82	1.87	
c	0.40	0.42	0.46	
D	4.40	4.50	4.70	
E	3.70	4.00	4.30	
E1	2.40	2.50	2.70	
E2	0.80	1.00	1.20	
E3	0.40	0.50	0.60	
e	1.50 TYP.			
θ	4° TYP.			

※Recommend PCB solder land [Unit: mm]



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