

Applications

- Power amplifier application
- High current switching application

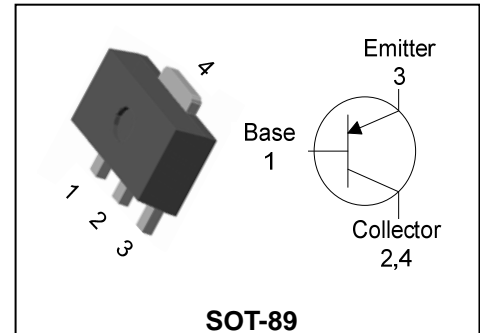
Features

- High collector breakdown voltage
: $V_{CEO} = -120V$
- Low collector saturation voltage
: $V_{CE(sat)} = -0.5V(\text{Max.})$

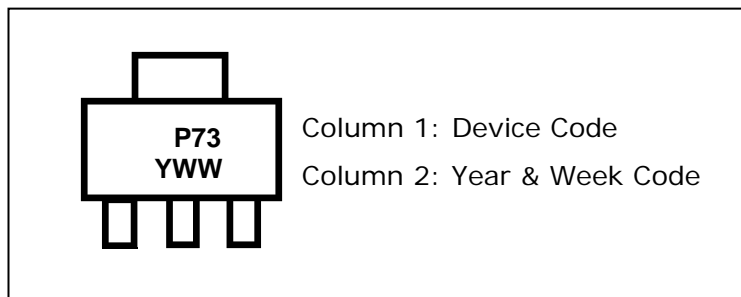
Ordering Information

Type NO.	Marking	Package Code
STA3073F	P73	SOT-89

PIN Connection



Marking Diagram



Absolute Maximum Ratings

(Ta=25°C)

Characteristic	Symbol	Rating	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	°C
Storage temperature range	T_{stg}	-55~150	°C

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

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

Thermal Characteristics

(Ta=25°C)

Characteristic		Symbol	Typ.	Max.	Unit
Thermal resistance	Junction-ambient	$R_{th(J-A)}$	-	250	°C/W
		$R_{th(J-A)}^{**}$	-	125	°C/W

** : Device mounted on ceramic substrate (250mm² × 0.8t)

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}	$I_C = -1 mA, I_B = 0$	-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	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4V, I_C = 0$	-	-	-0.1	μA
DC current gain	$h_{FE}^{1)}$	$V_{CE} = -5V, I_C = -30 mA$	200	-	400	-
Collector-Emitter saturation voltage	$V_{CE(sat)}^{2)}$	$I_C = -500 mA, I_B = -50 mA$	-	-	-0.5	V
Base-Emitter saturation voltage	$V_{BE(sat)}^{2)}$	$I_C = -500 mA, I_B = -50 mA$	-	-	-1.2	V
Transition frequency	f_T	$V_{CE} = -5V, I_C = -50 mA$	-	240	-	MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1 MHz$	-	10	-	pF

* Note 1) hFE Rank : 200~400 only

* Note 1, 2) Pulse Tester : Pulse Width ≤300μs, Duty Cycle ≤2.0%

Electrical Characteristic Curves (Typical Performance)

Fig. 1 $I_C - V_{BE}$

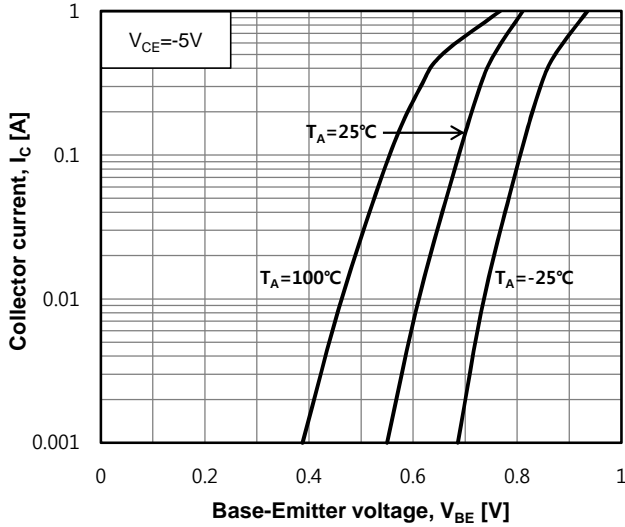


Fig. 2 $I_C - V_{BE(sat)}$

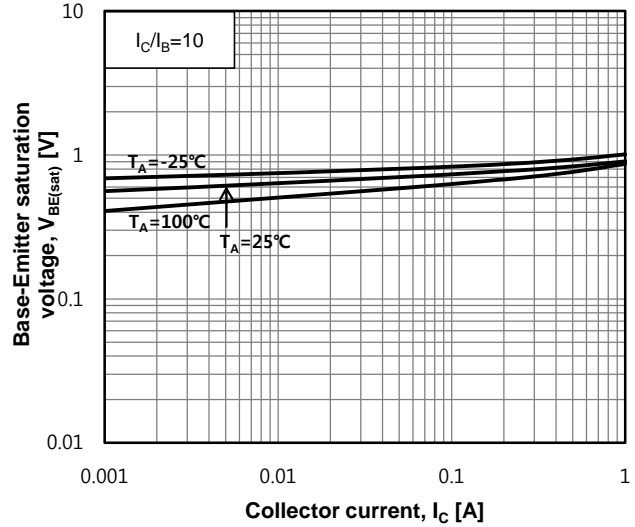


Fig. 3 $V_{CE(sat)} - I_C$

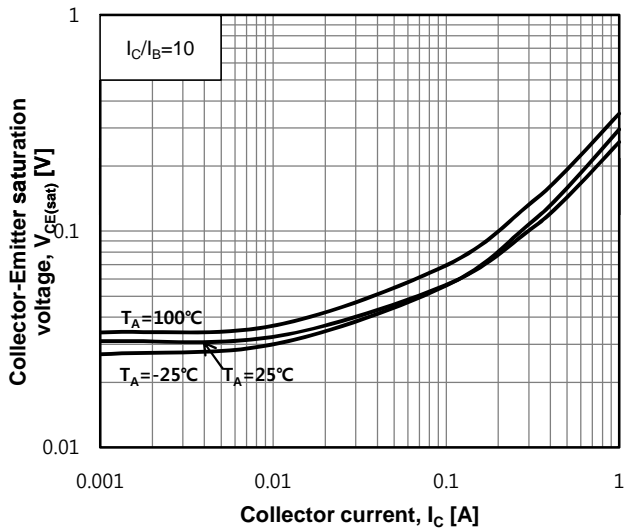


Fig. 4 $V_{CE(sat)} - I_C$

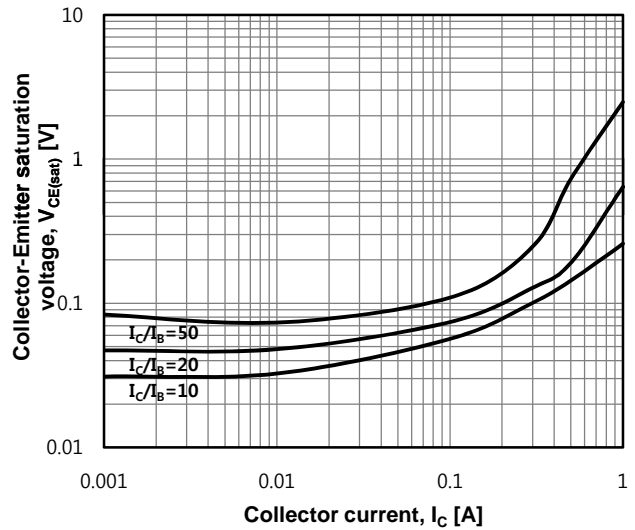


Fig. 5 $I_C - V_{CE}$

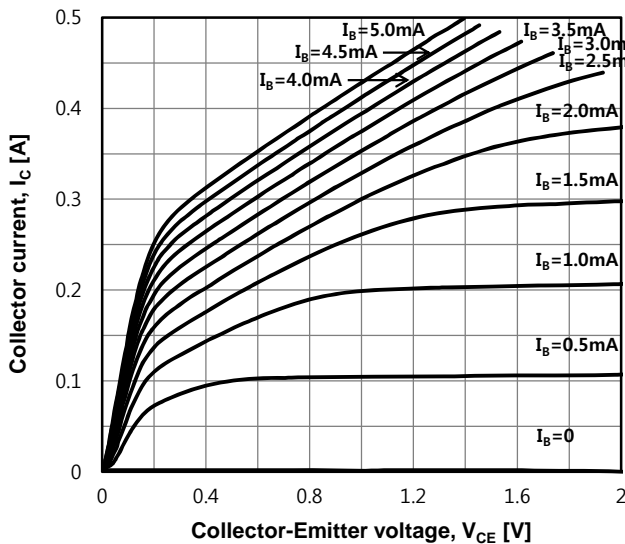
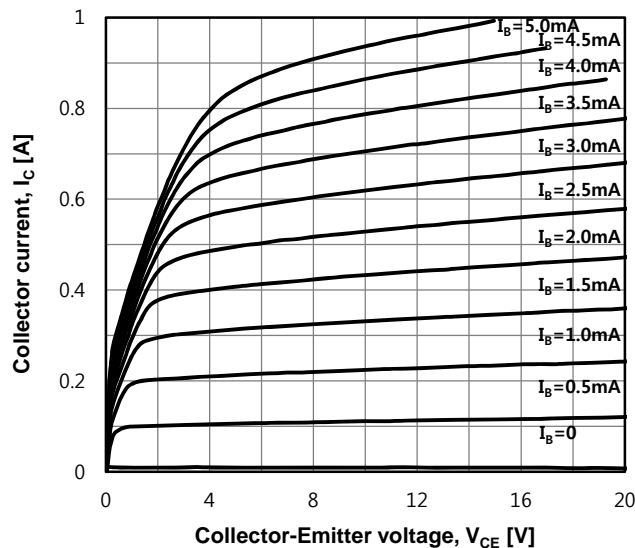


Fig. 6 $I_C - V_{CE}$



Electrical Characteristic Curves (Typical Performance)

Fig. 7 $h_{FE} - I_C$

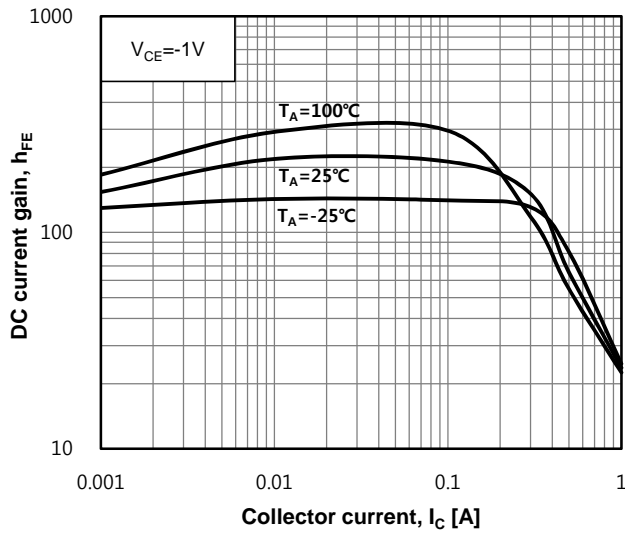


Fig. 8 $h_{FE} - I_C$

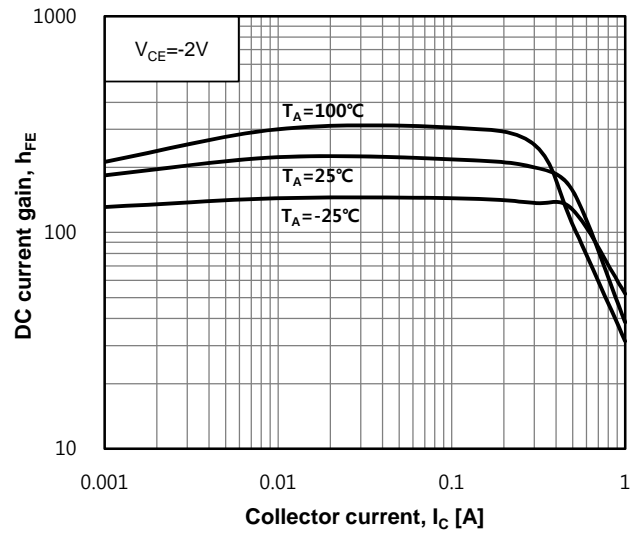


Fig. 9 $h_{FE} - I_C$

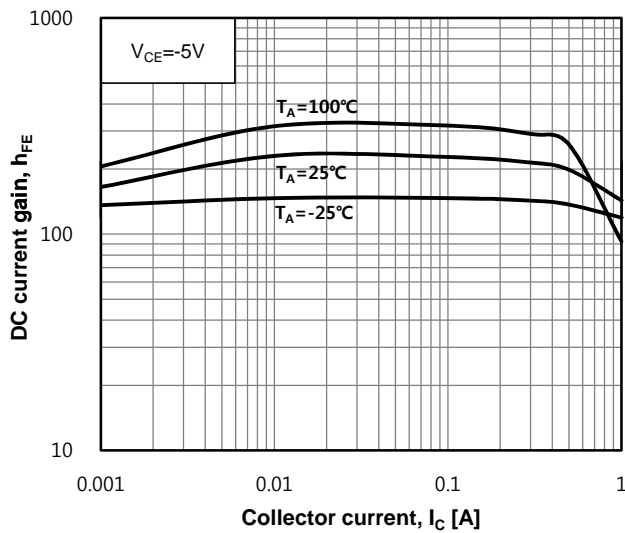


Fig. 10 $h_{FE} - I_C$

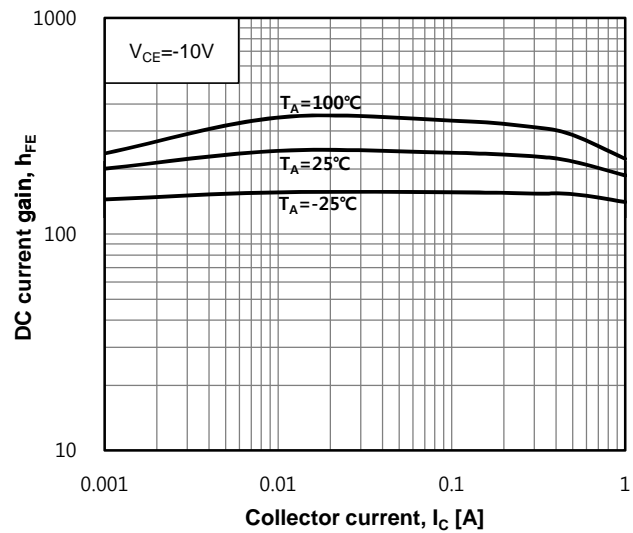


Fig. 11 $f_T - I_C$

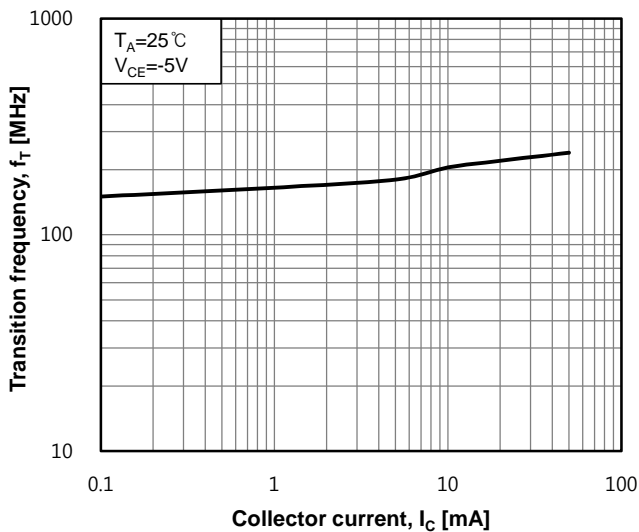
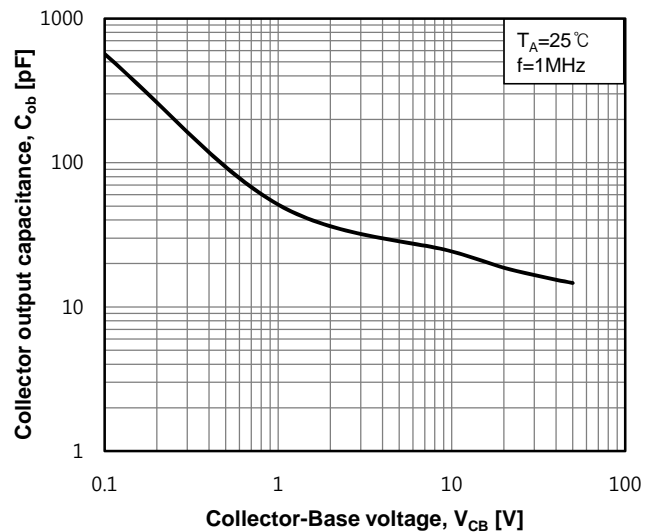


Fig. 12 $C_{ob} - V_{CB}$



Electrical Characteristic Curves (Typical Performance)

Fig. 13 $P_C - T_A$

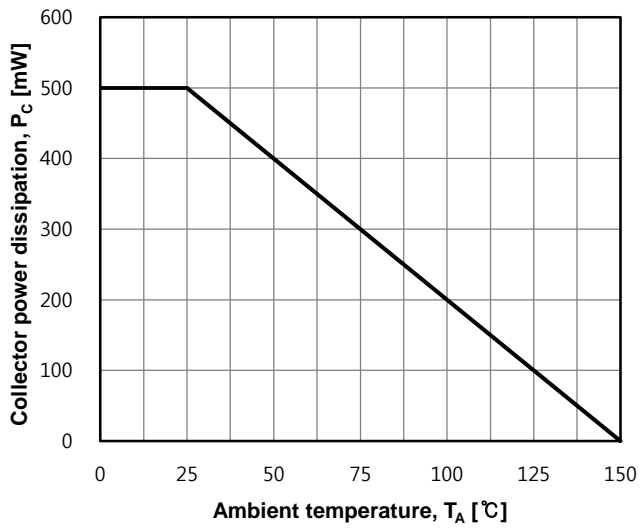
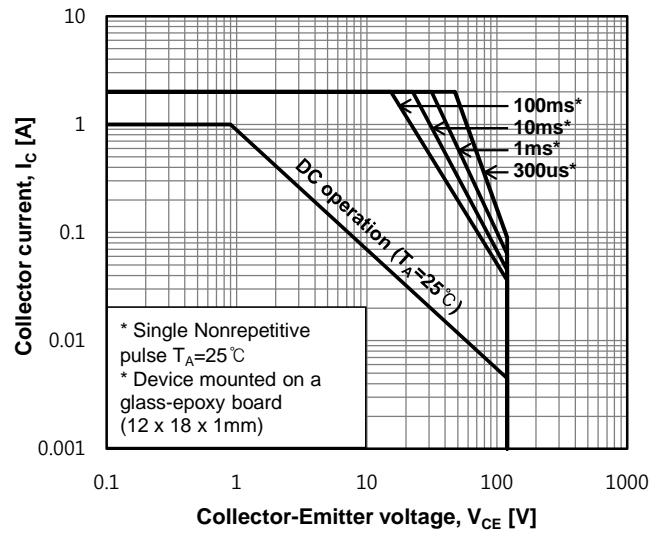
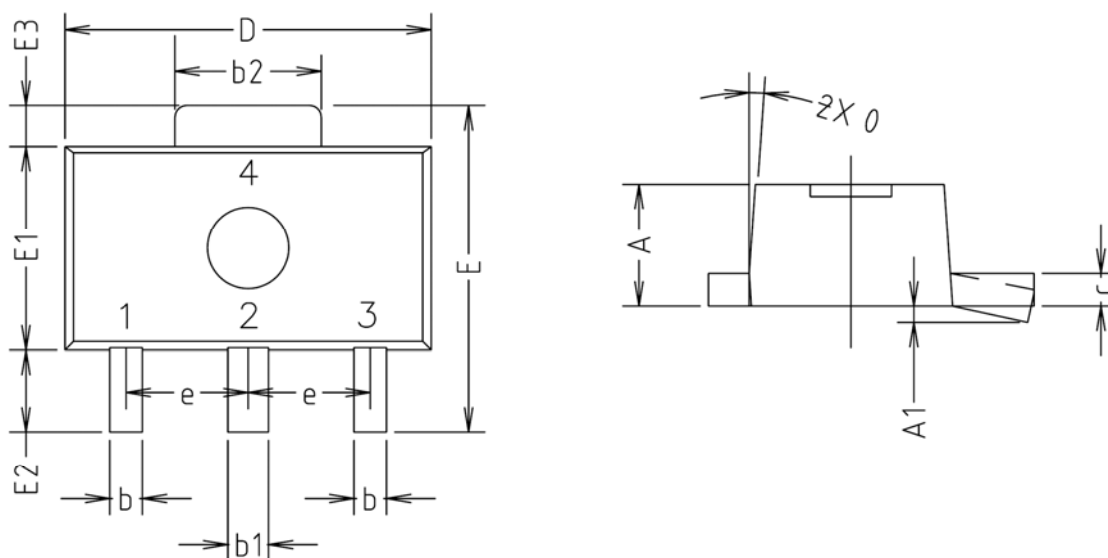


Fig. 14 Safe operating area

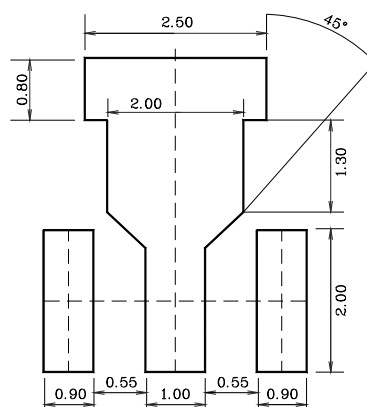


Outline Dimension (Unit : mm)



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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