

## Applications

- Power amplifier application
- High current switching application

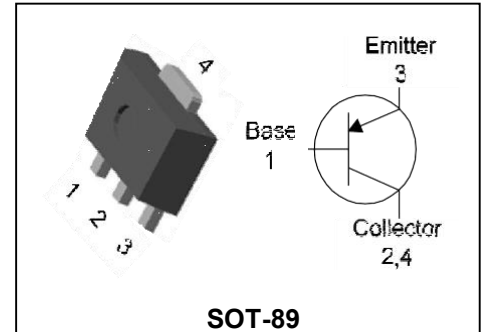
## Features

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

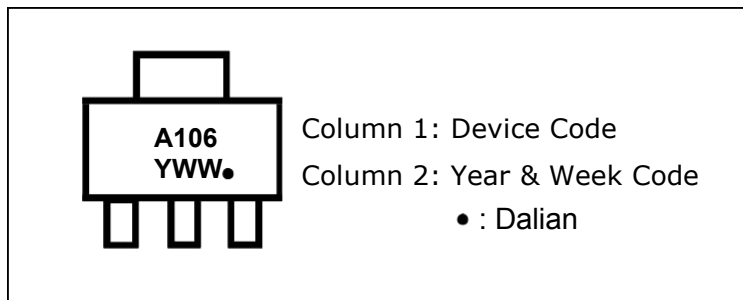
## Ordering Information

Type NO.	Marking	Package Code
KTA106F	A106	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 (250mm<sup>2</sup> × 0.8t)

## 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 (250mm<sup>2</sup> × 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	$BV_{CEO}$	$I_C = -1\text{ mA}, I_B = 0$	-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	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = -4V, I_C = 0$	-	-	-0.1	$\mu A$
DC current gain	$h_{FE}^{1)}$	$V_{CE} = -5V, I_C = -30\text{ mA}$	200	-	400	-
Collector-Emitter saturation voltage	$V_{CE(sat)}^{2)}$	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	-	-	-0.5	V
Base-Emitter saturation voltage	$V_{BE(sat)}^{2)}$	$I_C = -500\text{ mA}, I_B = -50\text{ mA}$	-	-	-1.2	V
Transition frequency	$f_T$	$V_{CE} = -5V, I_C = -50\text{ mA}$	-	240	-	MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = -10V, I_E = 0, f = 1\text{ MHz}$	-	10	-	pF

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

\* Note 1, 2) Pulse Tester : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$

## Electrical Characteristic Curves (Typical Performance)

Fig. 1  $I_C - V_{BE}$

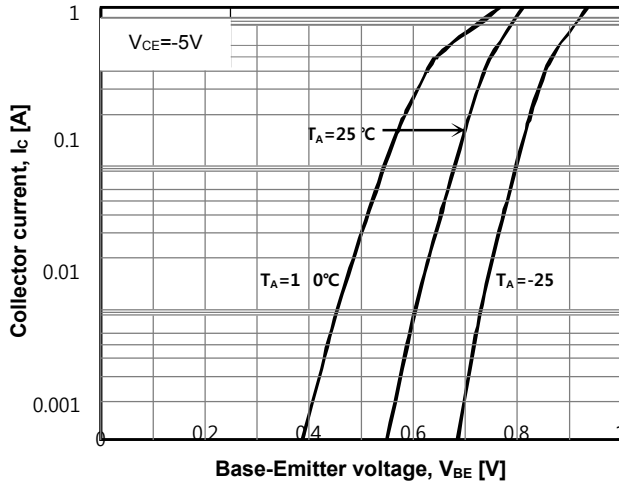


Fig. 2  $I_C - V_{BE(sat)}$

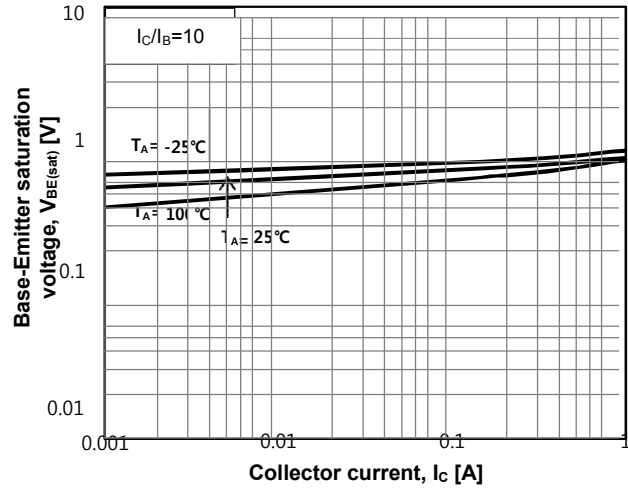


Fig. 3  $V_{CE(sat)} - I_C$

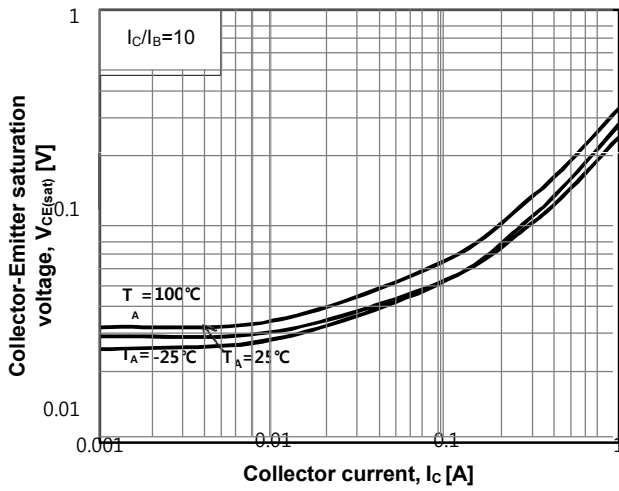


Fig. 4  $V_{CE(sat)} - I_C$

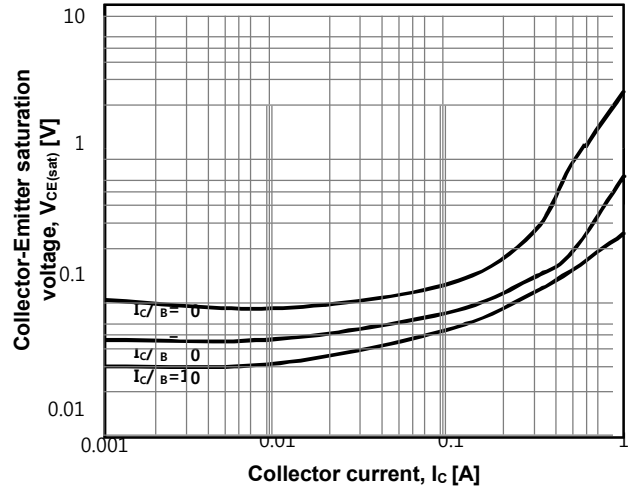


Fig. 5  $I_C - V_{CE}$

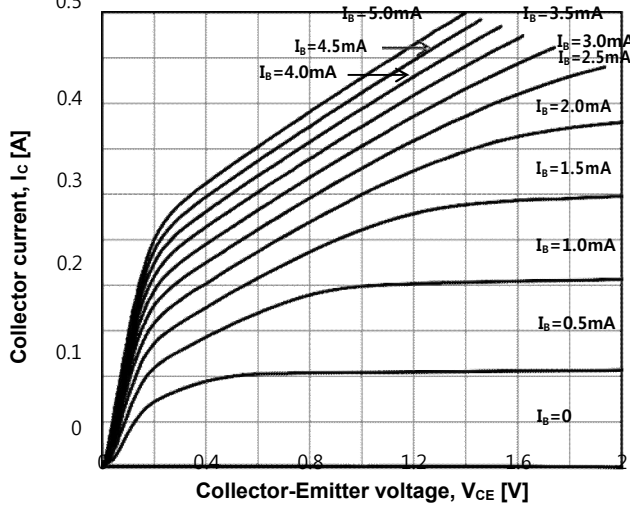
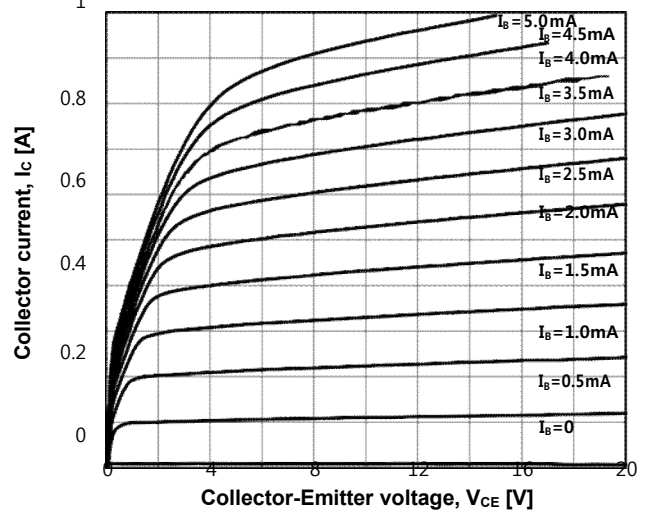


Fig. 6  $I_C - V_{CE}$



## Electrical Characteristic Curves (Typical Performance)

Fig. 7  $h_{FE} - I_C$

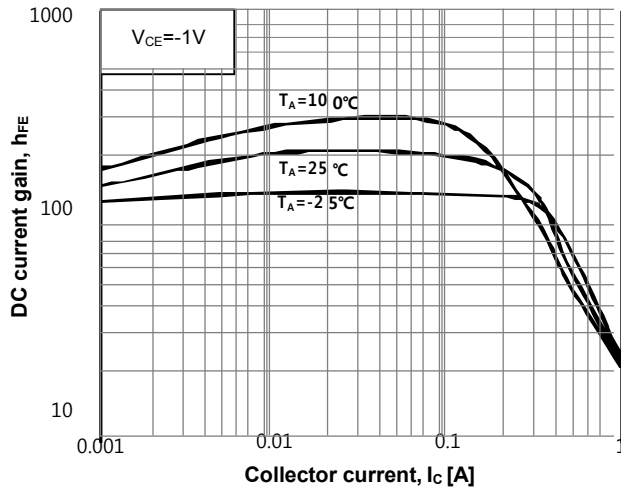


Fig. 8  $h_{FE} - I_C$

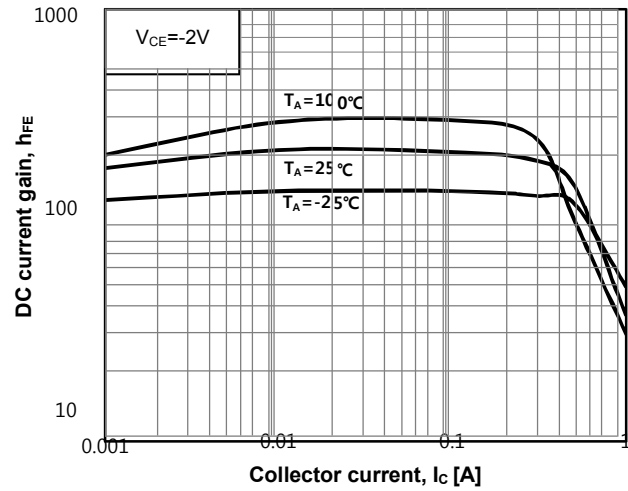


Fig. 9  $h_{FE} - I_C$

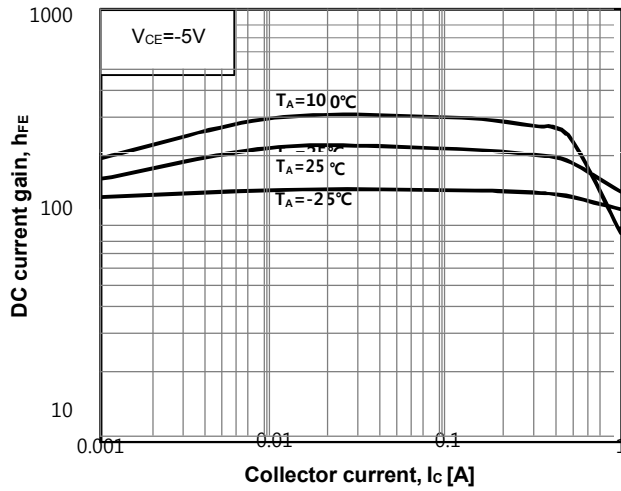


Fig. 10  $h_{FE} - I_C$

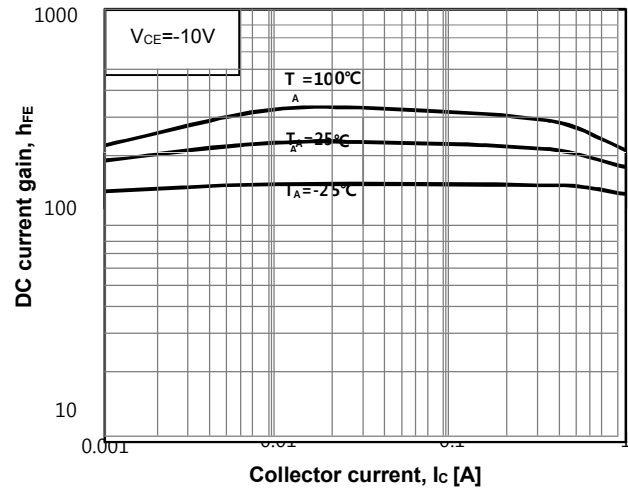


Fig. 11  $f_T - I_C$

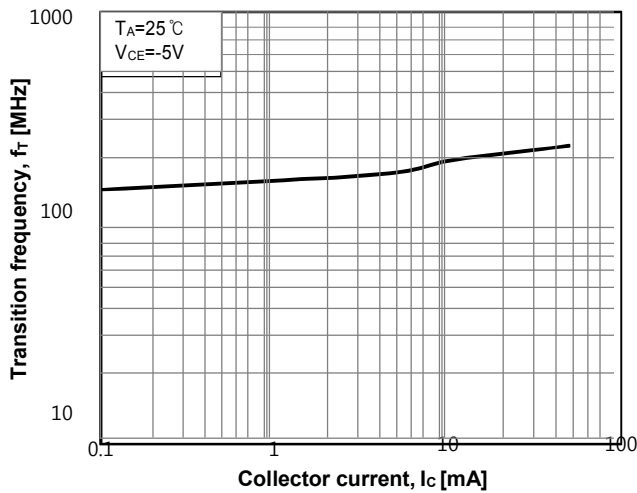
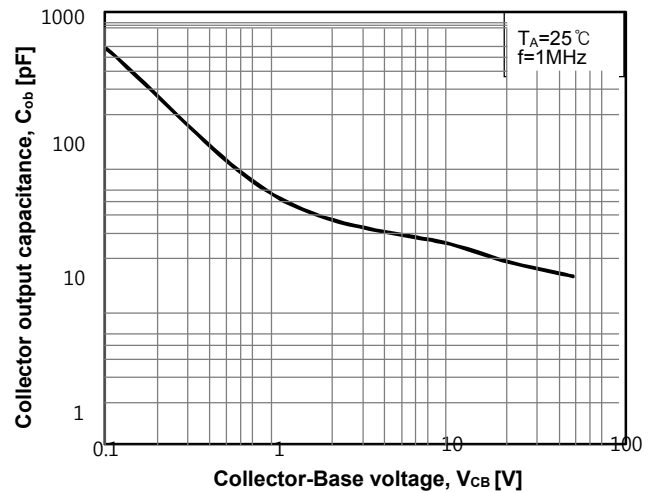


Fig. 12  $C_{ob} - V_{CB}$



## Electrical Characteristic Curves (Typical Performance)

Fig. 13  $P_C - T_A$

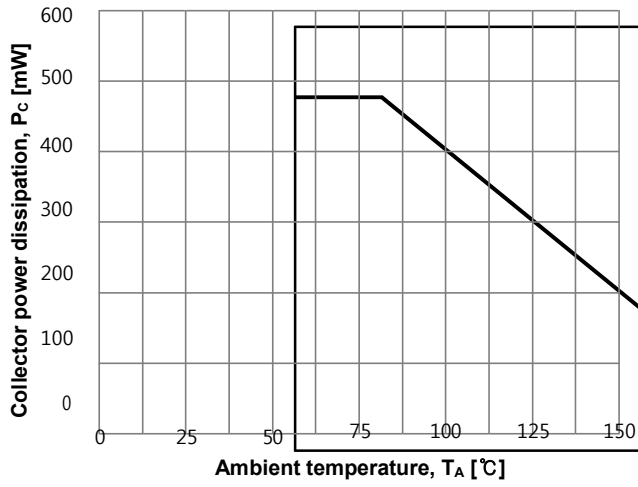
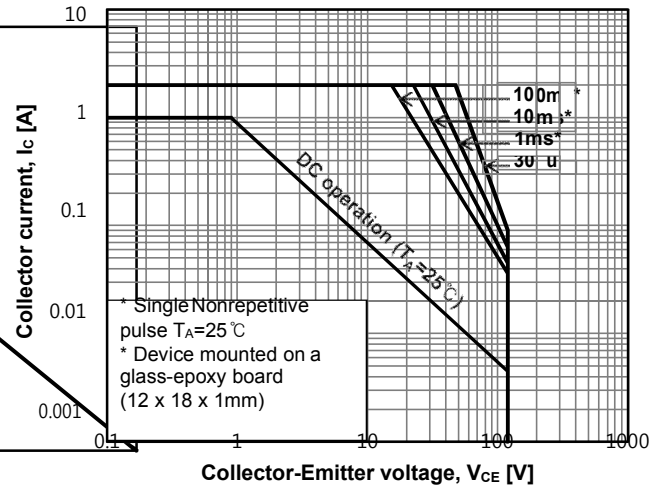
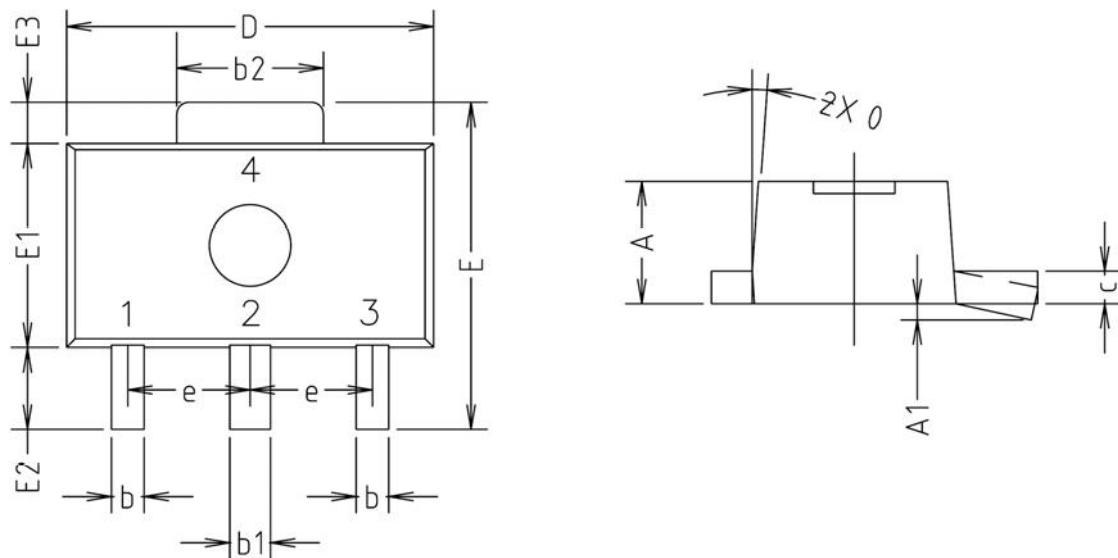


Fig. 14 Safe operating area

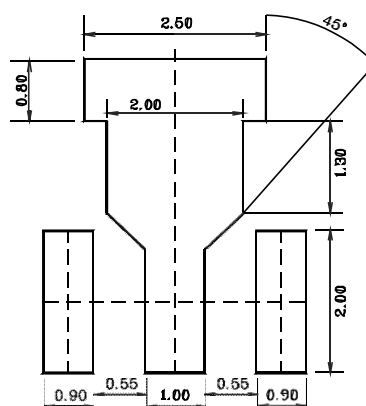


## Outline Dimension (Unit : mm)



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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