

Applications

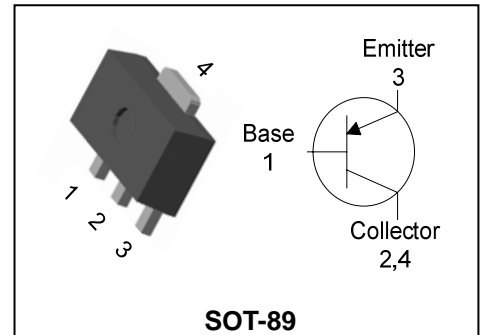
- Power amplifier application
- High current switching application



Features

- Low saturation voltage:
 $V_{CE(sat)} = -0.15V$ Typ. @ $I_C = -1A, I_B = -50mA$
- Large collector current capacity: $I_C = -3A$
- Small and compact SMD type package
- Complementary pair with STC4350F
- “Green” device and RoHS compliant device
- Available in full lead (Pb)-free device

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STA3350F	HW7 YWW	SOT-89

HW7: DEVICE CODE, YWW(Y : Year code, WW : Weekly code)

Absolute Maximum Ratings

[Ta=25°C]

Characteristic	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	-50	V
Collector-emitter voltage	V_{CEO}	-50	V
Emitter-base voltage	V_{EBO}	-6	V
Collector current	I_C	-3	A(DC)
	I_{CP}^*	-6	A(Pulse)
Collector Power dissipation	P_C	0.5	W
	P_C^{**}	1	W
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 ($250mm^2 \times 0.8t$)

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

Electrical Characteristics

[Ta=25°C]

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = -1mA, I_B = 0$	-50	-	-	V	
Collector cut-off current	I_{CBO}	$V_{CB} = -50V, I_E = 0$	-	-	-1	μA	
Emitter cut-off current	I_{EBO}	$V_{EB} = -6V, I_C = 0$	-	-	-1	μA	
DC current gain	h_{FE}	$V_{CE} = -2V, I_C = -0.5A^*$	120	-	240		
	h_{FE}	$V_{CE} = -2V, I_C = -2A^*$	40	-	-		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -1A, I_B = -0.05A^*$	-	-	-0.35	V	
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -2A, I_B = -0.1A^*$	-	-0.97	-1.2	V	
Transition frequency	f_T	$V_{CE} = -10V, I_C = -0.05A$	-	250	-	MHz	
Collector output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$	-	28	-	pF	
Switching Time	Turn-on Time	t_{on}	<p>I_{B1} INPUT I_{B2} I_C OUTPUT $20\mu s$ $-I_{B1} = I_{B2} = 100mA$ DUTY CYCLE $\leq 1\%$</p>	-	100	-	ns
	Storage Time	t_{stg}		-	300	-	
	Fall Time	t_f		-	50	-	

*: Pulse test : $t_p \leq 300\mu s$, Duty cycle $\leq 2\%$

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

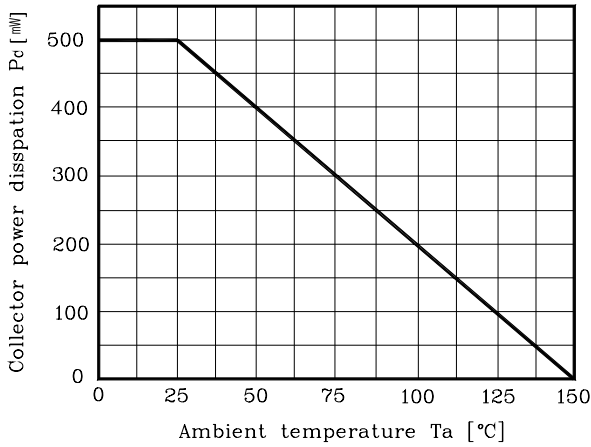


Fig. 2 $I_C - V_{BE}$

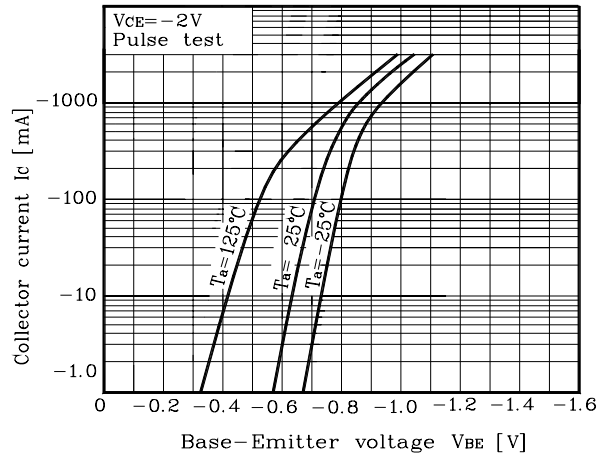


Fig. 3 $I_C - V_{CE}$

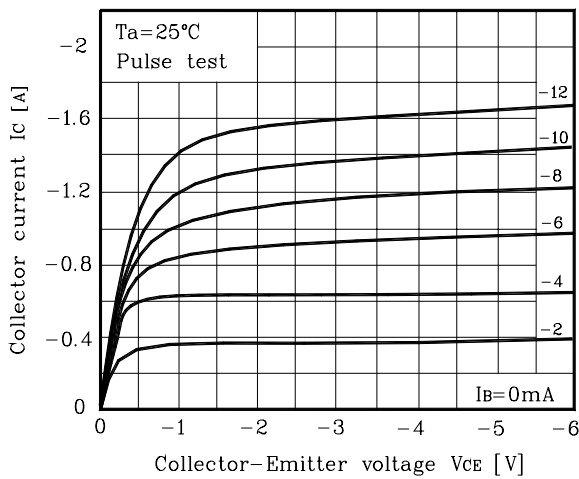


Fig. 4 $h_{FE} - I_C$

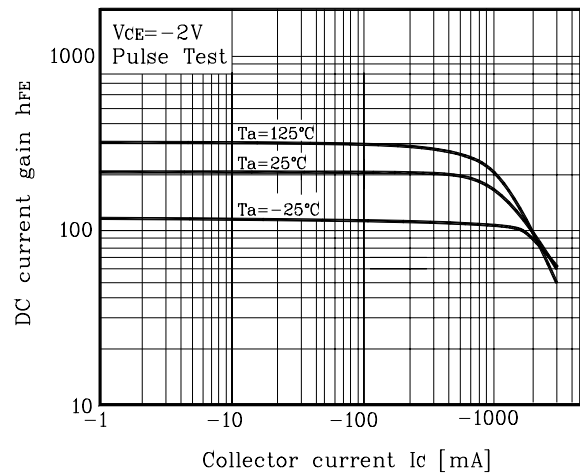


Fig. 5 $V_{CE(sat)} - I_C$

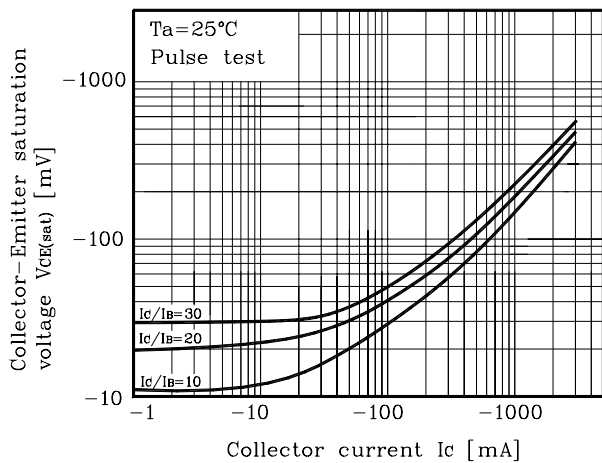
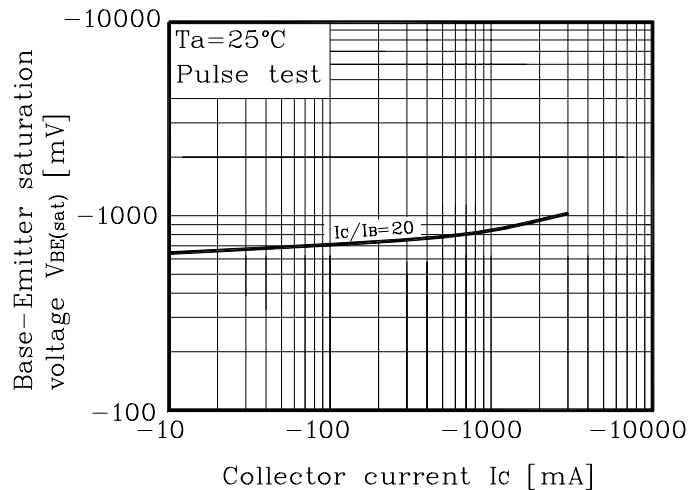


Fig. 6 $V_{BE(sat)} - I_C$



Electrical Characteristic Curves

Fig. 7 $C_{ob} - V_{CB}$

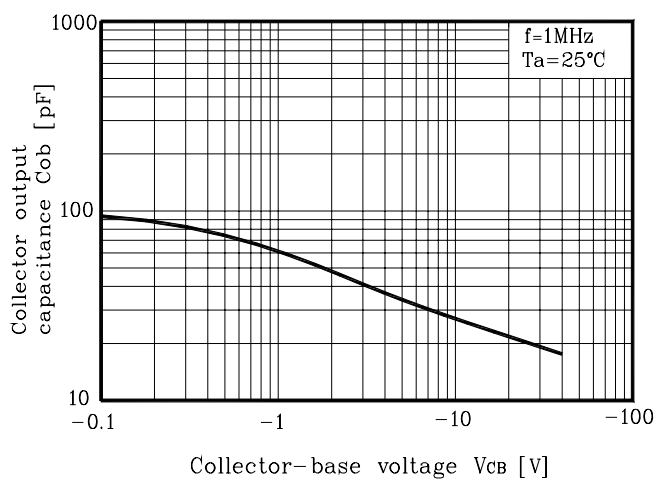
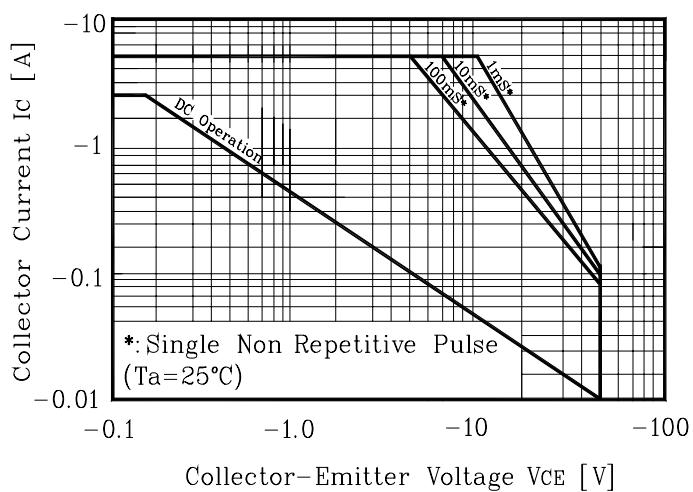
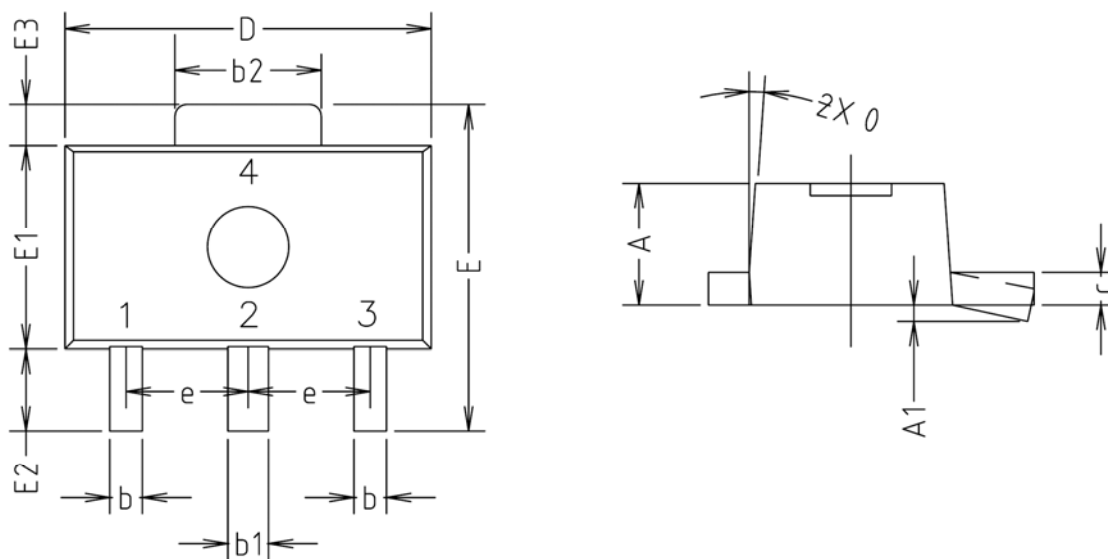


Fig. 8 Safe Operating Area

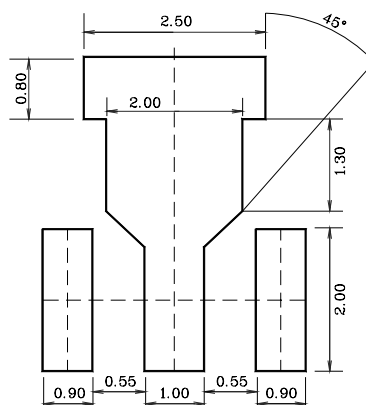


Outline Dimension(mm)



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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