

Applications

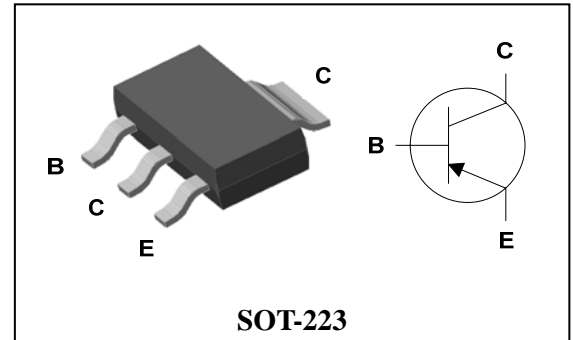
- Power amplifier application
- High current switching application



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
- "Green" device and RoHS compliant device
- Available in full lead (Pb)-free device

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STA3350Q	STA3350 YWW	SOT-223

STA3350: 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	1.1	W
	P_C^{**}	1.5	W
Junction temperature	T_J	150	°C
Storage temperature range	T_{stg}	-55~150	°C

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

** : When mounted on copper substrate(250 mm²×0.8t)

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-a)}$	-	113.6	°C/W
			-	83.3**	°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}		-	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 $P_C - T_a$

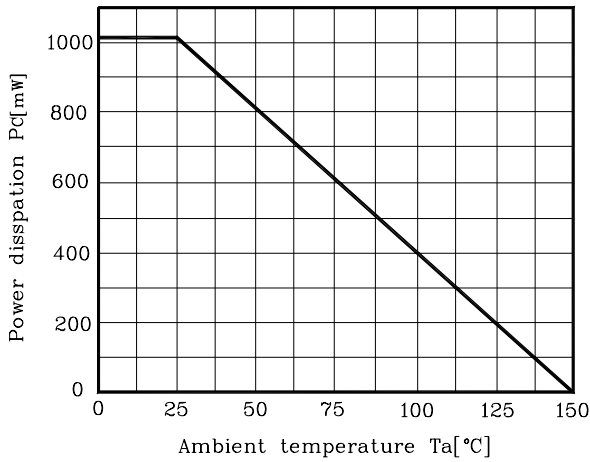


Fig. 2 $I_C - V_{BE}$

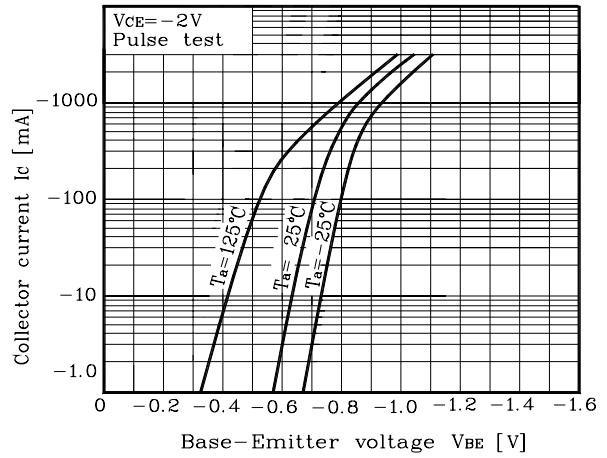


Fig. 3 $I_C - V_{CE}$

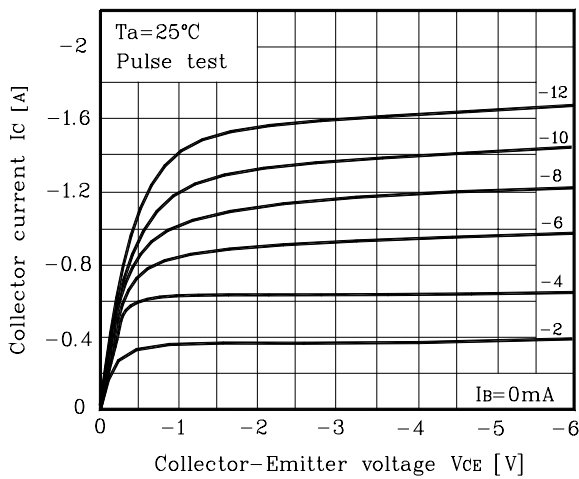


Fig. 4 $h_{FE} - I_C$

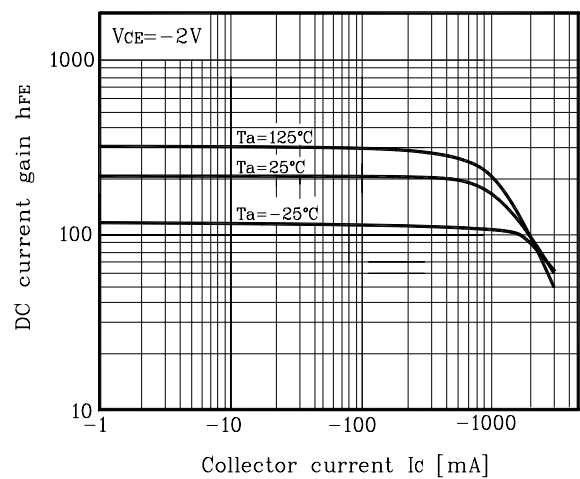


Fig. 5 $V_{CE(sat)} - I_C$

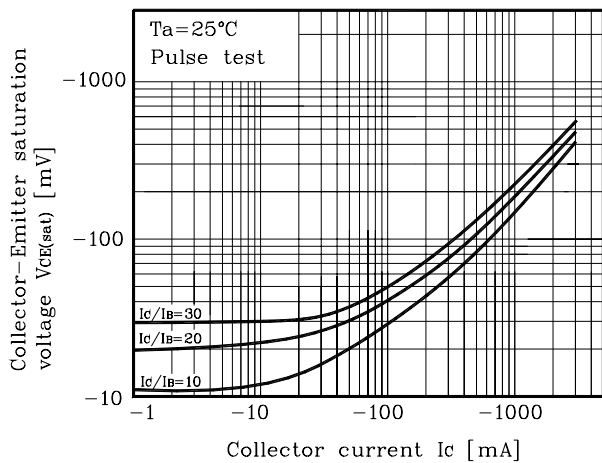
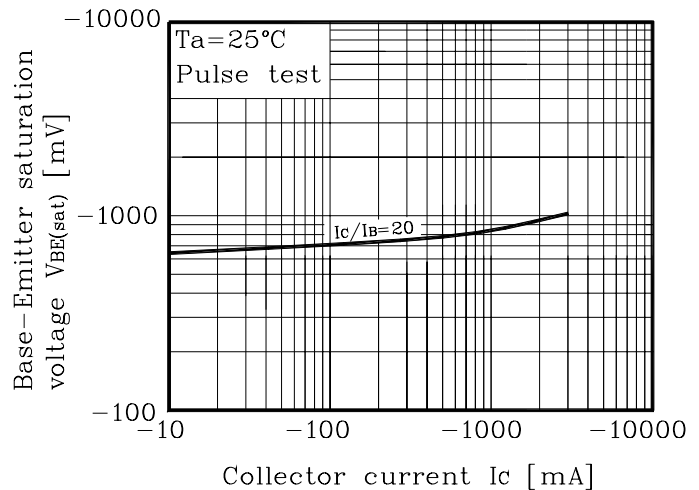


Fig. 6 $V_{BE(sat)} - I_C$



Electrical Characteristic Curves

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

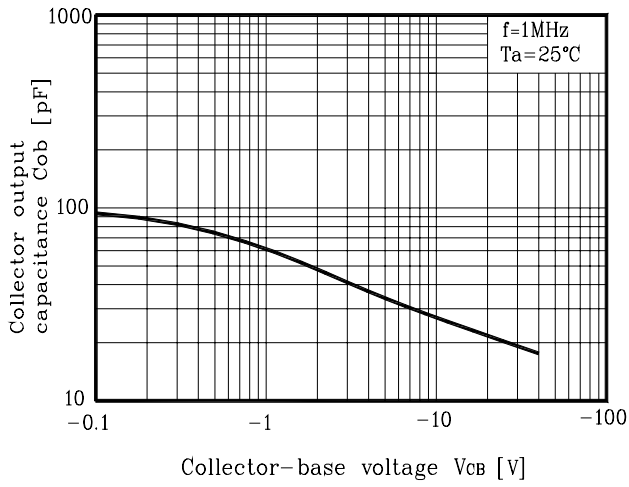
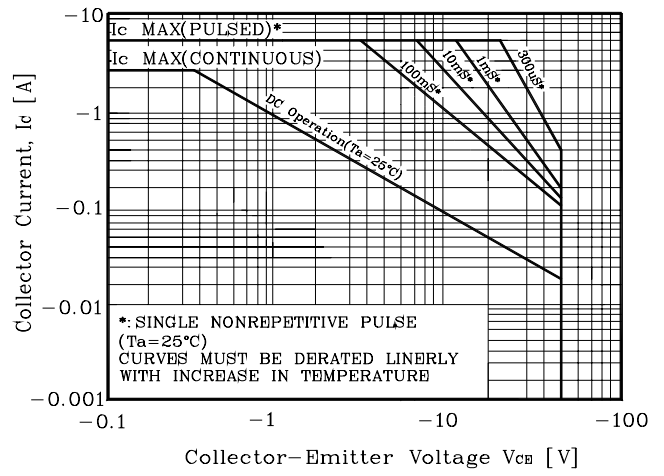
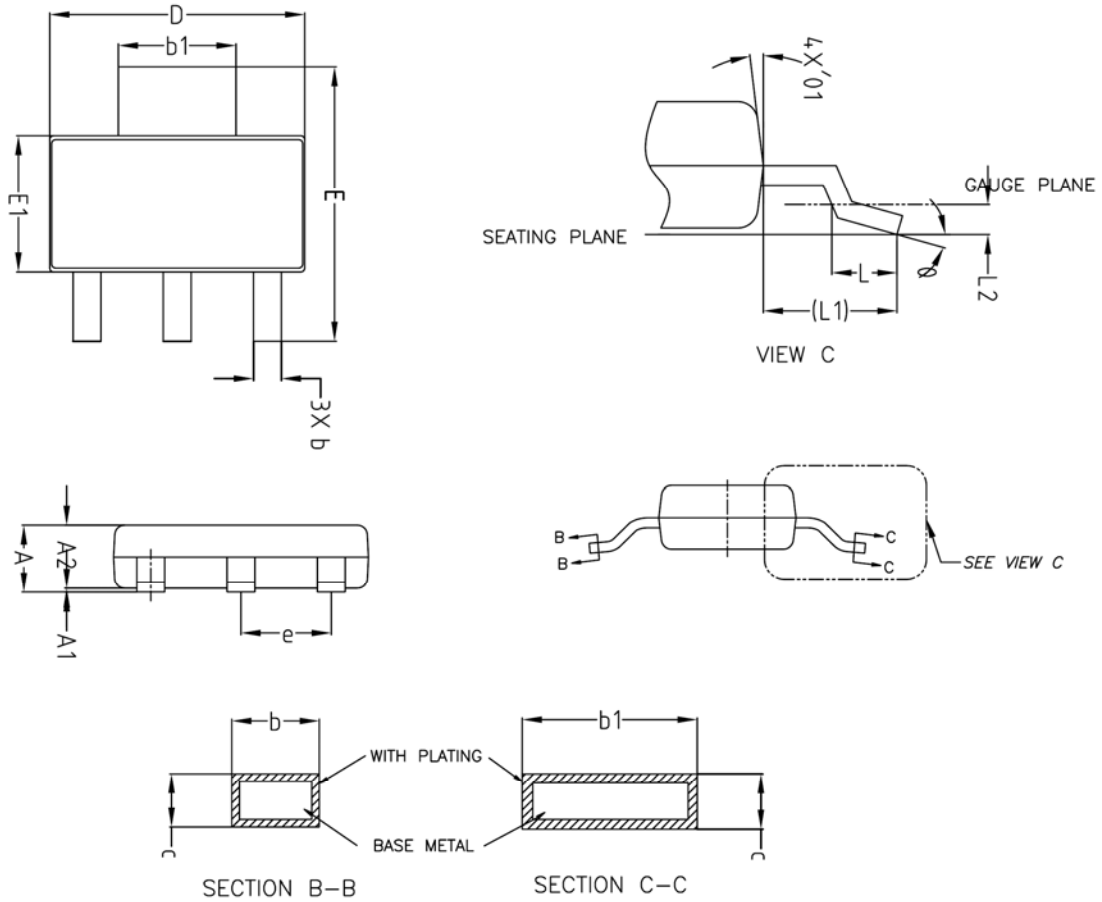


Fig. 8 Safe Operating Area

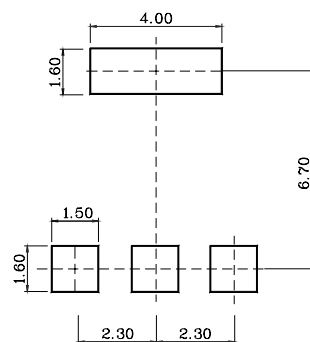


Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	—	—	1.80	
A1	0.00	—	0.10	
A2	1.60	1.65	1.70	
b	0.68	—	0.76	
b1	2.95	—	3.07	
c	0.23	—	0.28	
D	6.40	6.50	6.60	
E	6.80	7.00	7.20	
E1	3.40	3.50	3.60	
e	2.30 BSC			
L	0.45	—	0.65	
L1	1.75 REF			
L2	0.10 BSC			
ϕ	0°	—	10°	
ϕ1	5°	—	10°	

※ Recommend PCB solder land [Unit: mm]



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