

F2SA5350A

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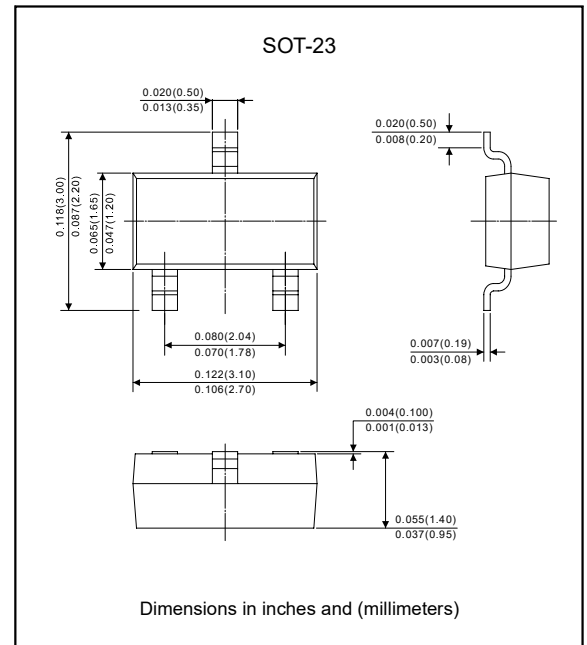
F2SA5350A

-3A, -50V Silicon PNP Low $V_{CE(sat)}$ Transistor**Features**

- Low collector-emitter saturation voltage.
- High current capability.
- Improved device reliability due to reduced heat generation.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen free part, ex. F2SA5350A-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.008 gram

Package outline**Maximum ratings** (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Collector to base voltage	$-V_{CBO}$	50	V
Collector to Emitter Voltage	$-V_{CEO}$	50	V
Emitter to base voltage	$-V_{EBO}$	5	V
Collector current	$-I_C$	3	A
Peak pulse current	$-I_{CM}$	5	A
Peak base current	$-I_{BM}$	500	mA
Total power dissipation	P_D	550	mW
Junction temperature	T_J	+150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-65 ~ +150	$^\circ\text{C}$

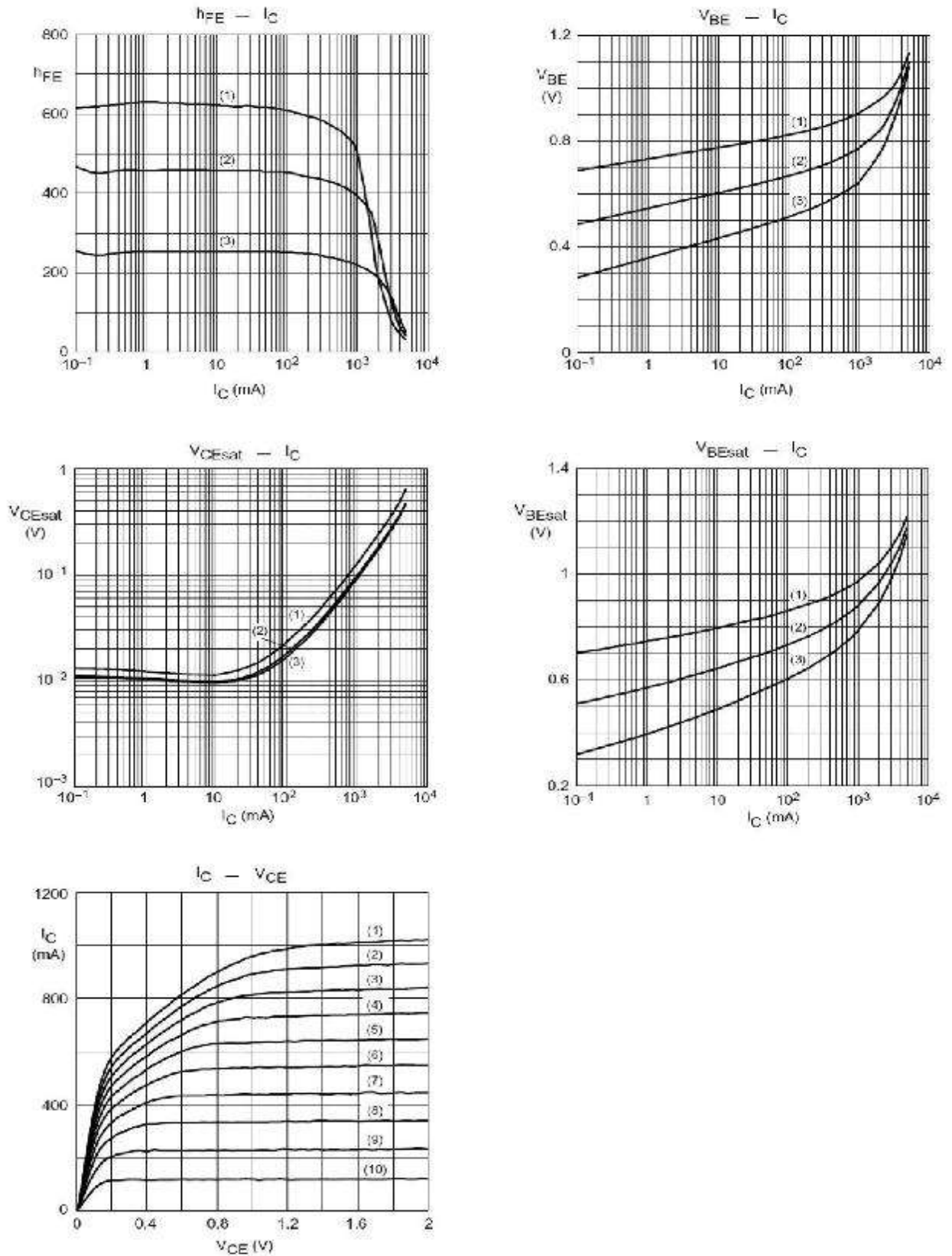
Note : 1. Device mounted on a printed-circuit board; single sided copper; tin-plated and standard footprint.

2. Device mounted on a printed-circuit board; single sided copper; tin-plated; mounting pad for collector 1cm².

F2SA5350A**Electrical characteristics** (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector-base cut off current	$-V_{CB}=50\text{V}, I_E=0$	$-I_{CBO}$			0.1	μA
Collector-emitter cut off current	$-V_{CE}=50\text{V}, I_E=0$	$-I_{CEO}$			0.1	μA
Emitter-Base cut-off current	$-V_{EB}=5\text{V}, I_C=0$	$-I_{EBO}$			0.1	μA
Collector-emitter saturation voltage	$-I_C=0.5\text{A}, -I_B=50\text{mA}$	$-V_{CE(SAT)}$			90	mV
	$-I_C=2\text{A}, -I_B=100\text{mA}$				250	
Equivalent on-resistance	$-I_C=2.0\text{A}, -I_B=200\text{mA}$	$R_{CE(sat)}$		100	130	$\text{m}\Omega$
Base-emitter saturation voltage	$-I_C=2\text{A}, -I_B=100\text{mA}$	$-V_{BE(SAT)}$			1.1	V
	$-I_C=3\text{A}, -I_B=300\text{mA}$				1.2	V
Base-emitter turn-on voltage	$-I_C=1\text{A}, -V_{CE}=2\text{V}$	$-V_{BE(ON)}$			1.1	V
DC current gain	$-V_{CE}=2\text{V}, -I_C=100\text{mA}$	h_{FE}	200			
	$-V_{CE}=2\text{V}, -I_C=500\text{mA}$		200			
	$-V_{CE}=2\text{V}, -I_C=1.0\text{A}$		200			
	$-V_{CE}=2\text{V}, -I_C=2.0\text{A}$		130			
	$-V_{CE}=2\text{V}, -I_C=3.0\text{A}$		80			
Collector capacitance	$-V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	C_C			25	pF
Transition Frequency	$-V_{CE}=5.0\text{V}, -I_C=100\text{mA}, f=100\text{MHz}$	f_T	100			MHz

Rating and characteristic curves (F2SA5350A)



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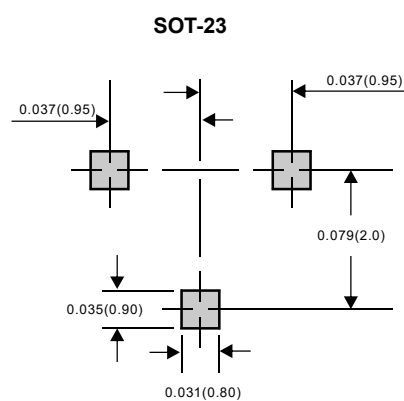
Pinning information

Pin	Simplified outline	Symbol
Pin1 Base Pin2 Emitter Pin3 Collector		

Marking

Type Number	Marking Code
F2SA5350A	ZD

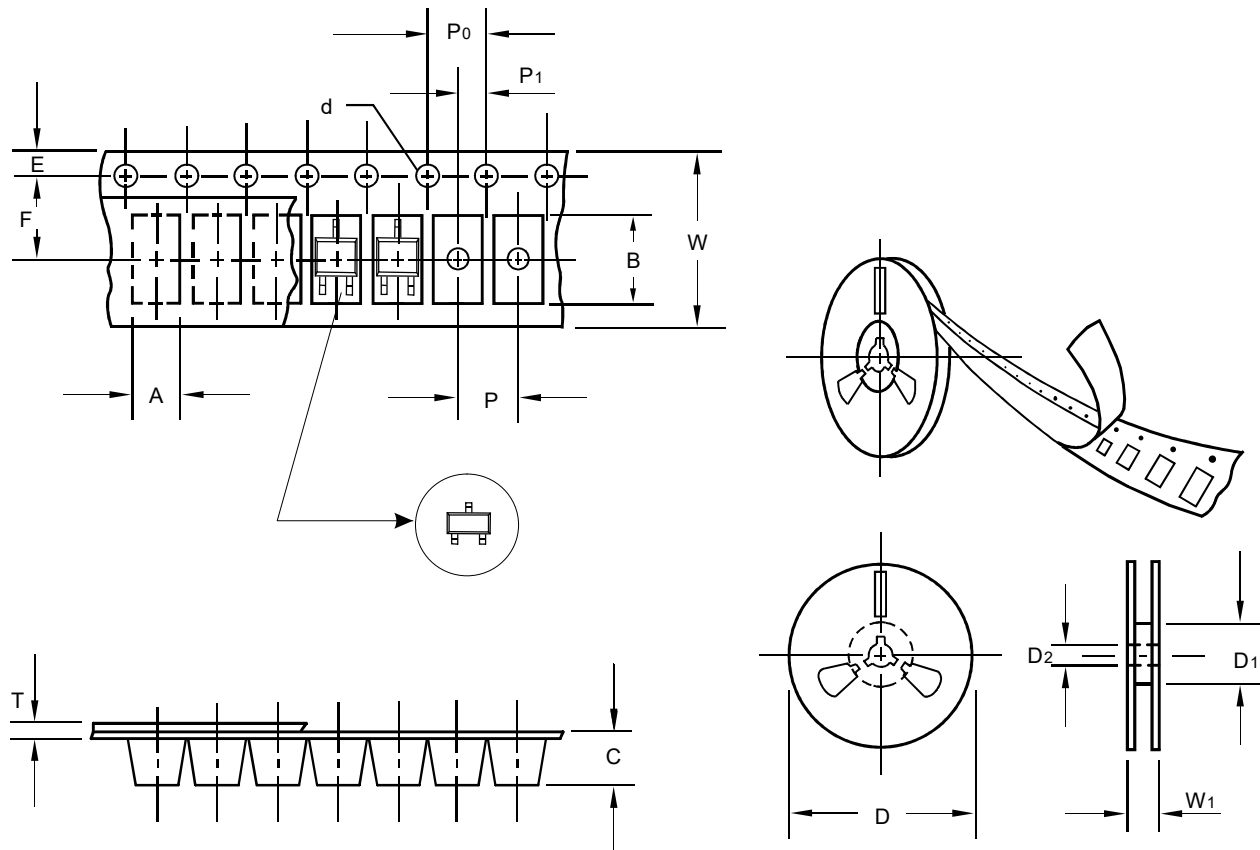
Suggested solder pad layout



Dimensions in inches and (millimeters)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23
Carrier width	A	0.1	3.15
Carrier length	B	0.1	2.77
Carrier depth	C	0.1	1.22
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	54.40
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

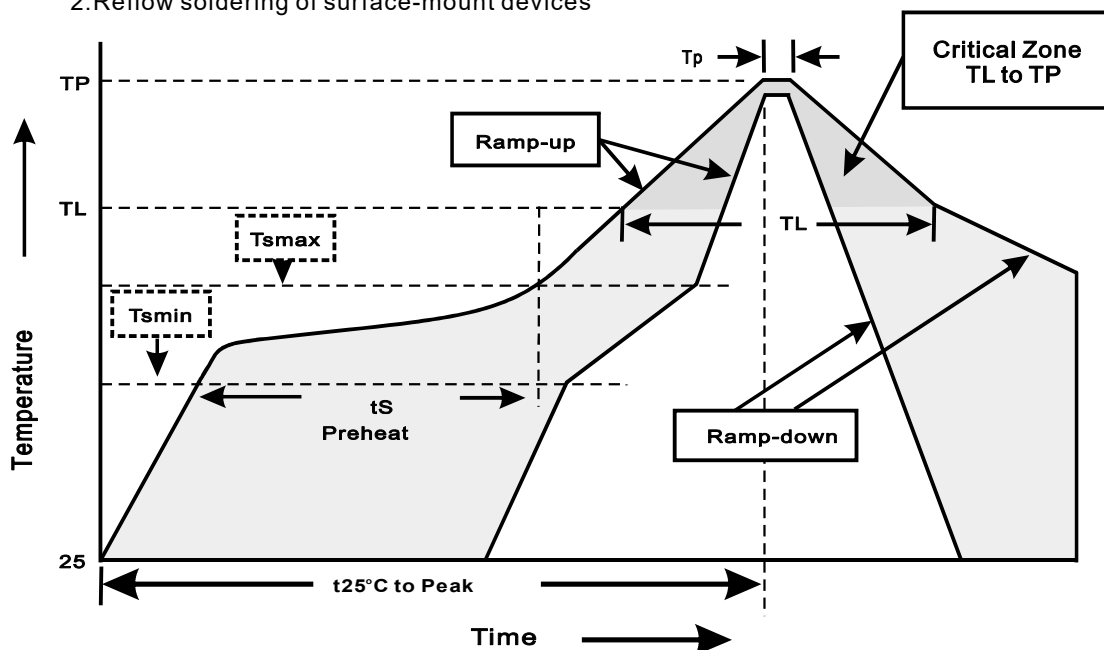
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-23	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	11.6

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	$<3^{\circ}\text{C/sec}$
Preheat -Temperature Min(T_{smin}) -Temperature Max(T_{smax}) -Time(min to max)(t_s)	150°C 200°C 60~120sec
T_{smax} to T_L -Ramp-upRate	$<3^{\circ}\text{C/sec}$
Time maintained above: -Temperature(T_L) -Time(t_l)	217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_p)	10~30sec
Ramp-down Rate	$<6^{\circ}\text{C/sec}$
Time 25°C to Peak Temperature	$<6\text{ minutes}$