F8050

List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings 2

Electrical characteristics..... 2

Rating and characteristic curves..... 3

Pinning information..... 4

Marking..... 4

Suggested solder pad layout..... 4

Packing information..... 5

Reel packing..... 6

Suggested thermal profiles for soldering processes..... 6

F8050

NPN Plastic-Encapsulate Transistor

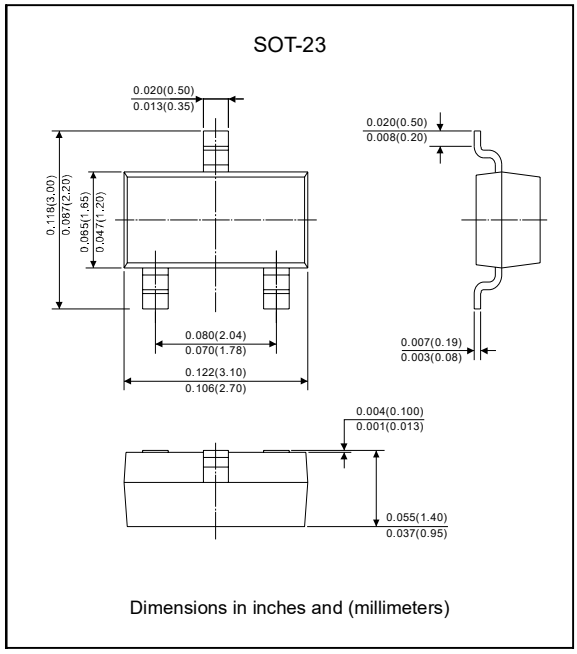
Features

- Switching transistor.
- Lead-free parts meet RoHS requirments.
- Suffix "-H" dinicates Halogen-free part, ex.F8050-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°C unless otherwise noted)

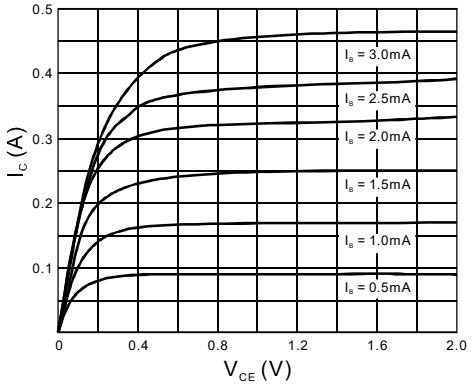
Parameter	Symbol	Value	Unit
Collector to base voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CEO}	25	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	800	mA
Total power dissipation	P_C	300	mW
Junction temperature	T_j	+150	℃
Storage temperature	T_{STG}	-55 ~ +150	℃
Thermal resistance form junction to ambient	$R_{\theta JA}$	357	℃/W

Electrical characteristics (At T_A=25°C unless otherwise noted)

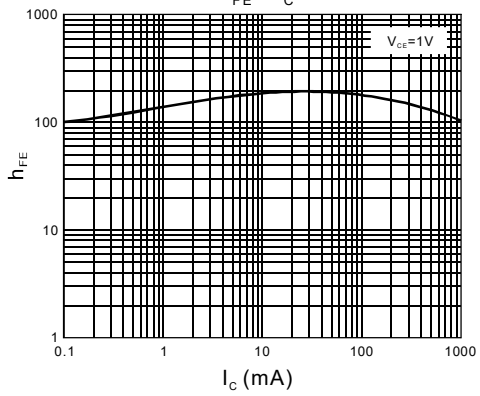
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector to base breakdown voltage	I_C=100μA, I_E=0	BV_{CBO}	40			V
Collector to emitter breakdown voltage	I_C=0.1mA, I_B=0	BV_{CEO}	25			V
Emitter to base breakdown voltage	I_E= 100μA, I_C=0V	BV_{EBO}	5			V
Collector-base cut-off current	V_{CB}=40V, I_E=0	I_{CBO}			0.1	μA
Collector-emitter cut-off current	V_{CE}=20V, I_B=0	I_{CEO}			0.1	μA
Emitter-base cut-off current	V_{EB}=5V, I_C=0	I_{EBO}			0.1	μA
DC current gain	V_{CE}=1V, I_C=50mA	$h_{FE(1)}$	200		350	
	V_{CE}=1V, I_C=500mA	$h_{FE(2)}$	50			
Collector-Emitter saturation voltage	I_C=500mA, I_B=50mA	$V_{CE(set)}$			0.6	V
Base-emitter saturation voltage	I_C=500mA, I_B=50mA	$V_{BE(sat)}$			1.2	V
Current gain bandwidth product	V_{CE}=6V, I_C=20mA, f=30MHz	f_T	150			MHz

Rating and characteristic curves (F8050)

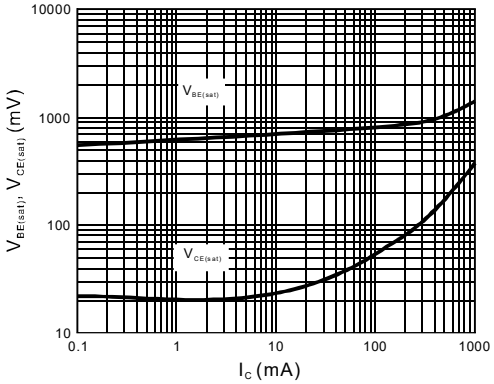
I_C - V_{CE}



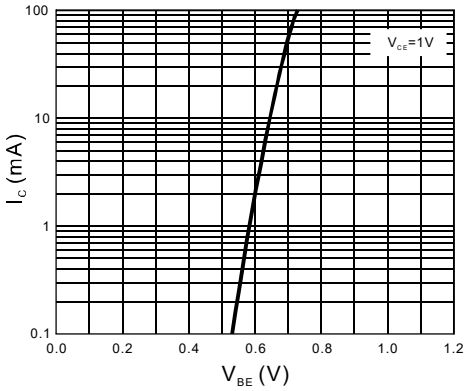
h_{FE} - I_C



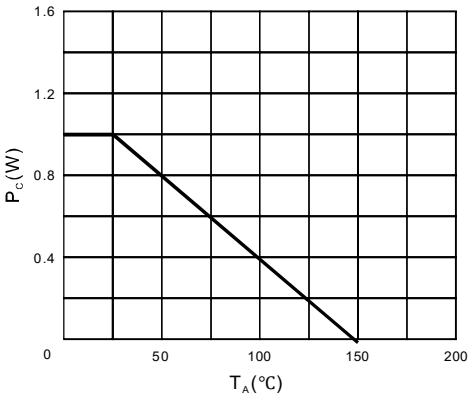
$V_{CE(sat)}$, $V_{BE(sat)}$ - I_C



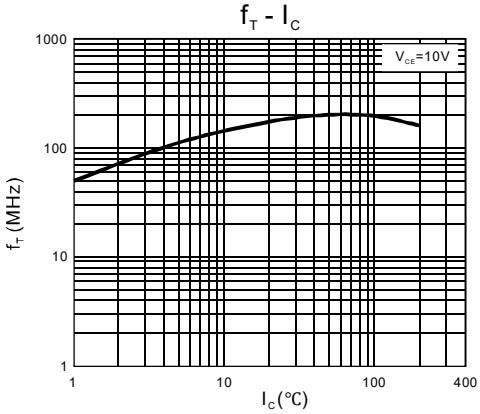
I_C - V_{BE}



P_C - T_A

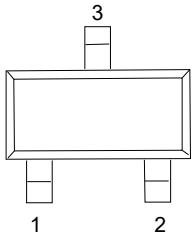
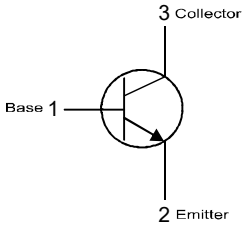


f_T - I_C



F8050

Pinning information

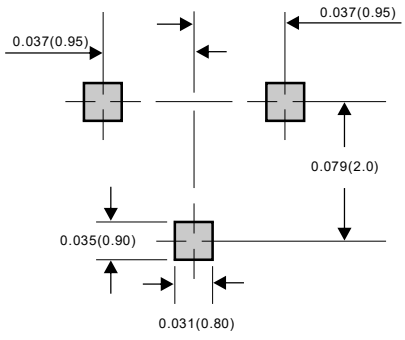
Pin	Simplified outline	Symbol
Pin1 BASE Pin2 EMITTER Pin3 COLLECTOR		

Marking and resistor values

Type Number	Marking Code
F8050	J3Y

Suggested solder pad layout

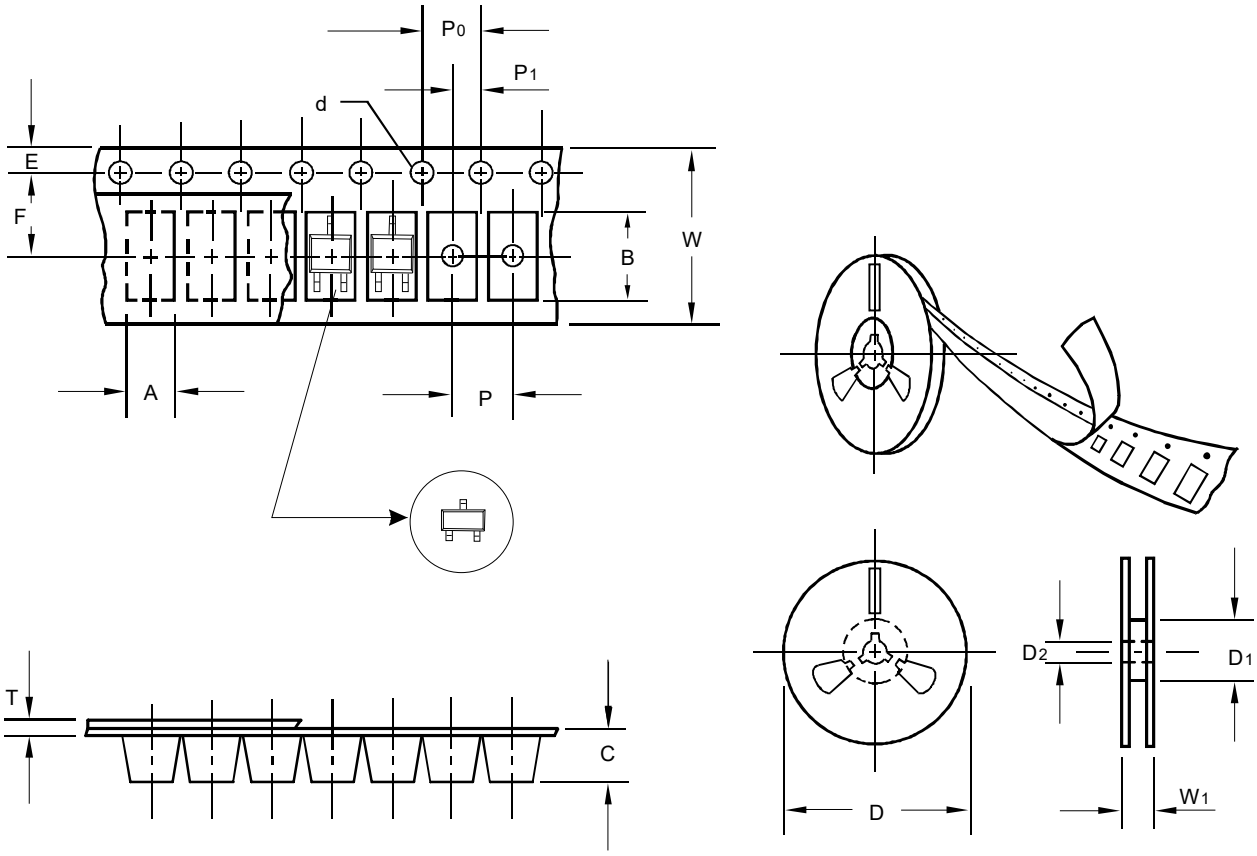
SOT-23



Dimensions in inches and (millimeters)

F8050

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	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	54.40
Feed hole diameter	D_2	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	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	11.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

F8050

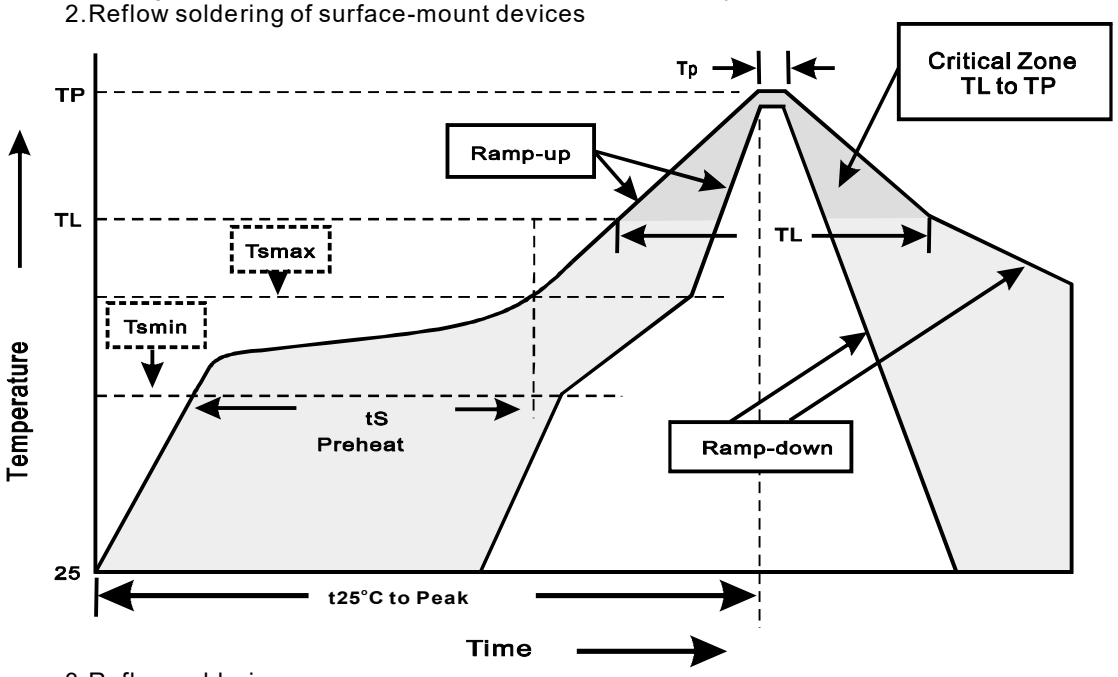
Reel packing

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°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°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°C/sec
Time 25°C to Peak Temperature	<6minutes