FMBTC1815

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FMBTC1815

Formosa MS

NPN Plastic-Encapsulate Transistor

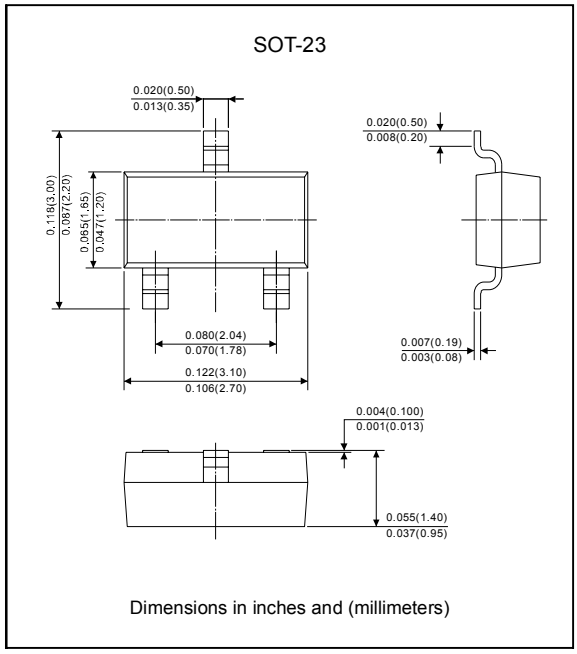
Features

- Collector-emitter voltage BV_{CEO}=50V .
- Collector current up to 150mA.

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



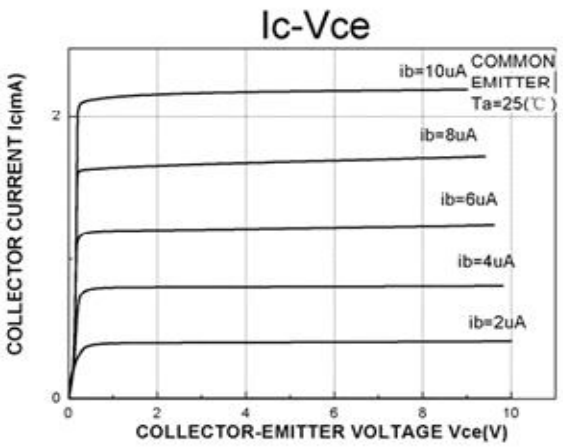
Maximum ratings (AT T_A=25°C unless otherwise noted)

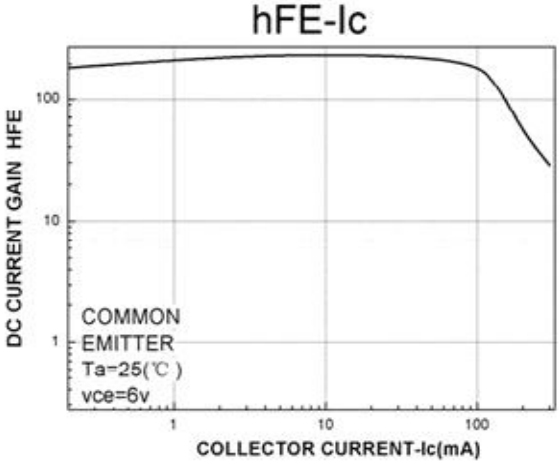
Parameter	Symbol	Value	Unit
Collector to base voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	50	V
Emitter to base voltage	V_{EBO}	5	V
Collector current	I_C	150	mA
Total power dissipation	P_C	200	mW
Junction temperature	T_j	+150	℃
Storage temperature	T_{STG}	-55 ~ +150	℃

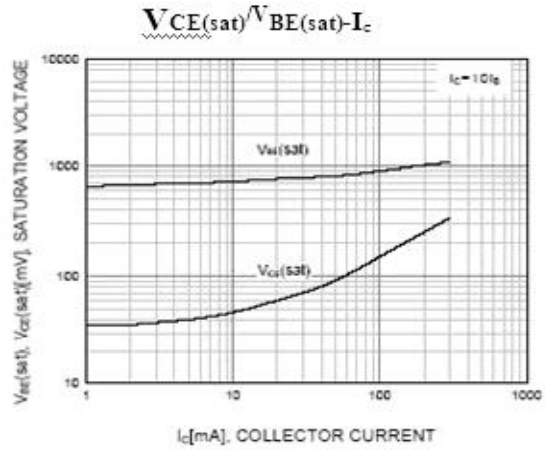
Electrical characteristics (AT T_A=25°C unless otherwise noted)

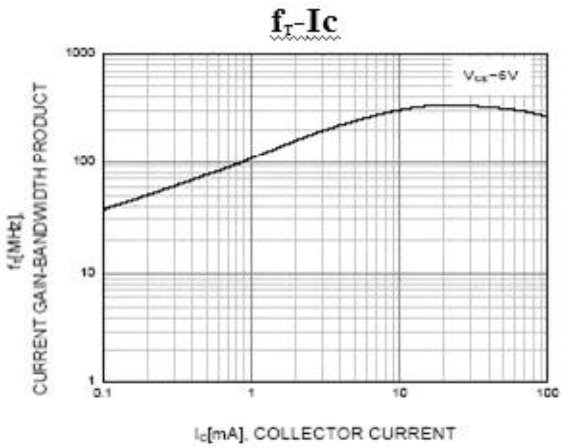
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Collector to base breakdown voltage	I_C=50μA, I_E=0	BV_{CBO}	60			V
Collector to emitter breakdown voltage	I_C=1mA, I_B=0	BV_{CEO}	50			V
Collector base cut-off current	V_{CB}=60V, I_E=0	I_{CBO}			0.1	μA
Collector emitter cut-off current	V_{CE}=50V, I_B=0	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}=6V, I_C=2mA	h_{FE}	200		400	
Collector-Emitter saturation voltage	I_C=100mA, I_B=10mA	$V_{CE(sat)}$			0.25	V
Base-emitter saturation voltage	I_C=100mA, I_B=10mA	$V_{BE(sat)}$			1	V
Current gain bandwidth product	V_{CE}=10V, I_C=1mA, f=30MHz	f_T	80			MHZ

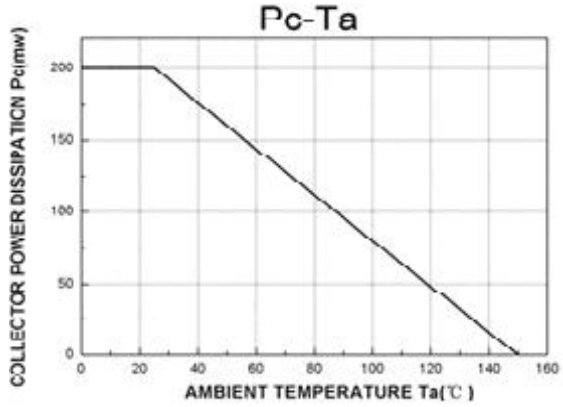
Rating and characteristic curves (FMBTC1815)



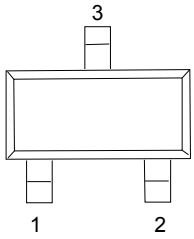
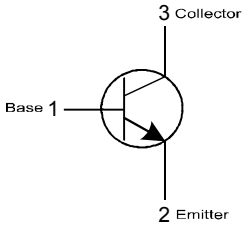








Pinning information

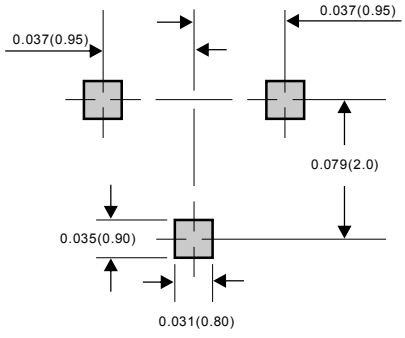
Pin	Simplified outline	Symbol
Pin1 BASE Pin2 EMITTER Pin3 COLLECTOR		

Marking and resistor values

Type number	Marking code
FMBTC1815	HF

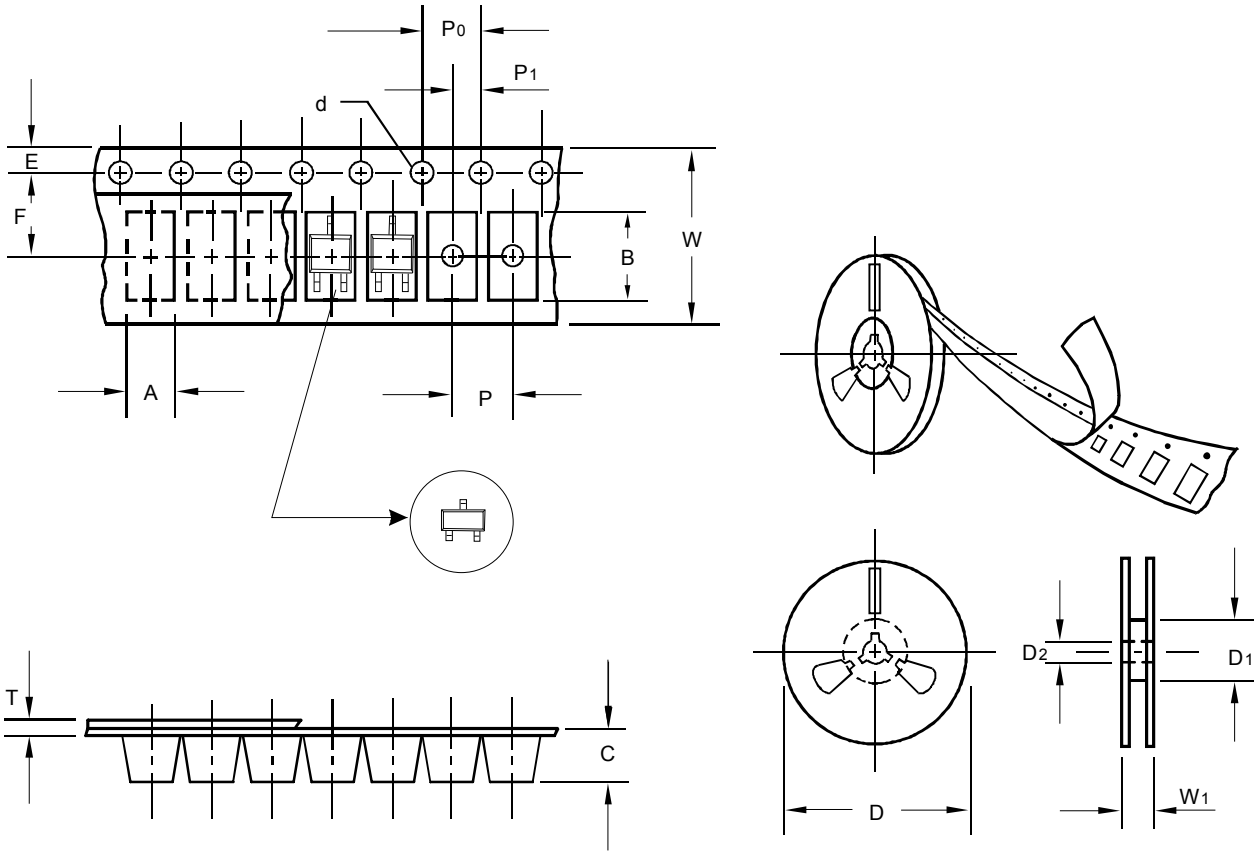
Suggested solder pad layout

SOT-23



Dimensions in inches and (millimeters)

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.

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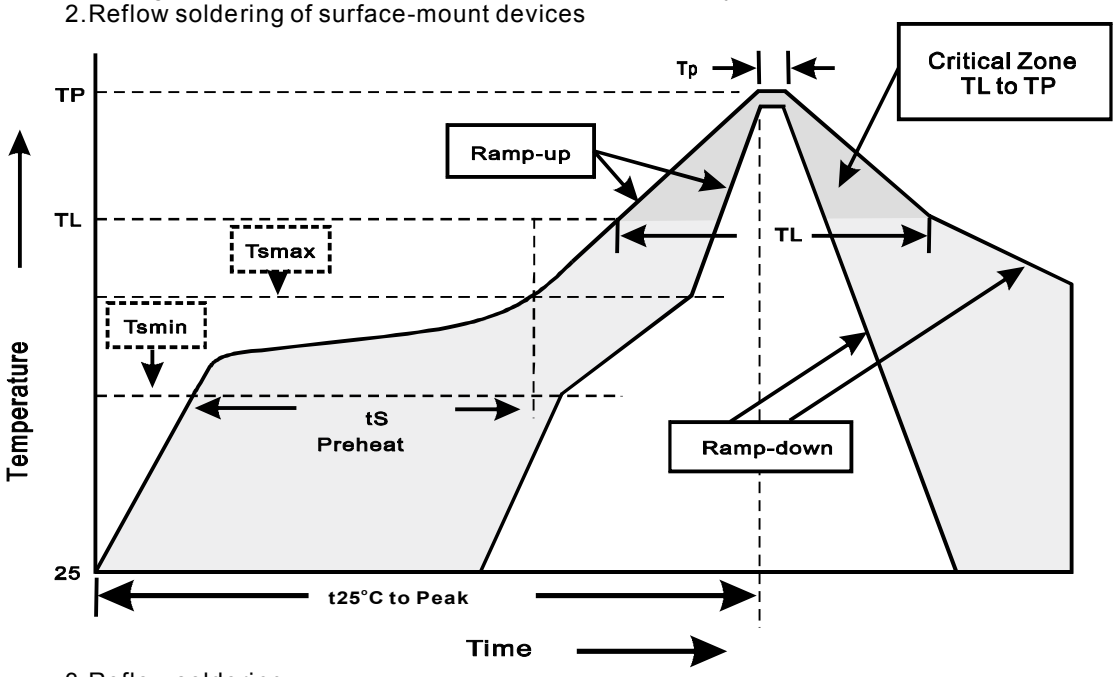
Reel packing

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°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