FMBTSA1298O/Y

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

FMBTSA1298O/Y

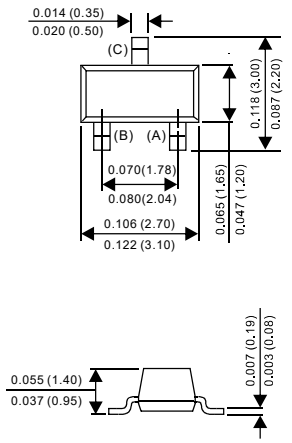
-800mA Silicon PNP Epitaxial Planar Transistor

Features

- For low frequency power ampilfier and power switching applications.
- Collector-emitterbreakdien voltage. ($-V_{(BR)CEO}$ = 25V Min.@$-I_C$=1mA)
- Capable of 200mW power dissipation.
- Lead-free parts for green partner, exceeds environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen free part, ex. FMBTSA1298O-H.

Package outline

SOT-23



Dimensions in inches and (millimeters)

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

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

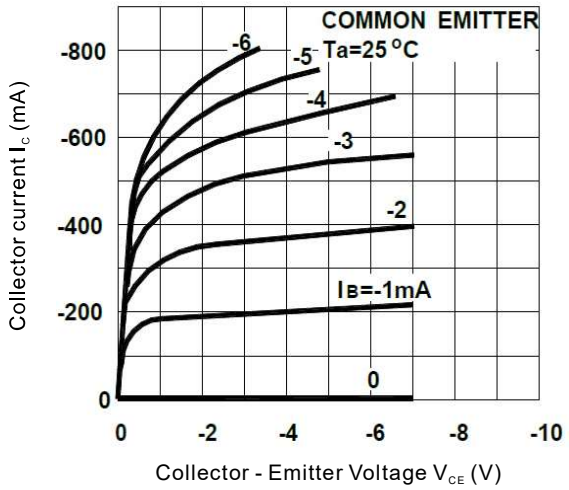
Parameter	Symbol	Value	Unit
Collector to base voltage	$-V_{CBO}$	30	V
Collector to Emitter Voltage	$-V_{CEO}$	25	V
Emitter to base voltage	$-V_{EBO}$	6	V
Collector current	$-I_C$	800	mA
Base current	$-I_B$	160	mA
Total power dissipation	P_D	200	mW
Junction temperature	T_j	+150	℃
Storage temperature range	T_{STG}	-55 ~ +150	℃

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

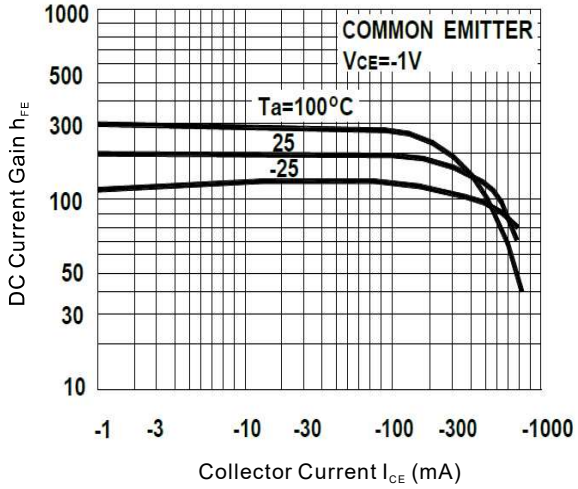
Parameter	Conditions		Symbol	Min.	Typ.	Max.	Unit
Collector cut off current	$-V_{CB}$ = 30V		$-I_{CBO}$			0.1	μA
Emitter cut off current	$-V_{EB}$ = 5V		$-I_{EBO}$			0.1	μA
Collector saturation voltage	$-I_C$ = 500mA, $-I_B$ = 20mA		$-V_{CE(SAT)}$			0.4	V
Base emitter voltage	$-V_{CE}$ = 1V, $-I_C$=10mA		$-V_{BE}$	0.5		0.8	V
Collector emitter breakdown voltage	$-I_C$ = 10mA		$-V_{(BR)CEO}$	25			V
Emitter base breakdown voltage	$-I_E$ = 0.1mA		$-V_{(BR)EBO}$	5			V
DC current gain	$-V_{CE}$=1V, $-I_C$=100mA	O	h_{FE}	100		200	
		Y	h_{FE}	160		320	
	$-V_{CE}$=1V, $-I_C$=800mA		h_{FE}	40			
Transition Frequency	$-V_{CE}$=2V, $-I_C$=100mA		f_T		120		MHZ
Output capacitance	$-V_{CB}$=10V, f=1MHZ		C_{ob}		13		pF

Rating and characteristic curves (FMBTSA1298O/Y)

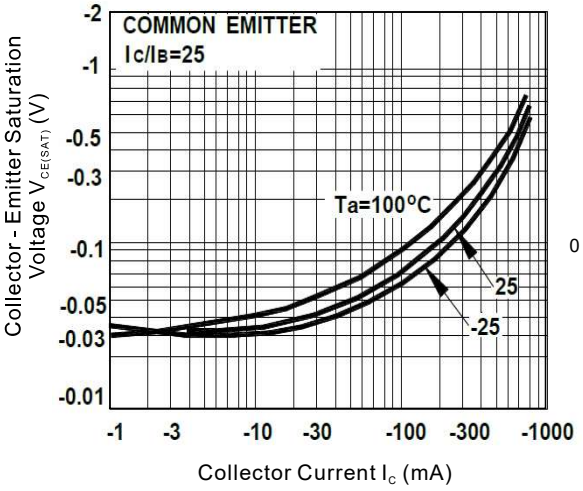
I_C - V_{CE}



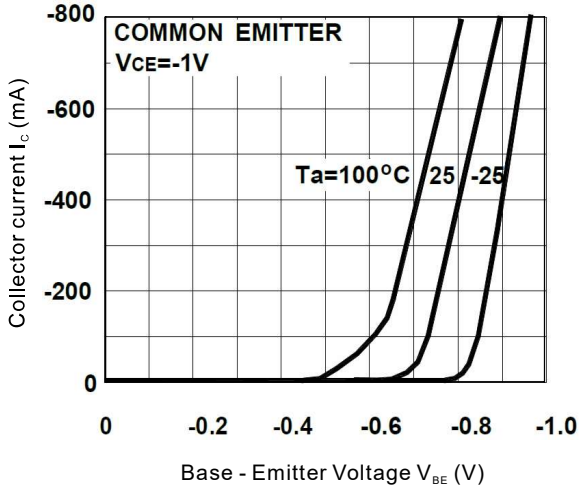
h_{FE} - I_C



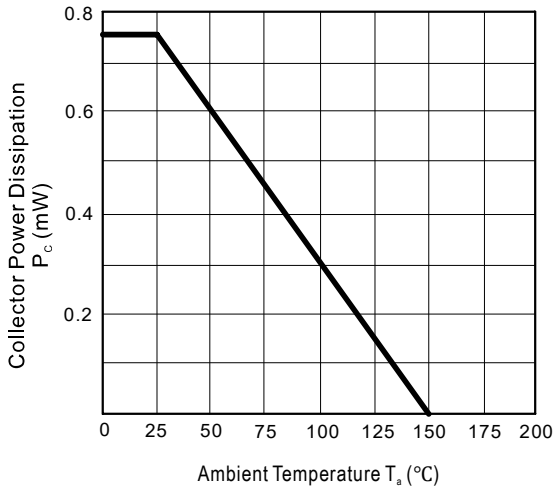
$V_{CE(SAT)}$ - I_C



I_C - V_{BE}

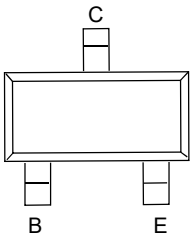
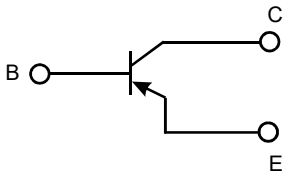


P_C - T_a



FMBTSA1298O/Y

Pinning information

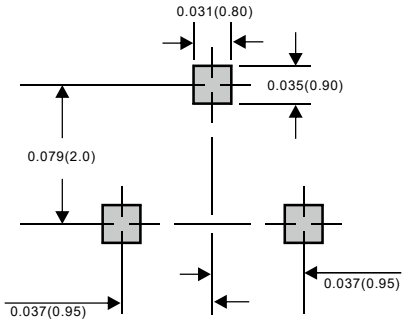
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
FMBTSA1298O	IO
FMBTSA1298Y	IY

Suggested solder pad layout

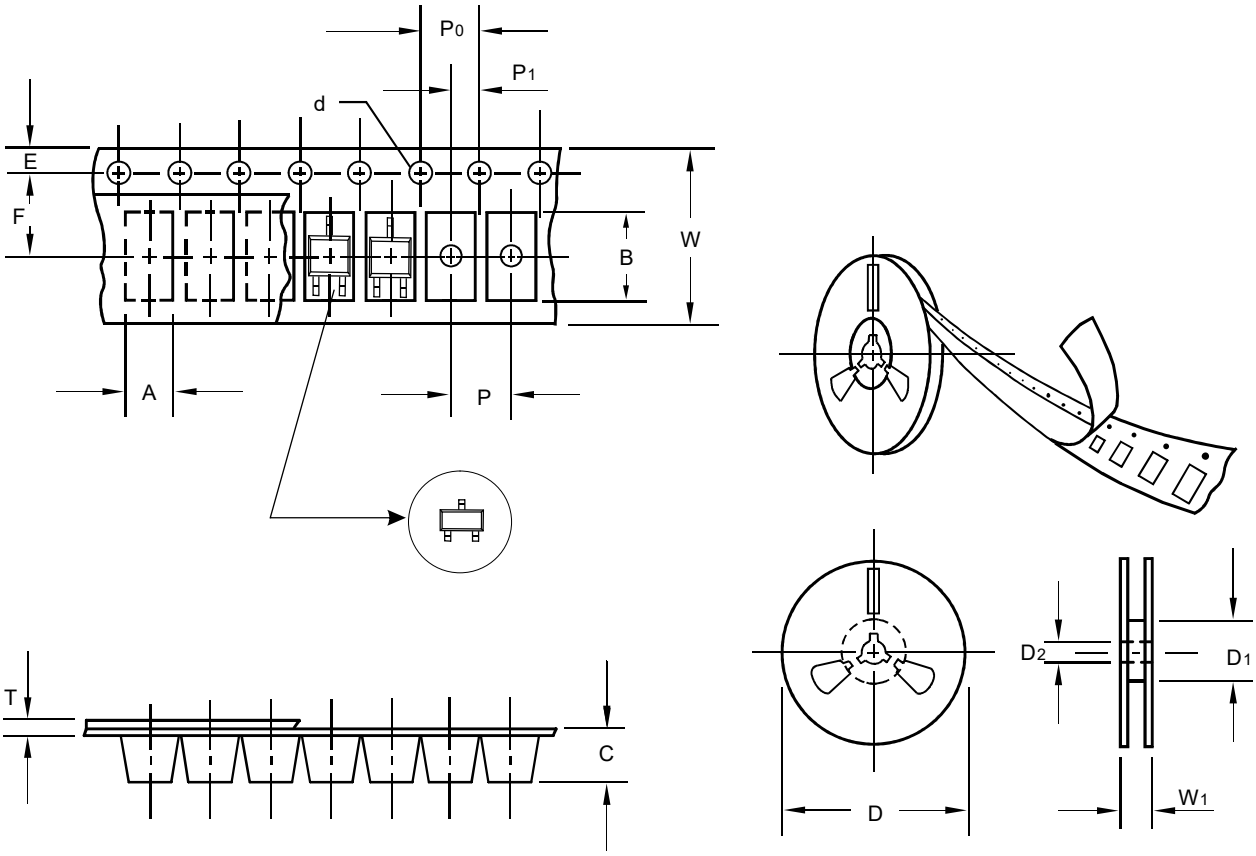
SOT-23



Dimensions in inches and (millimeters)

FMBTSA1298O/Y

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	55.00
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	12.0

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

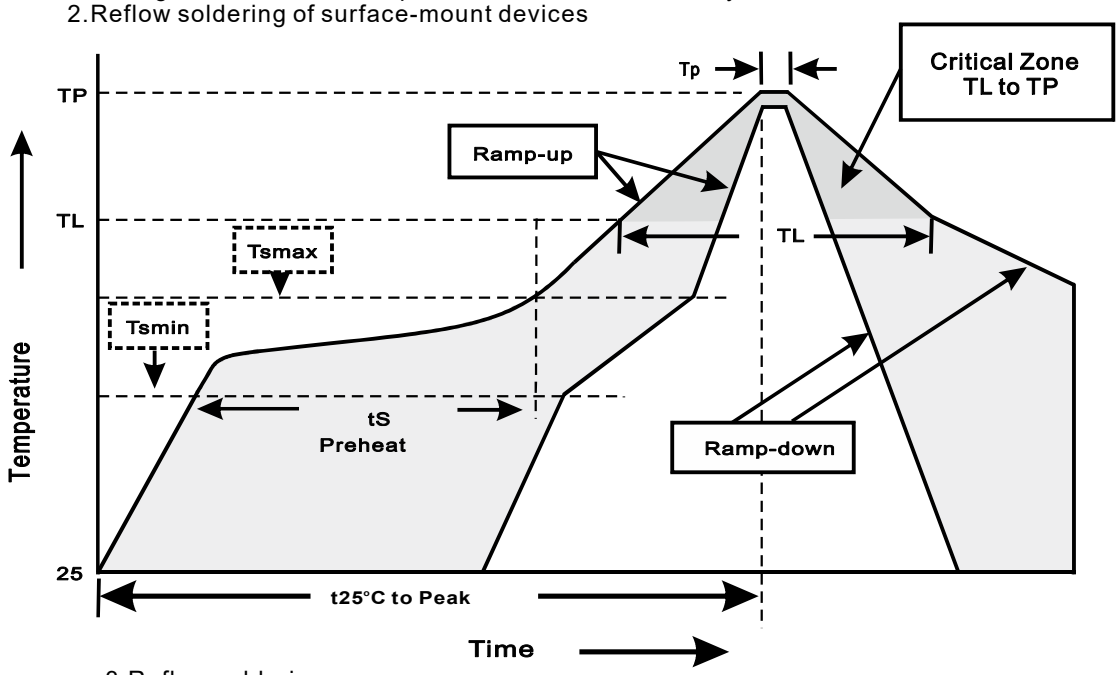
FMBTSA1298O/Y

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