FMBTRA116SS

List

FMBTRA116SS

PNP Silicon Epitaxial Planar Digital Transistor

Features

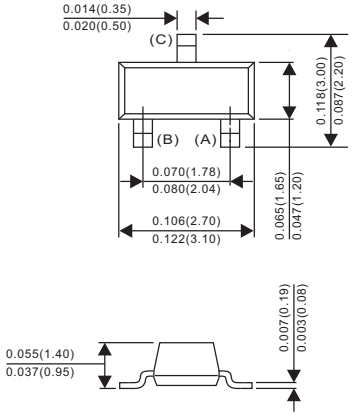
- With built-in bias resistors.
- Simplify circuit design.
- Reduce a quantity of parts and manufacturing process.
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. FMBTRA116SS-H.

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

Package outline

SOT-23



Dimensions in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Output voltage	$-V_O$	50	V
Input voltage	V_I	-10 to +5	V
Ouput current	$-I_O$	100	mA
Total power dissipation	P_{tot}	200	mW
Junction temperature	T_j	150	℃
Storage temperature range	T_{stg}	-55 to +150	℃

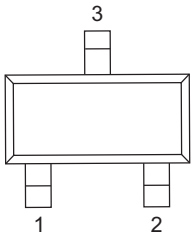
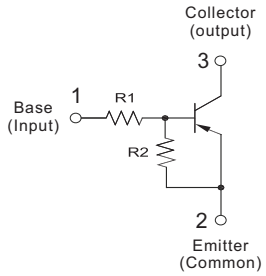
Electrical characteristics (At T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
DC current gain	$-V_O$=5V, $-I_O$=5mA	h_{FE}	33			
Output cutoff current	$-V_O$=50V	$-I_{O(OFF)}$			500	nA
Input current	$-V_I$=5V	$-I_I$			7.2	mA
Output voltage	$-I_O$=10mA, $-I_I$=0.5mA	$-V_{O(ON)}$			0.3	V
Input on voltage (ON)	$-V_O$=0.3V, $-I_O$=20mA	$-V_{I(ON)}$			3.0	V
Input off voltage (OFF)	$-V_O$=5V, $-I_O$=100μA	$-V_{I(OFF)}$	0.3			V
Transition frequency	$-V_O$=10V, $-I_O$=5mA	f_T (1)		250		MHz
Input resistance		R_1		1.0		KΩ
Emitter Base resistance		R_2		10		KΩ

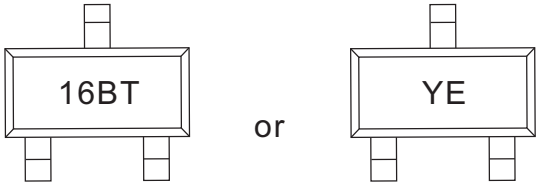
(1)Characteristic of transistor only.

FMBTRA116SS

Pinning information

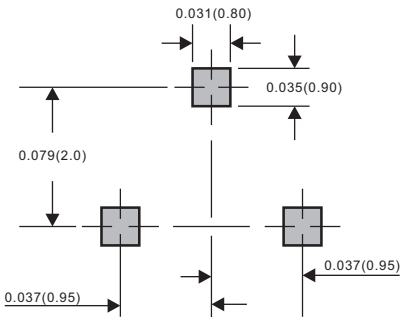
Pin	Simplified outline	Symbol
Pin1 Base Pin2 Emitter Pin3 Collector		

Marking

Type numbe	Marking code
FMBTRA116SS	

Suggested solder pad layout

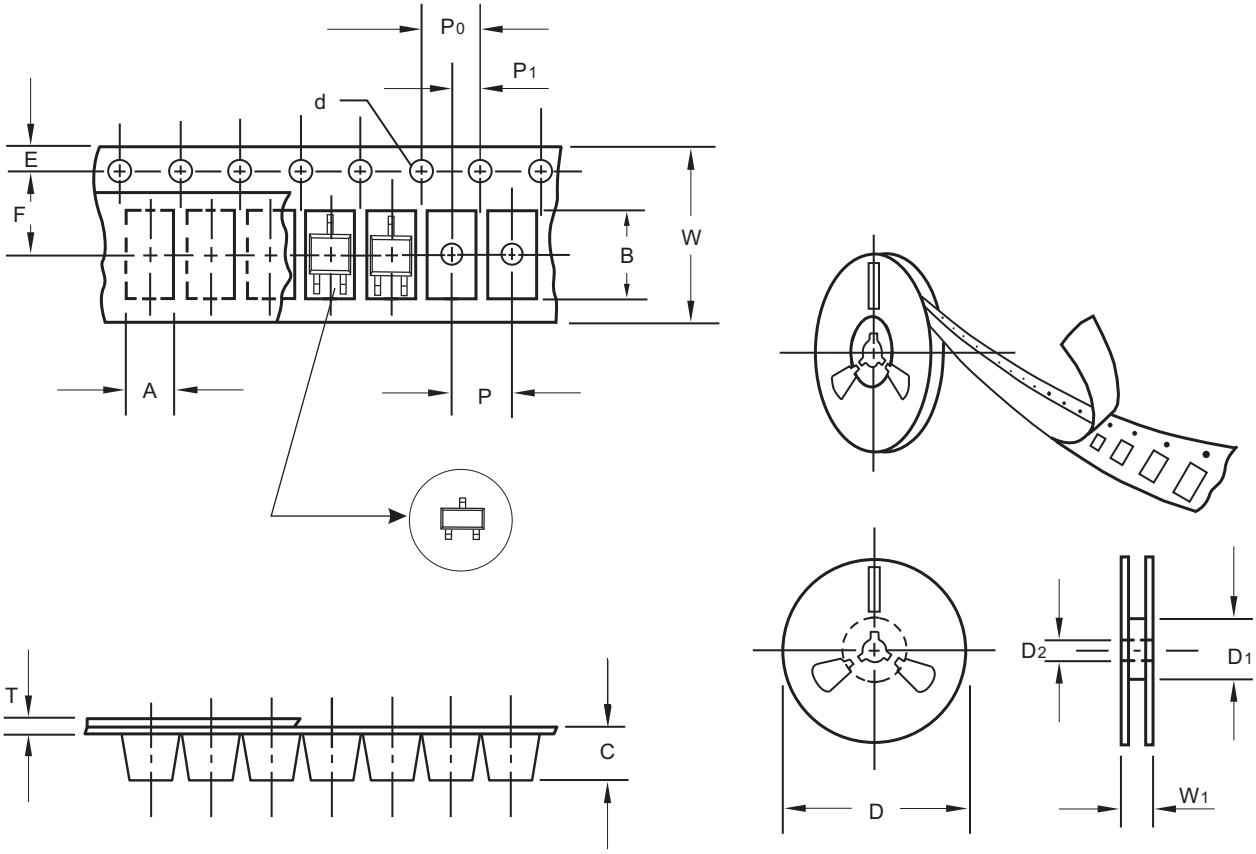
SOT-23



Dimensions in inches and (millimeters)

FMBTRA116SS

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.

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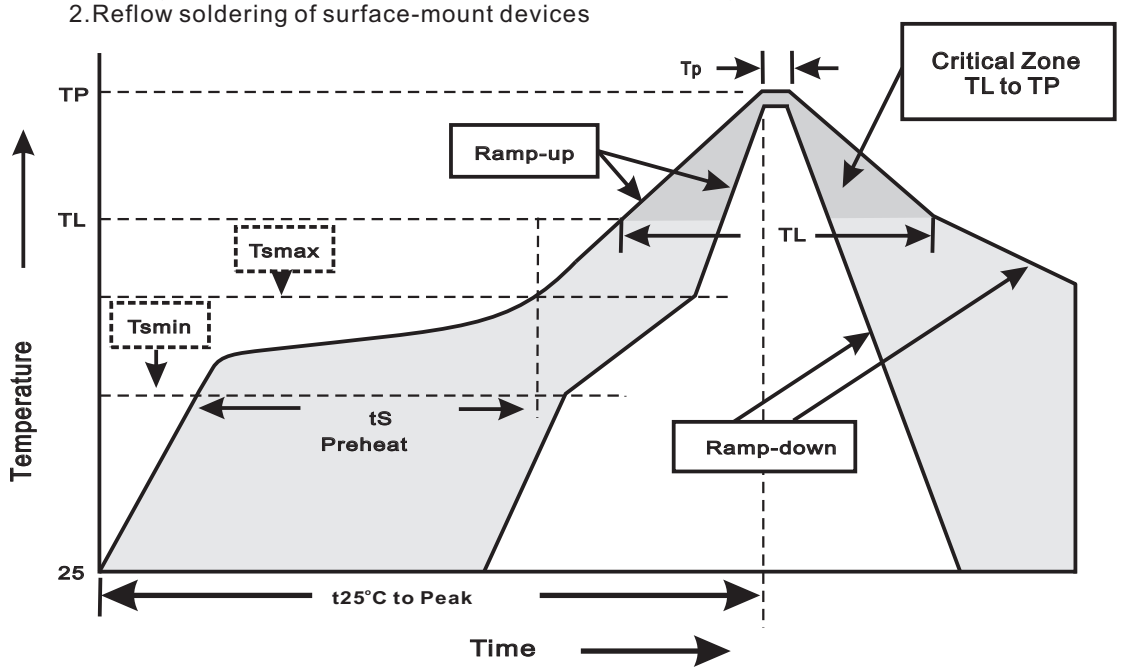
Reel packing

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