

FMBZT2907A

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FMBZT2907A

General Purpose PNP Transistors

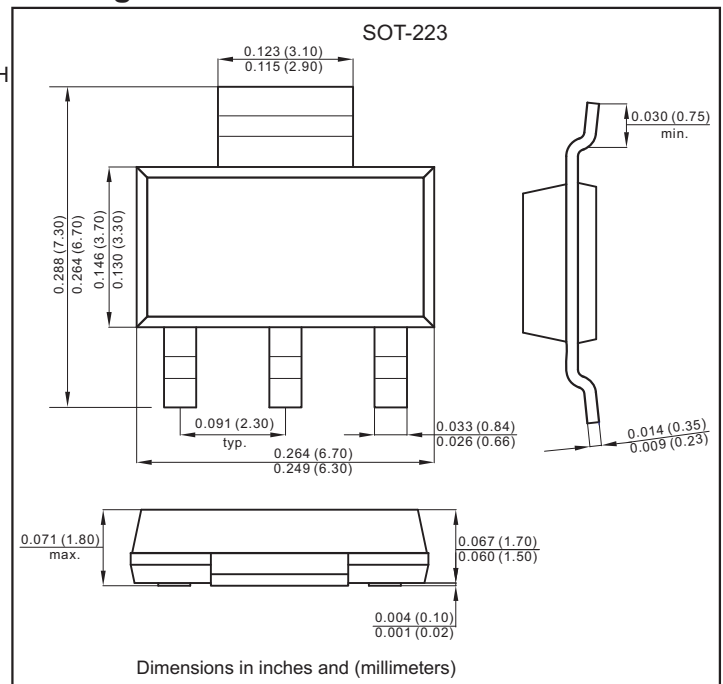
Features

- Epitaxial planar die construction
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free part, ex.FMBZT2907A-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-223
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.1171 gram

Package outline



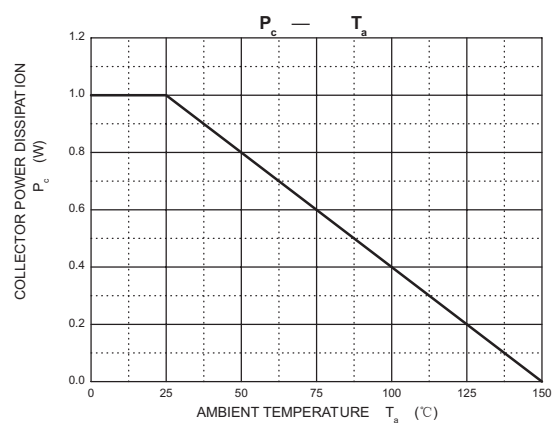
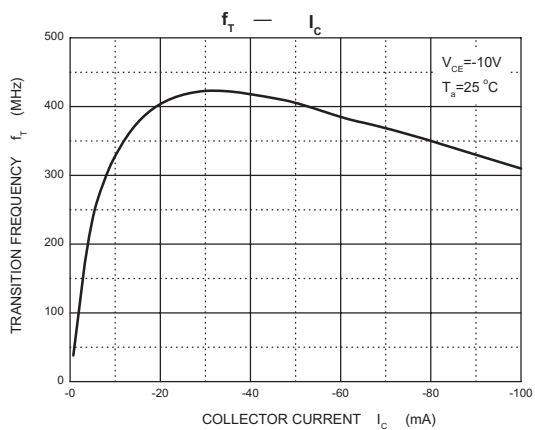
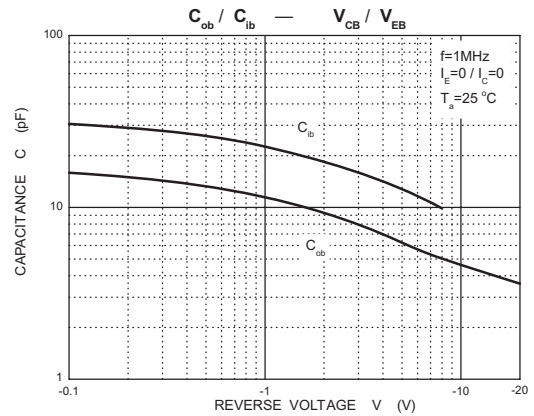
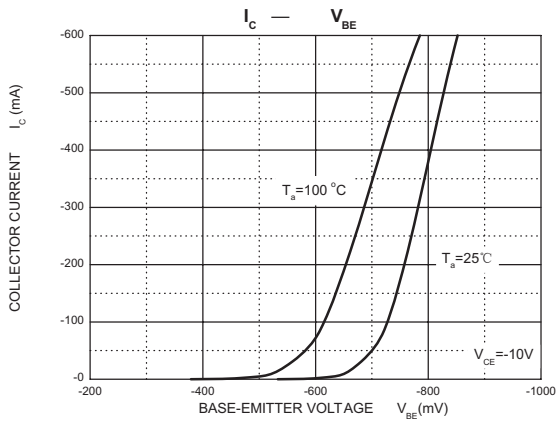
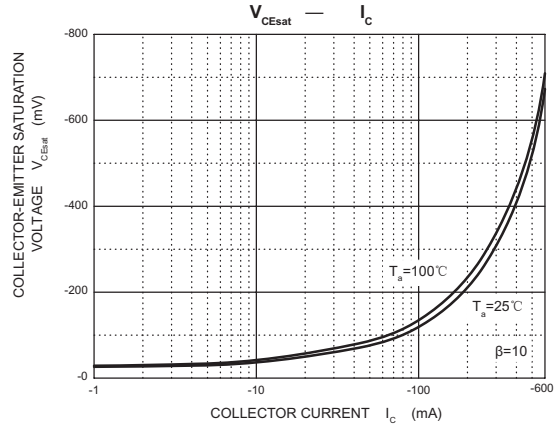
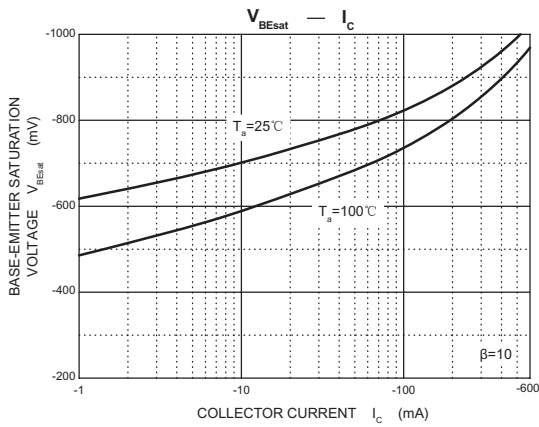
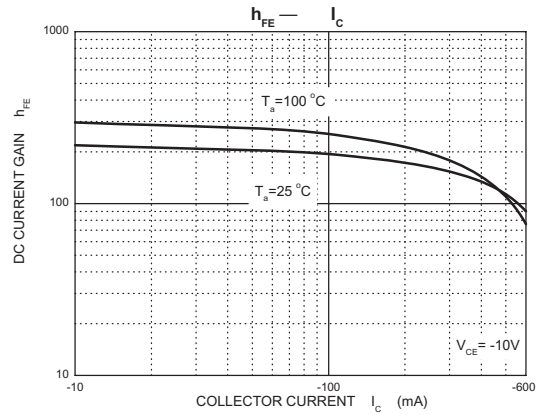
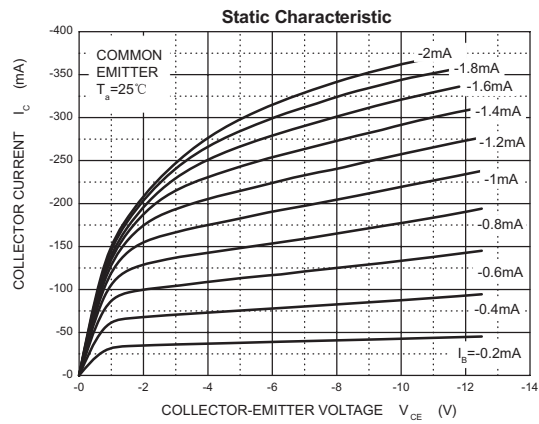
Maximum ratings (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	Symbol	Value	UNIT
Collector-base voltage	V_{CBO}	-60	V
Collector-emitter voltage	V_{CEO}	-60	V
Emitter-base voltage	V_{EBO}	-5	V
Collector current -continuous	I_C	-0.6	A
Collector power dissipation	P_C	1.0	W
Thermal resistance junction to ambient	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Operation junction temperature range	T_J	-55 to +150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

FMBZT2907A**Electrical Characteristics** (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

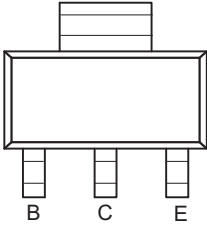
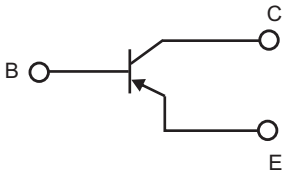
PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Collector-emitter breakdown voltage	$I_C = -10\text{mA}, I_B = 0$	$V_{(BR)CEO}$	-60			V
Collector-base breakdown voltage	$I_C = -10\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	-60			V
Emitter-base breakdown voltage	$I_E = -10\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	-5.0			V
Collector cut-off current	$V_{CB} = -50\text{V}, I_E = 0$	I_{CBO}			-10	nA
Emitter cut-off current	$V_{EB} = -5\text{V}, I_C = 0$	I_{EBO}			-50	nA
DC current gain	$I_C = -0.1\text{mA}, V_{CE} = -10\text{V}$ $I_C = -1\text{mA}, V_{CE} = -10\text{V}$ $I_C = -10\text{mA}, V_{CE} = -10\text{V}$ $I_C = -150\text{mA}, V_{CE} = -10\text{V}$ $I_C = -500\text{mA}, V_{CE} = -10\text{V}$	h_{FE}	75 100 100 100 50		- - - 300 -	
Collector-emitter saturation voltage	$I_C = -150\text{mA}, I_B = -15\text{mA}$ $I_C = -500\text{mA}, I_B = -50\text{mA}$	$V_{CE(sat)}$			-0.4 -1.6	V
Base-emitter saturation voltage	$I_C = -150\text{mA}, I_B = -15\text{mA}$ $I_C = -500\text{mA}, I_B = -50\text{mA}$	$V_{BE(sat)}$			-1.3 -2.6	V
Transition frequency	$I_C = -50\text{mA}, V_{CE} = -20\text{V}, f = 100\text{MHz}$	f_T	200			MHz
Collector capacitance	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$	C_C			8	pF
Emitter capacitance	$V_{EB} = -2\text{V}, I_C = 0, f = 1\text{MHz}$	C_E			30	pF
Delay time	$I_C = -150\text{mA}, I_{B1} = -I_{B2} = -15\text{mA}$	t_d			12	ns
Rise time		t_r			30	ns
Storage time		t_s			300	ns
Fall time		t_f			65	ns

Rating and characteristic curves (FMBZT2907A)



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Pinning information

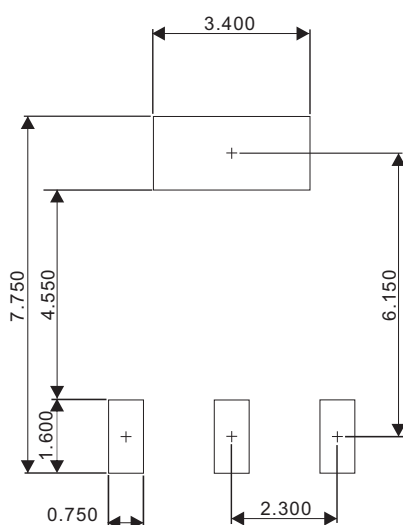
Pin	Simplified outline	Symbol
PinB Base PinC Collector PinE Emitter		

Marking

Type number	Marking code
FMBZT2907A	ZT2907A

Suggested solder pad layout

SOT-223

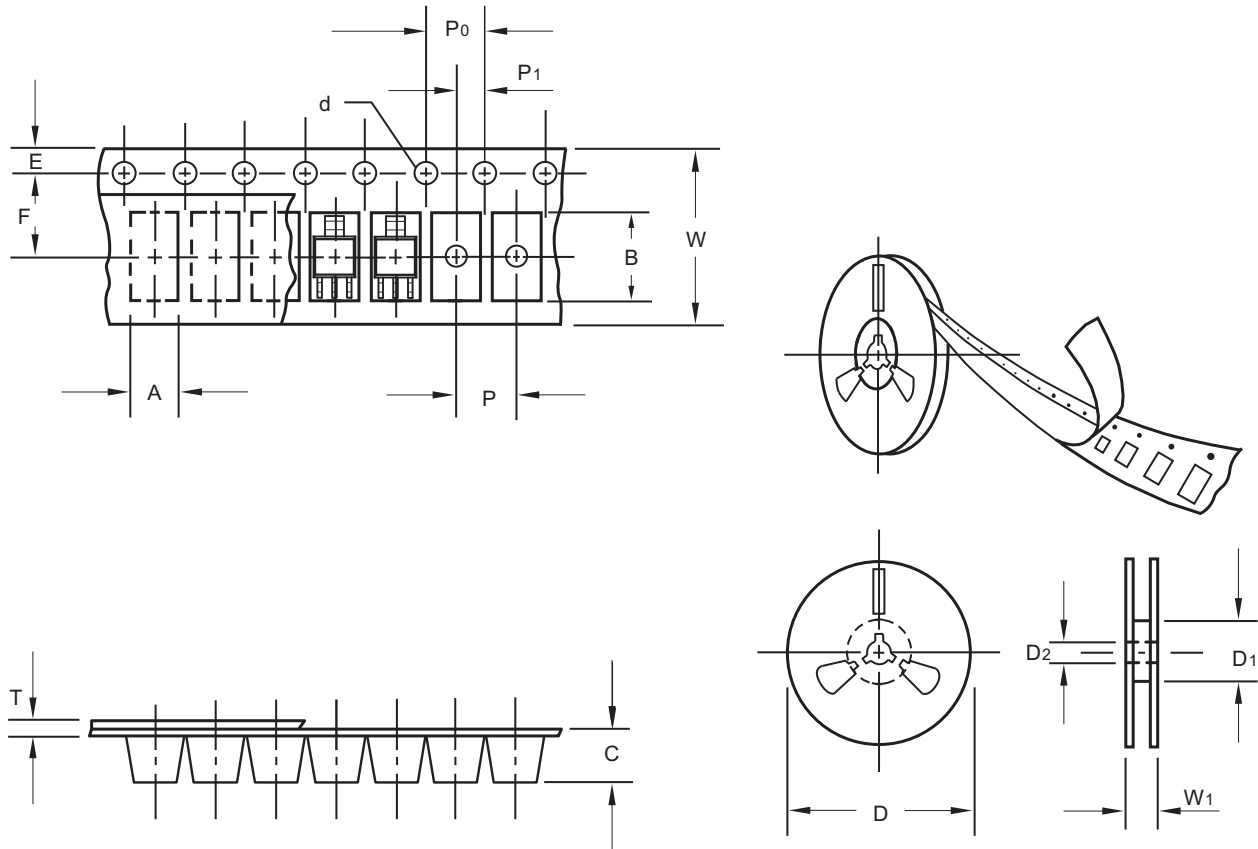


Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.050 mm.
3. The pad layout is for reference purposes only.

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Packing information



unit:mm

Item	Symbol	Tolerance	SOT-223
Carrier width	A	0.1	6.765
Carrier length	B	0.1	7.335
Carrier depth	C	0.1	1.88
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D1	min	100.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.29
Tape width	W	0.3	12.00
Reel width	W1	0.3	17.6

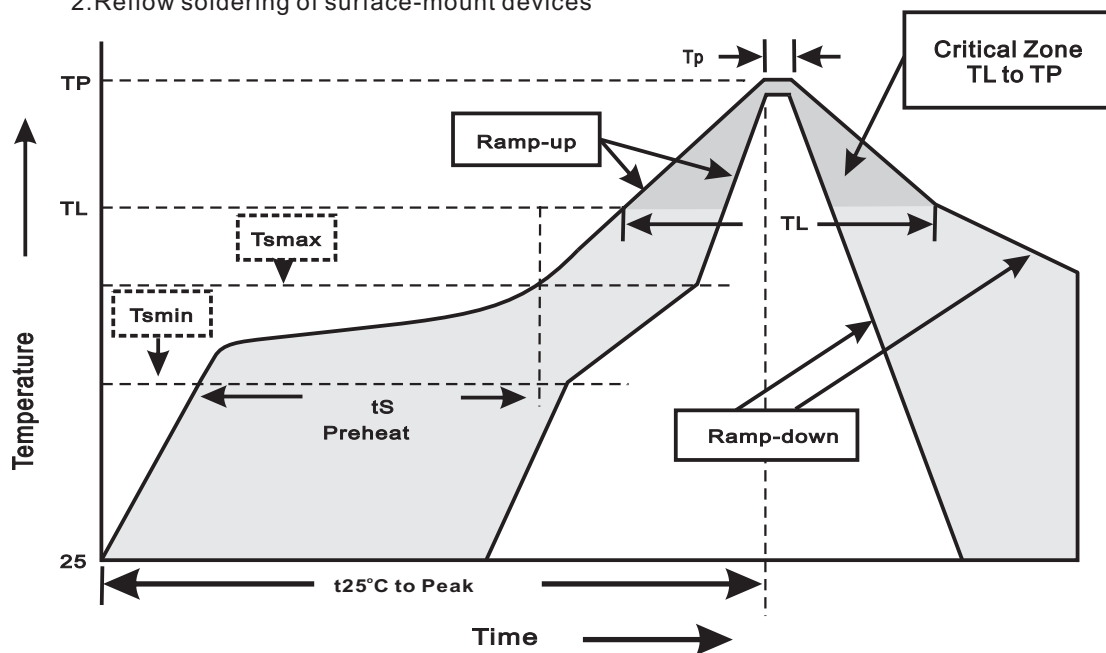
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Reel packing

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)
SOT-223	13"	2,500	8.0	5,000	335*335*38	330	350*330*360	40,000

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 $60\sim 120\text{sec}$
T_{smax} to T_L -Ramp-upRate	$<3^{\circ}\text{C/sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C $60\sim 260\text{sec}$
Peak Temperature(T_P)	$255^{\circ}\text{C}-0/+5^{\circ}\text{C}$
Time within 5°C of actual Peak Temperature(t_P)	$10\sim 30\text{sec}$
Ramp-down Rate	$<6^{\circ}\text{C/sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$