

MMBT2907A-HF (PNP)

RoHS Device

Halogen Free

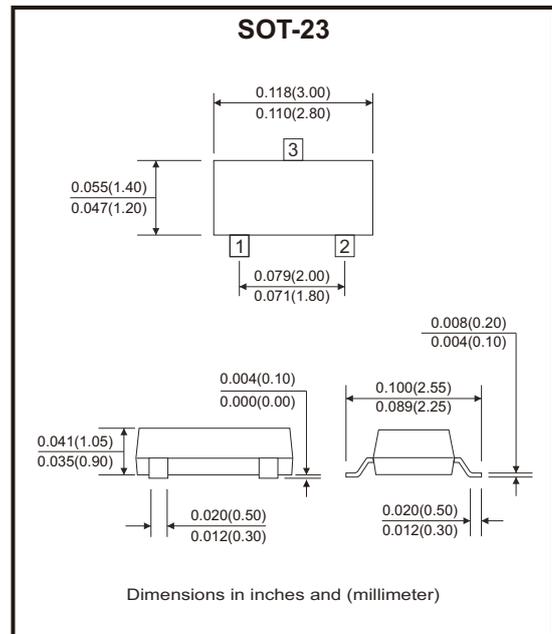


Features

- Epoxy meets UL-94 V-0 flammability rating.
- Moisture sensitivity Level 1.
- High conductance.
- Surface mount package ideally suited for automatic insertion.

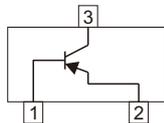
Mechanical data

- Case: SOT-23, molded plastic.
- Terminals: Tin plated leads, solderable per J-STD-002 and JESD22-B102.



Circuit Diagram

1. Base
2. Emitter
3. Collector



Maximum Ratings (at Ta=25°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	I_C	-0.6	A
Collector power dissipation	P_C	300	mW
Thermal resistance from junction to ambient	$R_{\theta JA}$	417	°C/W
Junction temperature range	T_J	-55 to +150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical Characteristics (at Ta=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Max	Unit
Collector-base breakdown voltage	$I_C = -10\mu A, I_E = 0$	V_{CBO}	-60		V
Collector-emitter breakdown voltage	$I_C = -10mA, I_B = 0$	V_{CEO}	-60		V
Emitter-base breakdown voltage	$I_E = -10\mu A, I_C = 0$	V_{EBO}	-5		V
Collector-base cut-off current	$V_{CB} = -50V, I_E = 0$	I_{CBO}		-0.1	μA
Collector-emitter cut-off current	$V_{CE} = -30V, V_{EB} = -0.5V$	I_{CEX}		-0.05	μA
DC current gain	$V_{CE} = -10V, I_C = -0.1mA$	$h_{FE(1)}$	75		
	$V_{CE} = -10V, I_C = -1mA$	$h_{FE(2)}$	100		
	$V_{CE} = -10V, I_C = -10mA$	$h_{FE(3)}$	100		
	$V_{CE} = -10V, I_C = -150mA$	$h_{FE(4)}$	100	300	
	$V_{CE} = -10V, I_C = -500mA$	$h_{FE(5)}$	50		
Collector-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$ $I_C = -500mA, I_B = -50mA$	$V_{CE(sat)}$		-0.4 -1.6	V
Base-emitter saturation voltage	$I_C = -150mA, I_B = -15mA$ $I_C = -500mA, I_B = -50mA$	$V_{BE(sat)}$		-1.3 -2.6	V
Transition frequency	$V_{CE} = -20V, I_C = -50mA, f = 100MHz$	f_r	200		MHz
Delay time	$V_{CC} = -30V,$	t_d		10	ns
Rise time	$I_C = -150mA, I_{B1} = -15mA$	t_r		40	ns
Storage time	$V_{CC} = -6V,$	t_s		80	ns
Fall time	$I_C = -150mA, I_{B1} = I_{B2} = -15mA$	t_f		30	ns

Rating and Characteristic Curves (MMBT2907A-HF)

Fig.1 - Static Characteristic

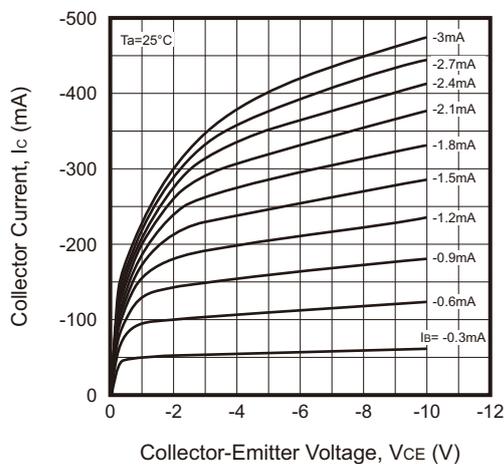
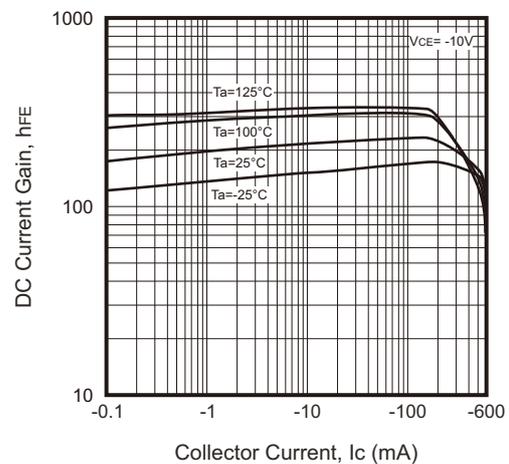


Fig.2 - DC Current Gain



Rating and Characteristic Curves (MMBT2907A-HF)

Fig.3 - Collector-Emitter Saturation Voltage

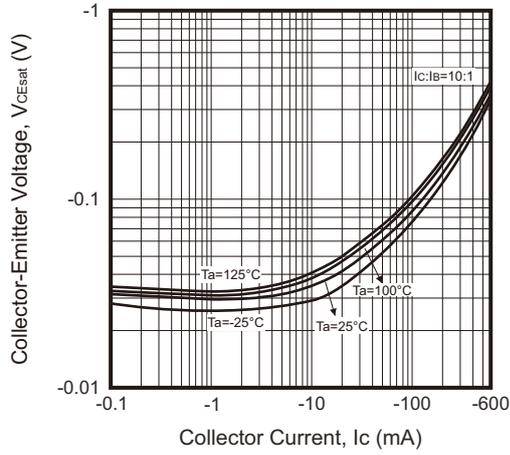


Fig.4 - Base-Emitter Saturation Voltage

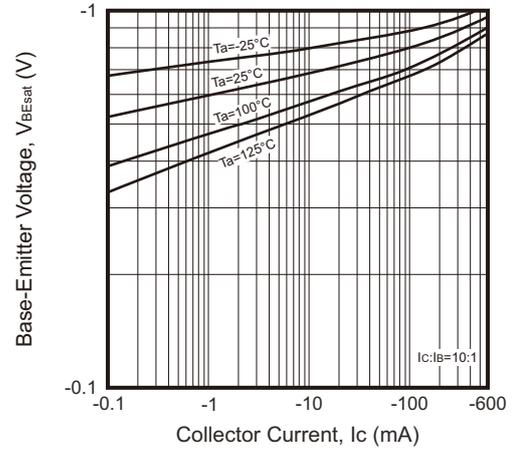


Fig.5 - Base-Emitter on Voltage

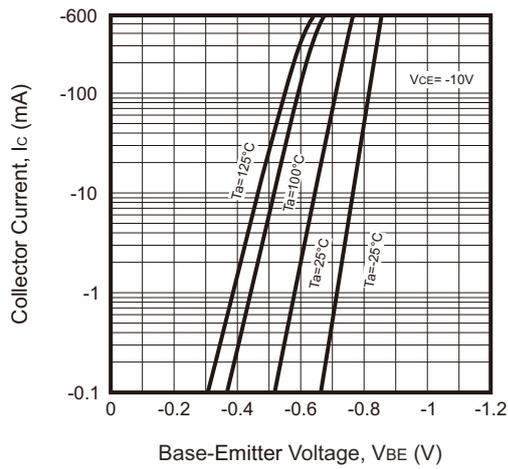


Fig.6 - $C_{ob}/C_{ib} - V_{CB}/V_{EB}$

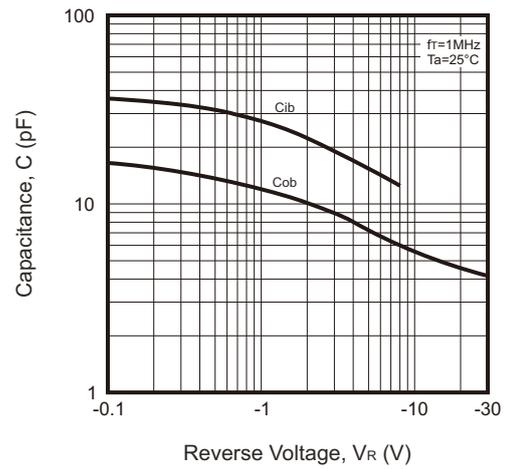
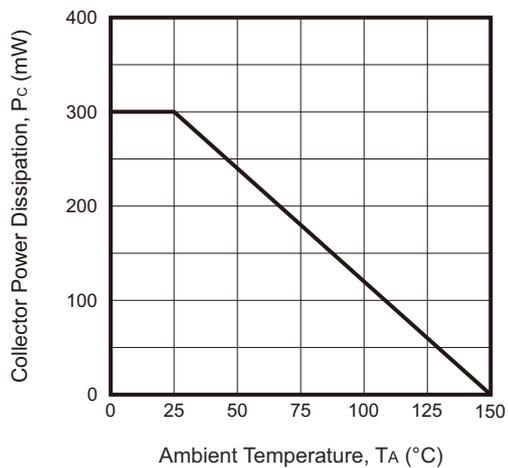
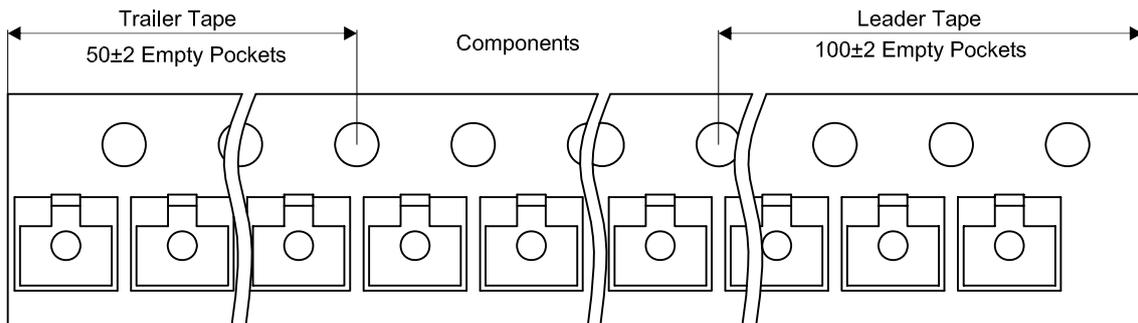
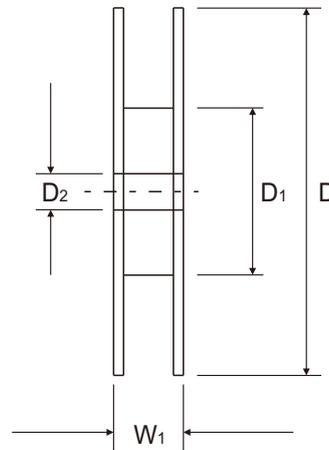
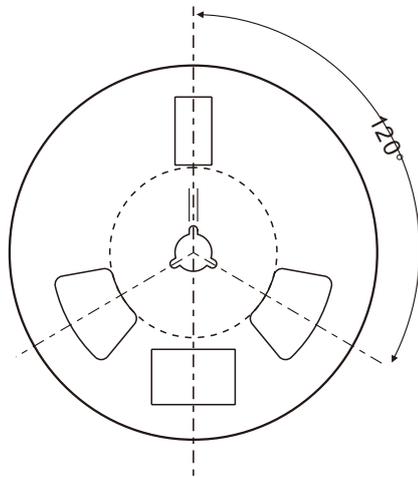
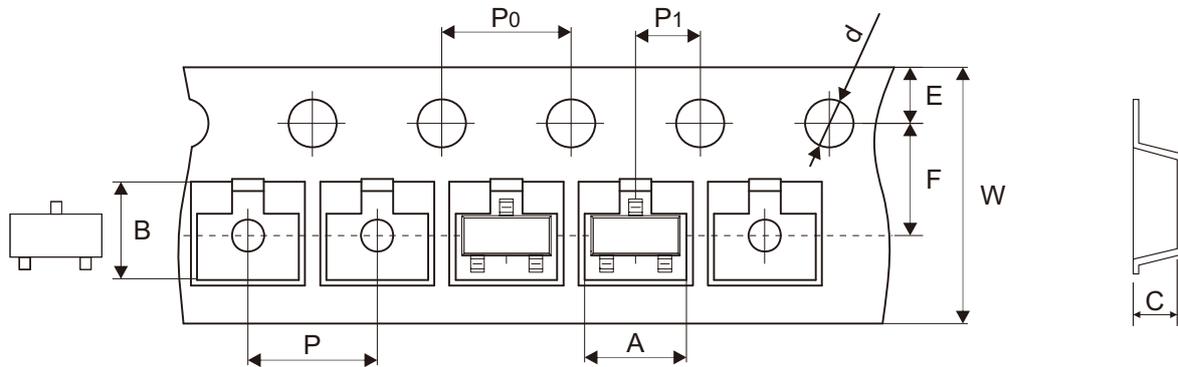


Fig.7 - Collector Power Derating Curve



Reel Taping Specification



SOT-23	SYMBOL	A	B	C	d	D	D ₁	D ₂
	(mm)	3.15 ± 0.10	2.77 ± 0.10	1.22 ± 0.10	1.50 + 0.10 - 0.00	178.00 ± 1.00	54.60 ± 1.00	13.30 ± 1.00
	(inch)	0.124 ± 0.004	0.109 ± 0.004	0.048 ± 0.004	0.059 + 0.004 - 0.000	7.008 ± 0.039	2.150 ± 0.039	0.524 ± 0.039

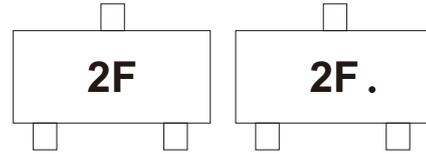
SOT-23	SYMBOL	E	F	P	P ₀	P ₁	W	W ₁
	(mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05	8.00 + 0.30 - 0.10	11.10 ± 0.20
	(inch)	0.069 ± 0.004	0.138 ± 0.002	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.002	0.315 + 0.012 - 0.004	0.437 ± 0.008

Company reserves the right to improve product design, functions and reliability without notice.

REV:C

Marking Code

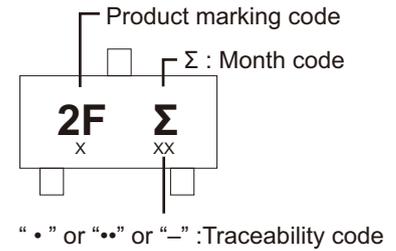
Part Number	Marking Code	
MMBT2907A-HF	2F Σ	2F



Solid dot = Control code

Month Code:

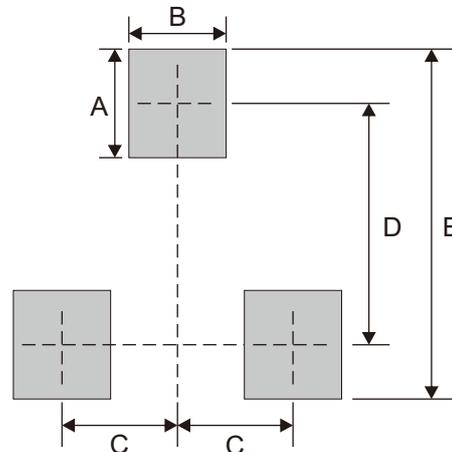
Month	Odd Year (per A.D.)	Even Year (per A.D.)	Month	Odd Year (per A.D.)	Even Year (per A.D.)
Jan	1	E	Jul	7	N
Feb	2	F	Aug	8	P
Mar	3	H	Sep	9	U
Apr	4	J	Oct	T	X
May	5	K	Nov	V	Y
Jun	6	L	Dec	C	Z



Suggested P.C.B. PAD Layout

SIZE	SOT-23	
	(mm)	(inch)
A	0.90	0.035
B	0.80	0.031
C	0.95	0.037
D	2.00	0.079
E	2.90	0.114

Note: 1. The pad layout is for reference purposes only.



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-23	3,000	7