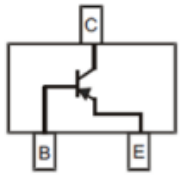
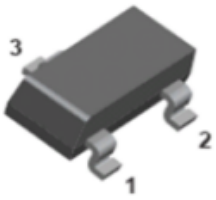
MMBT2907A

PNP General Purpose Amplifier





SOT-23

Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package**: SOT-23
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (T_a=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				2F
Collector-base voltage	V_{CBO}	V	I_C=-10μA,I_E=0	-60
Collector-emitter voltage	V_{CEO}	V	I_C =-10mA,I_B=0	-60
Emitter-base voltage	V_{EBO}	V	I_E=-10μA,I_C=0	-5
Collector current	I_C	A		-0.6
Power dissipation	P_D	mW		300
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=-10μA,I_E=0	-60		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C =-10mA,I_B=0	-60		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=-10μA,I_C=0	-5		
Collector-base cut-off current	I_{CBO}	uA	V_{CB}=-50V			-0.1
Collector-emitter cut-off current	I_{CEX}	uA	V_{CE}=-30Vdc,V_{EB}=-0.5V			-0.05
DC current gain	h_{FE1}		V_{CE}=-10V,I_C=-0.1mA	75		
	h_{FE2}		V_{CE}=-10V,I_C=-1mA	100		
	h_{FE3}		V_{CE}=-10V,I_C=-10mA	100		
	h_{FE4}		V_{CE}=-10V,I_C=-150mA	100		300
	h_{FE5}		V_{CE}=-10V,I_C=-500mA	50		
Collector-emitter saturation voltage	$V_{CE(sat)1}$	V	I_C=-150mA,I_B=-15mA			-0.4
	$V_{CE(sat)2}$	V	I_C=-500mA,I_B=-50mA			-1.6
Base-emitter saturation voltage	$V_{BE(sat)1}$	V	I_C=-150mA,I_B=-15mA			-1.3
	$V_{BE(sat)2}$	V	I_C=-500mA,I_B=-50mA			-2.6
Transition frequency	f_T	MHz	V_{CE}=-20V,I_C=-50mA,f=100MHz	200		
Delay time	td	ns	V_{CC}=-30V, I_C=-150mA, I_{B1}=-15mA			10
Rise time	tr	ns				25
Storage time	ts	ns	V_{CC}=-6V, I_C=-150mA, I_{B1}=-I_{B2}=-15mA			225
Fall time	tf	ns				60

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}$(1)	℃/W	417
Thermal resistance, junction-to-case	$R_{\theta J-C}$(1)	℃/W	334

Note:

（1）Device mounted on PCB, single-sided copper, with standard footprint

■Characteristics

Fig 1：Static Characteristics

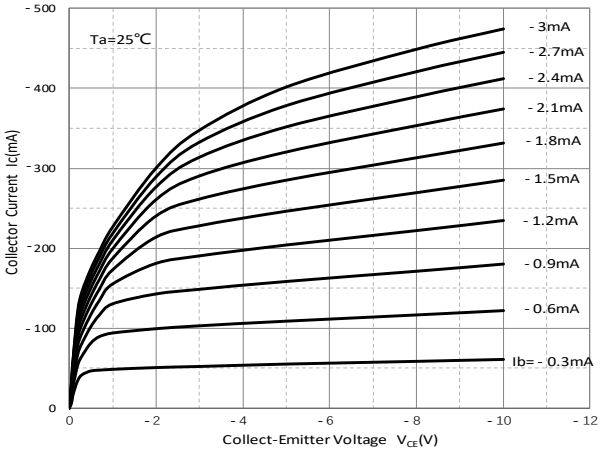


Fig 2：DC Current Gain

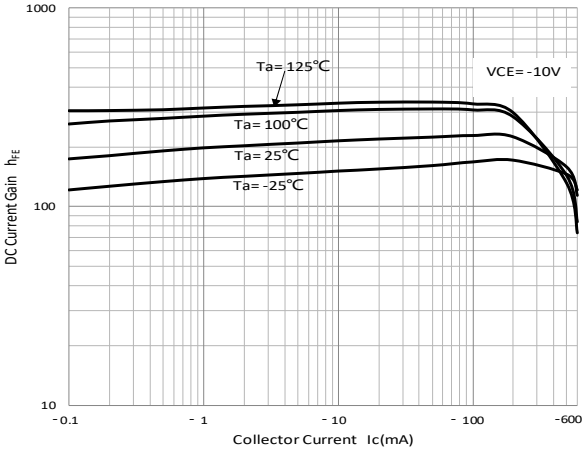


Fig 3：Collector-Emitter Saturation Voltage

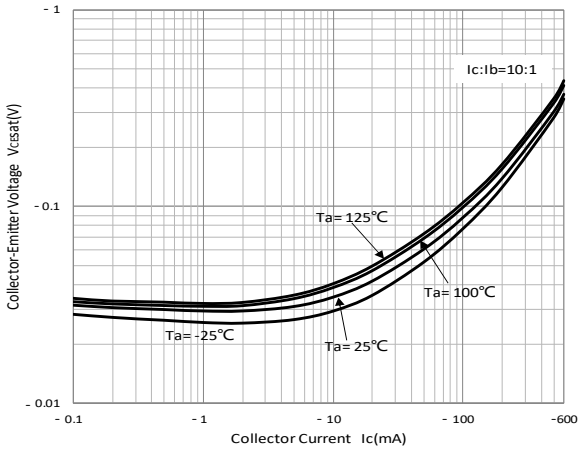


Fig 4：Base-Emitter Saturation Voltage

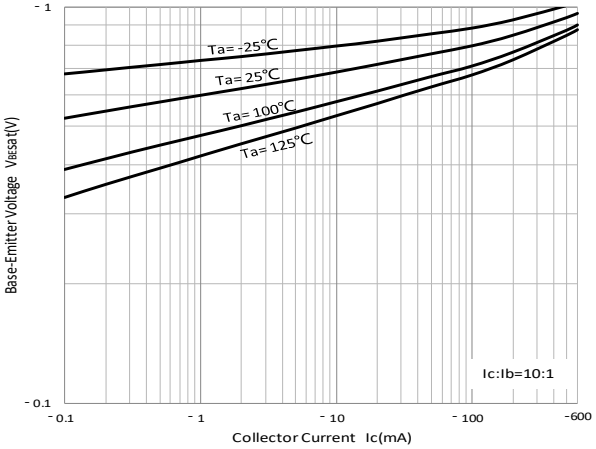


Fig 5：Base-Emitter On Voltage

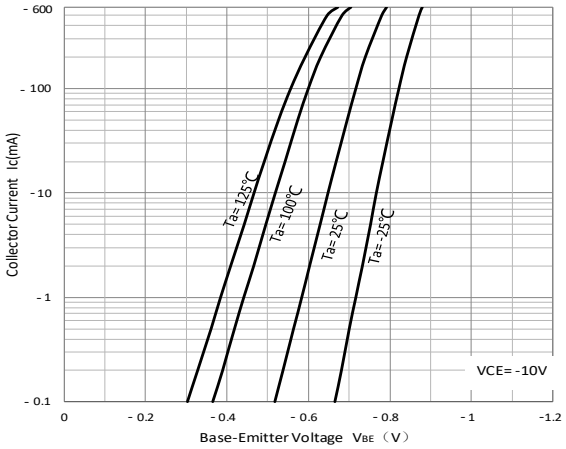


Fig 6：Cob/Cib-V_{CB}/V_{EB}

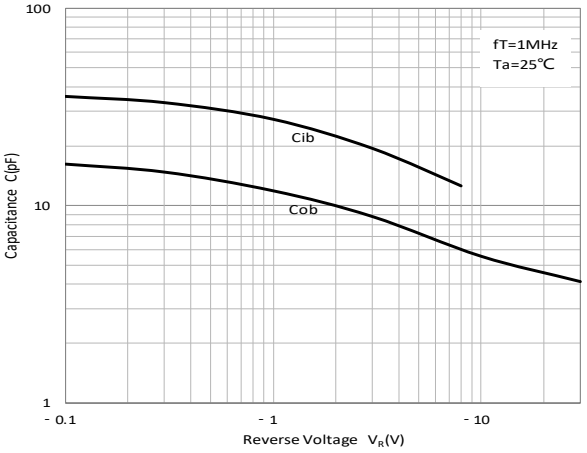
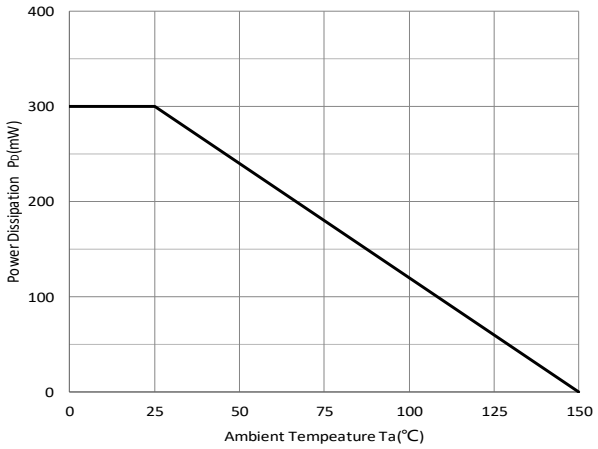


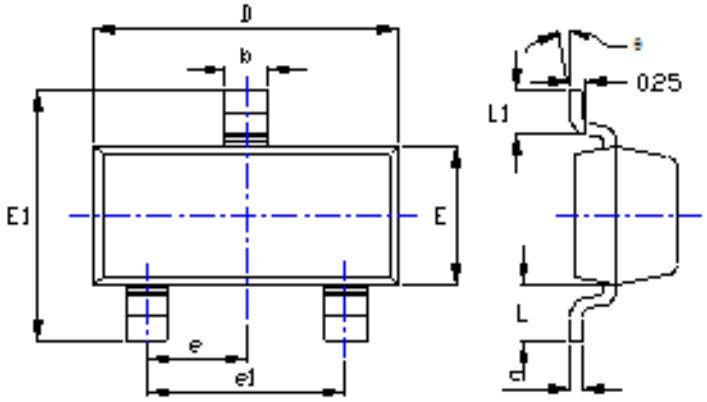
Fig 7：P_D-Ta Curve



■Ordering Information

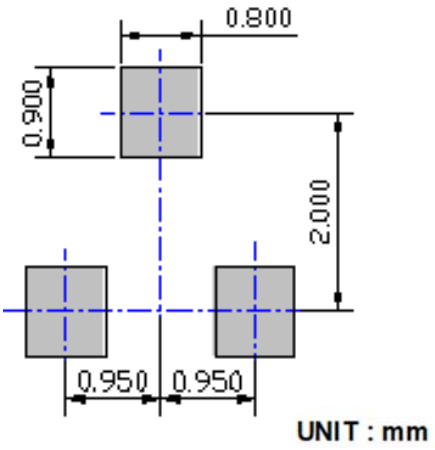
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
MMBT2907A	F2	Approximate 0.008	3000	30000	120000	7” reel
MMBT2907A	F4	Approximate 0.008	10000	/	210000	13” reel

■ Outline Dimensions



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

■ Suggested Pad Layout



Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function, or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.