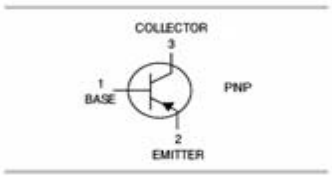
PNP General Purpose Amplifier MMBT2907A

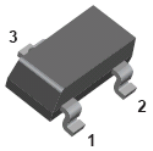
FEATURES

Lead-free

HF

- Epitaxial planar die construction.
- Complementary NPN type available MMBT2222A.
- Ideal for medium power amplification and switching.
- MSL 1





SOT-23

APPLICATIONS

- This device is designed as a general purpose amplifier and switching.
- The useful dynamic range extends to 600mA as a switch and to 100MHz as a amplifier.

ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT2907A□	2F	SOT-23

□: none is for Lead Free package;
"G" is for Halogen Free package.

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-600	mA
P_D	Total Device Dissipation	300	mW
$R_{\theta jA}$	Thermal Resistance Junction to Ambient	357	℃/W
T_j, T_{stg}	Junction and Storage Temperature	-55 to +150	℃

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ESD RATING

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-10μA I_E=0	-60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-10mA I_B=0	-60		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA I_C=0	-5		V
Collector cut-off current	I_{CBO}	V_{CB}=-50V I_E=0 V_{CB}=-50V I_E=0 T_A=125℃		-10 -10	nA μA
Collector cut-off current	I_{CEX}	V_{CE}=-30V,$V_{BE(OFF)}$=-0.5V		-50	nA
Base cut-off current	I_{BL}	V_{CE}=-30V,$V_{BE(OFF)}$=-0.5V		-50	nA
DC current gain	h_{FE}	V_{CE}=-10V I_C=-100μA V_{CE}=-10V I_C=-1mA V_{CE}=-10V I_C=-10mA V_{CE}=-10V I_C=-150mA V_{CE}=-10V I_C=-500mA	75 100 100 100 50	- - - 300 -	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-150mA I_B=-15mA I_C=-500mA I_B=-50mA		-0.4 -1.6	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-150mA I_B=-15mA I_C=-500mA I_B=-50mA		-1.3 -2.6	V
Transition frequency	f_T	V_{CE}=-20V I_C=-50mA f=100MHz	200		MHz
Output Capacitance	C_{obo}	V_{CB}=-10V f=100kHz I_E=0	-	8.0	pF
Input Capacitance	C_{ibo}	V_{EB}=-2V f=100kHz I_C=0	-	30	pF
Delay time	t_d	V_{CE}=-30V, I_C=-150mA, I_{B1}=-15mA		10	ns
Rise time	t_r			40	ns
Storage time	t_s	V_{CE}=-6V, I_C=-150mA I_{B1}=-I_{B2}=-15mA		80	ns
Fall time	t_f			30	ns

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TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

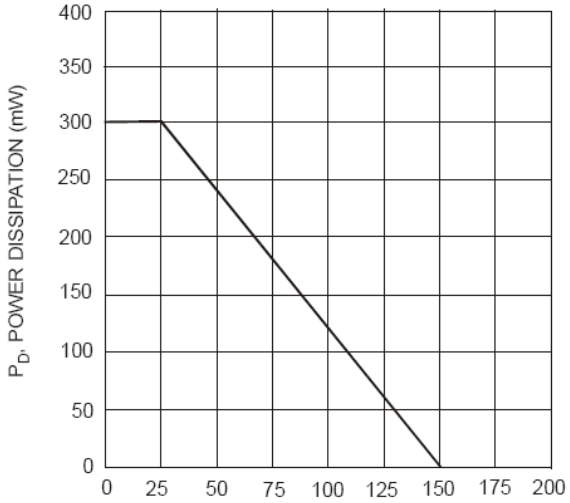

Fig. 1, Max Power Dissipation vs Ambient Temperature

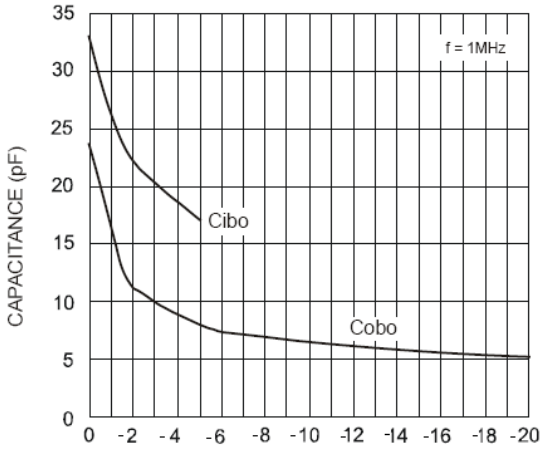

Fig. 2, Typical Capacitance Characteristics

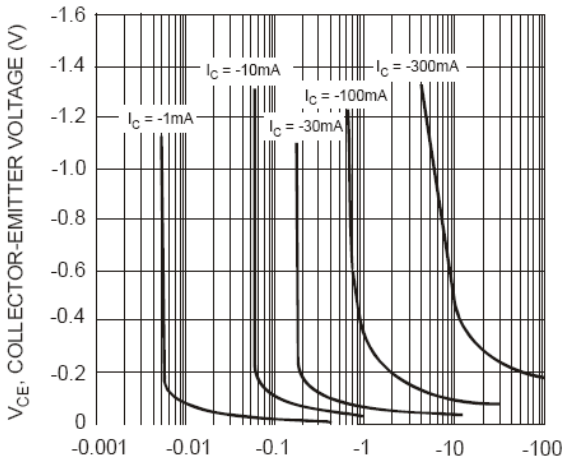

Fig. 3, Typical Collector Saturation Region

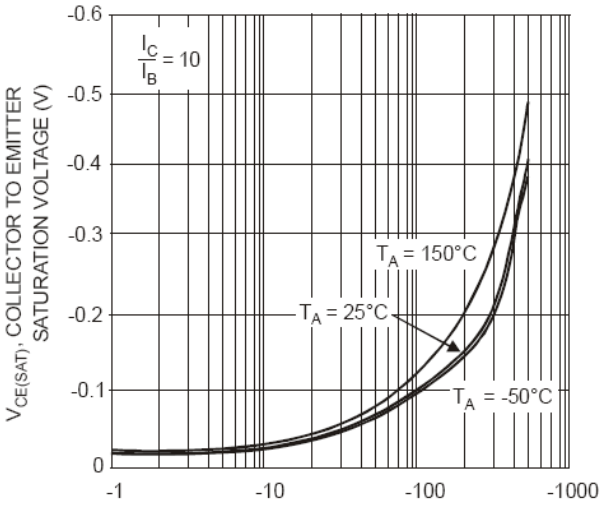

Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

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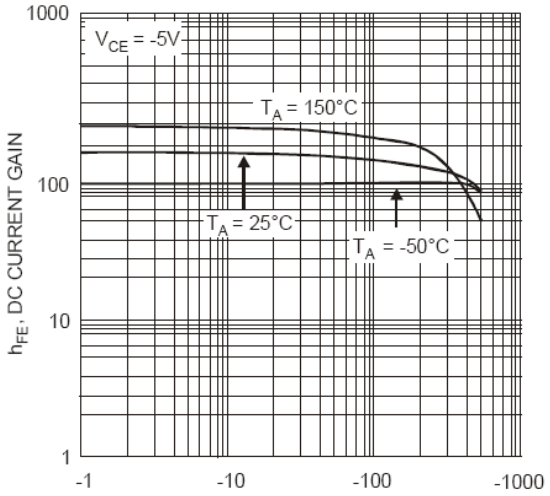

Fig. 5, DC Current Gain vs Collector Current

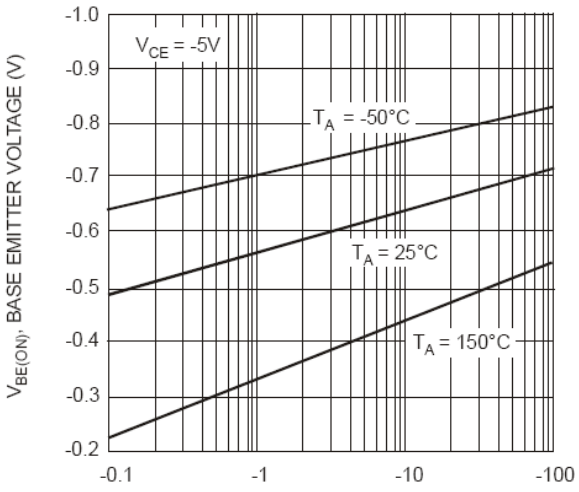

Fig. 6, Base-Emitter Voltage vs. Collector Current

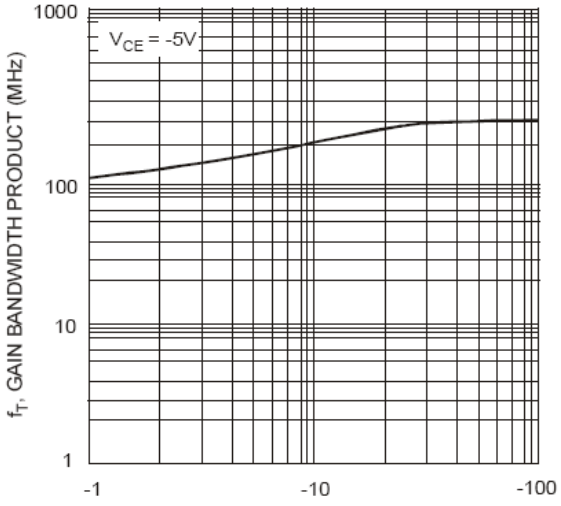

Fig. 7, Gain Bandwidth Product vs. Collector Current

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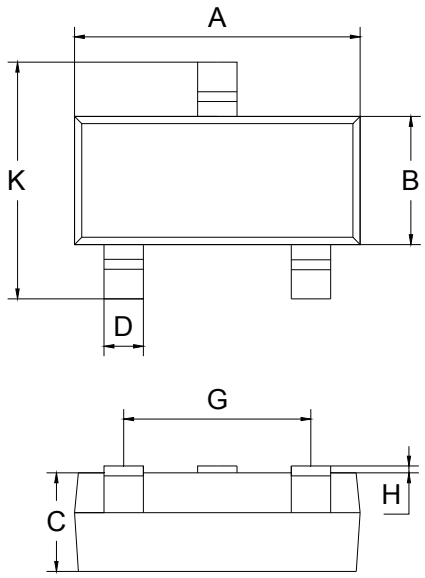
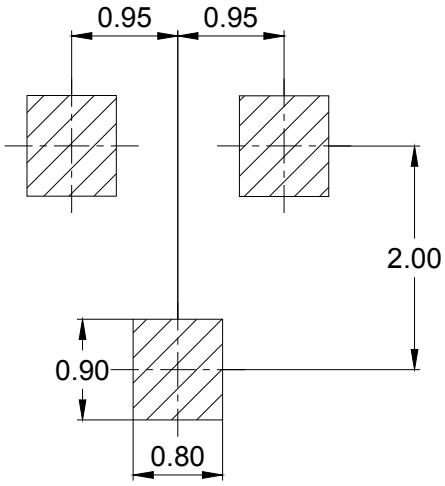
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	0.90	1.10
D	0.30	0.50
E	0.35	0.48
G	1.80	2.00
H	0.02	0.10
J	0.05	0.15
K	2.20	2.60
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
MMBT2907A	SOT-23	3000/Tape&Reel