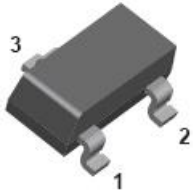


Features

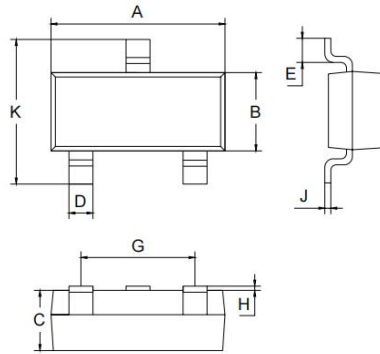
- Epitaxial planar die construction .
- Complementary NPN type available MMBT2222A.
- Ideal for medium power amplification and switching.



1. BASE
2. EMITTER
3. COLLECTOR

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.



SOT-23		
Dim	Min	Max
A	2.70	3.10
B	1.10	1.50
C	1.0 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.80	2.00
H	0.02	0.1
J	0.1 Typical	
K	2.20	2.60
All Dimensions in mm		

Ordering Information

Type No.	Marking	Package Code
MMBT2907A	2F	STO-23

MAXIMUM RATING @ Ta=25°C 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	°C/W
T_j, T_{stg}	Junction and Storage Temperature	-55 to +150	°C

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

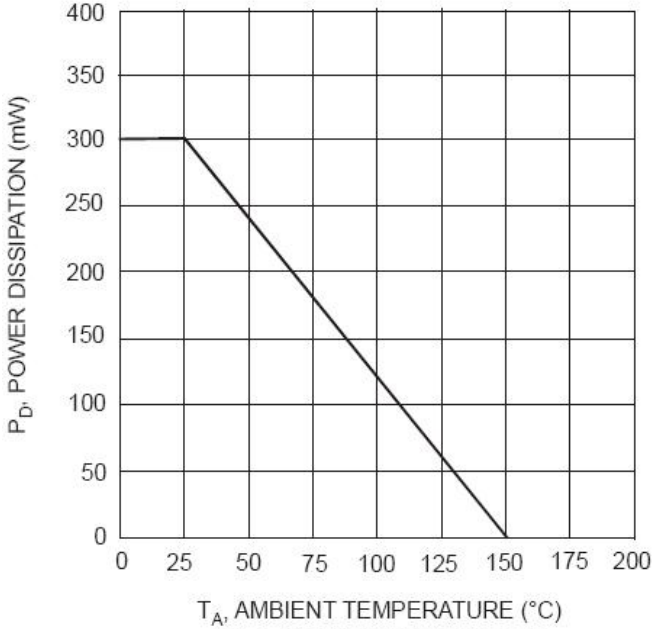


ELECTRICAL CHARACTERISTICS @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

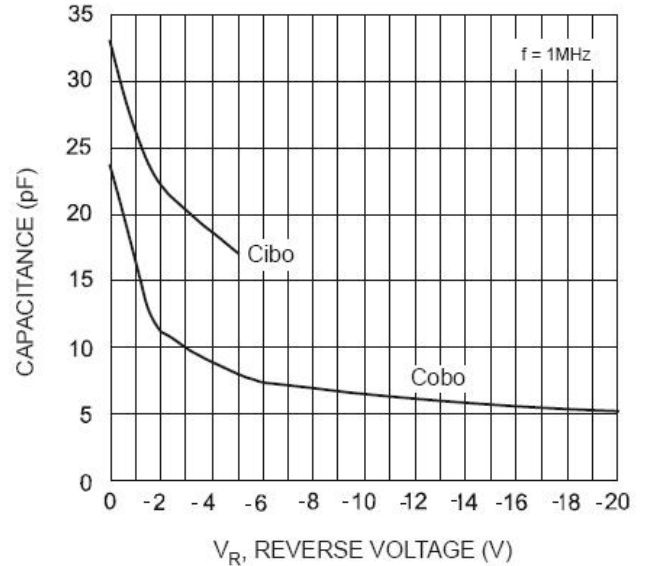
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=-10\text{pA } I_E=0$	-60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=-10\text{mA } I_B=0$	-60		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=-10\text{pA } I_C=0$	-5		V
Collector cut-off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



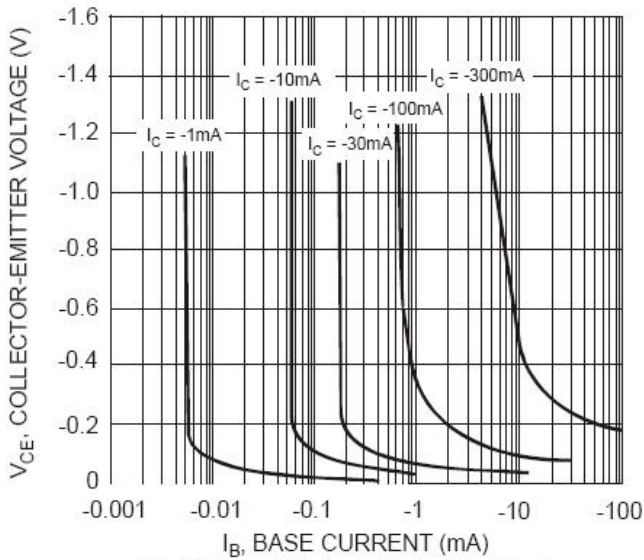
TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



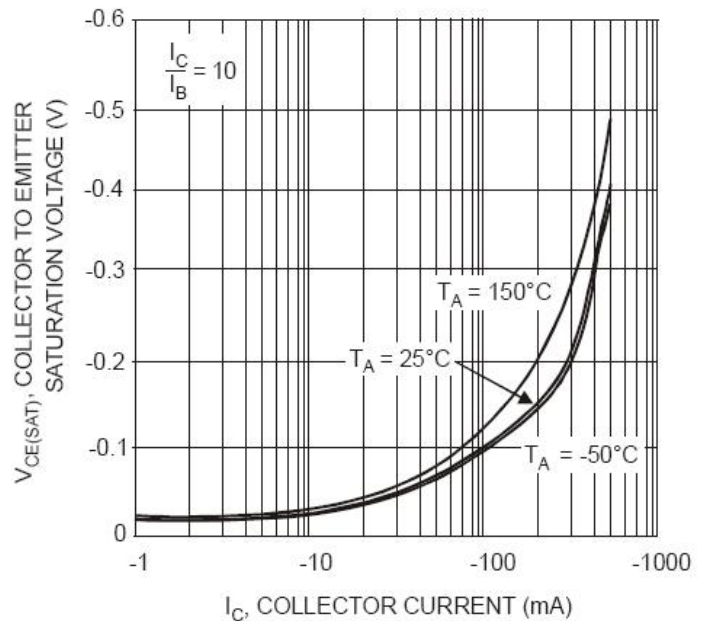
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
Fig. 1, Max Power Dissipation vs Ambient Temperature



V_R , REVERSE VOLTAGE (V)
Fig. 2, Typical Capacitance Characteristics



I_B , BASE CURRENT (mA)
Fig. 3, Typical Collector Saturation Region



I_C , COLLECTOR CURRENT (mA)
Fig. 4, Collector-Emitter Saturation Voltage vs. Collector Current

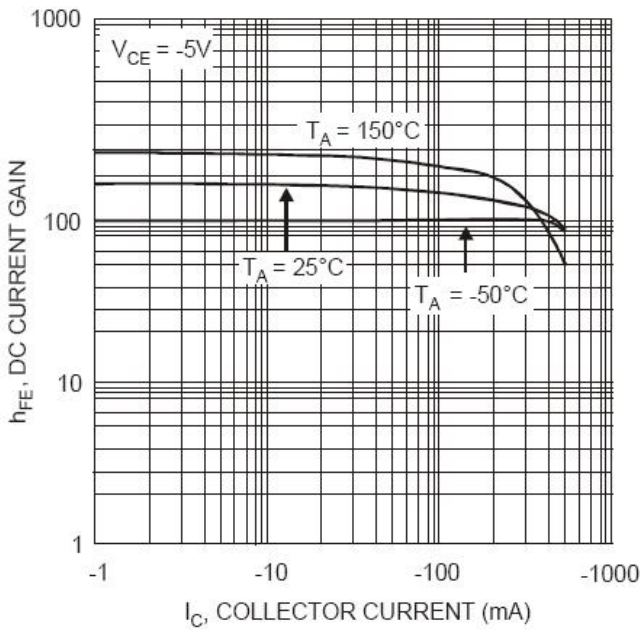


Fig. 5, DC Current Gain vs Collector Current

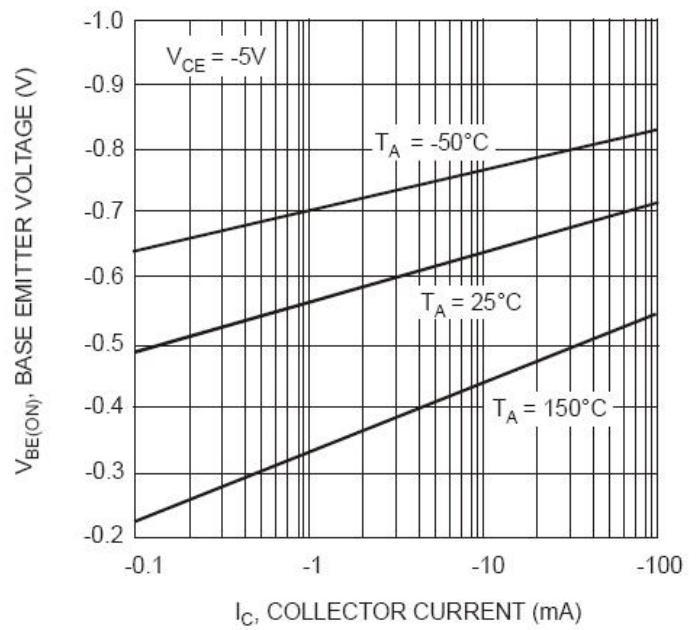


Fig. 6, Base-Emitter Voltage vs. Collector Current

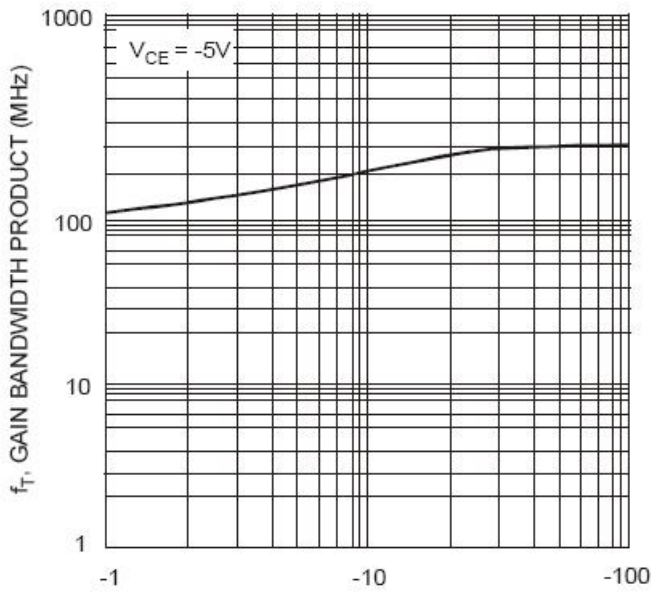


Fig. 7, Gain Bandwidth Product vs. Collector Current

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