

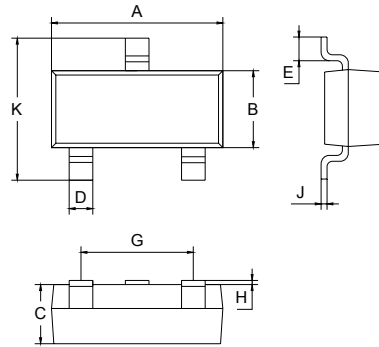
1. BASE
2. EMITTER
3. COLLECTOR

FEATURES

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

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	SOT-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 _{θjA}	Thermal Resistance Junction to Ambient	357	°C/W
T _j , T _{stg}	Junction and Storage Temperature	-55 to +150	°C

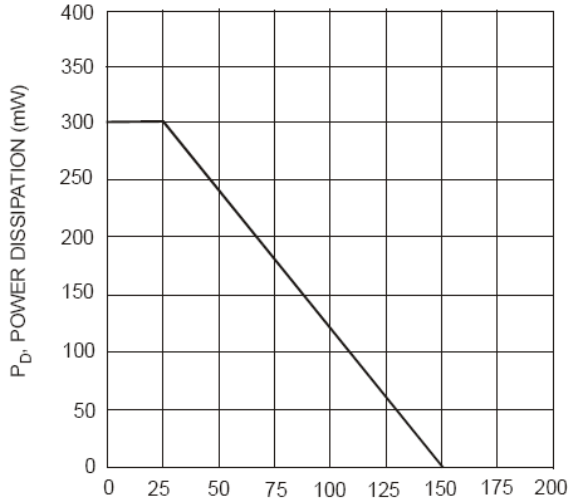
ESD RATING

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

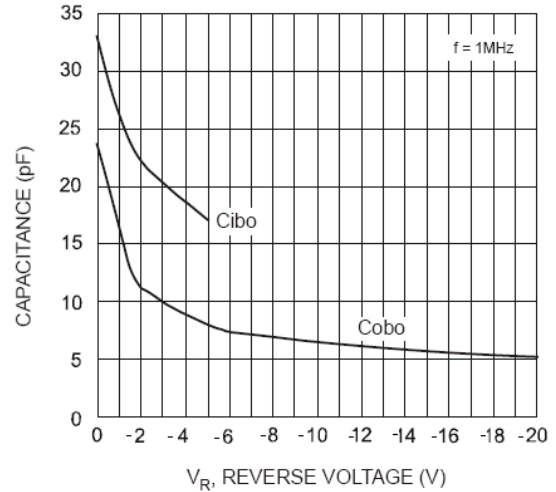
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -10\mu A$ $I_E = 0$	-60		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -10mA$ $I_B = 0$	-60		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -10\mu A$ $I_C = 0$	-5		V
Collector cut-off current	I_{CBO}	$V_{CB} = -50V$ $I_E = 0$ $V_{CB} = -50V$ $I_E = 0$ $T_A = 125^\circ C$		-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}	$V_{CE} = -10V$ $I_C = -100\mu A$ $V_{CE} = -10V$ $I_C = -1mA$ $V_{CE} = -10V$ $I_C = -10mA$ $V_{CE} = -10V$ $I_C = -150mA$ $V_{CE} = -10V$ $I_C = -500mA$	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	$V_{CE} = -6V$, $I_C = -150mA$		80	ns
Fall time	t_f	$I_{B1} = -I_{B2} = -15mA$		30	ns

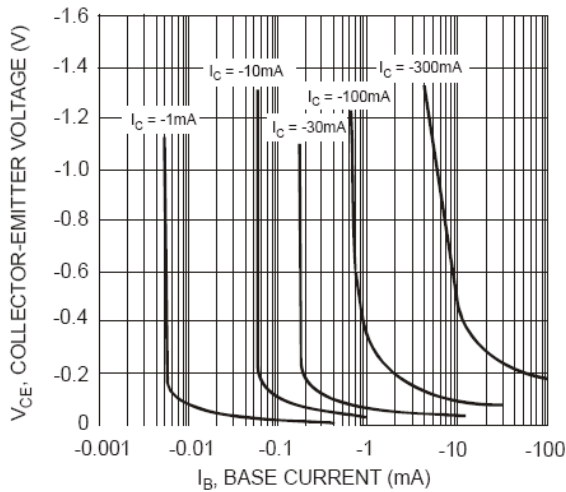
TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



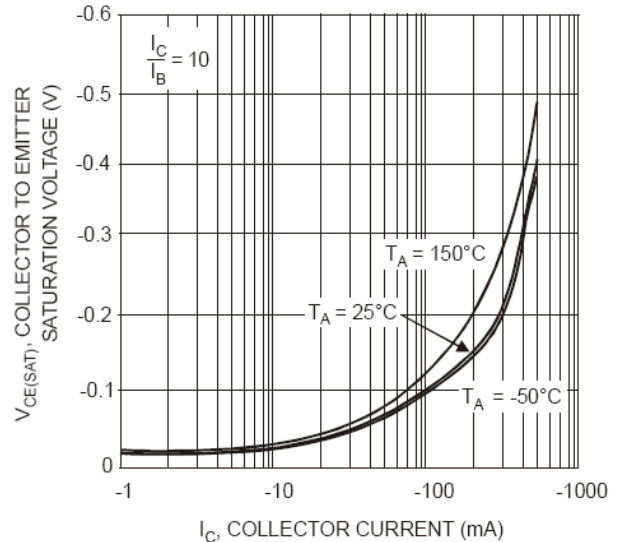
T_A , AMBIENT TEMPERATURE ($^\circ\text{C}$)
Fig. 1, Max Power Dissipation vs Ambient Temperature



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

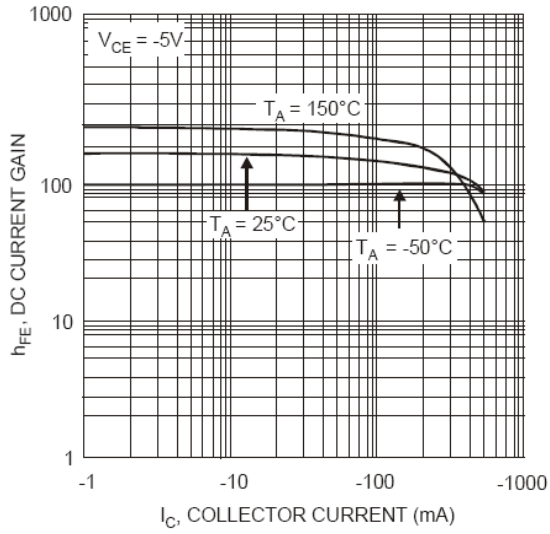


Fig. 5, DC Current Gain vs Collector Current

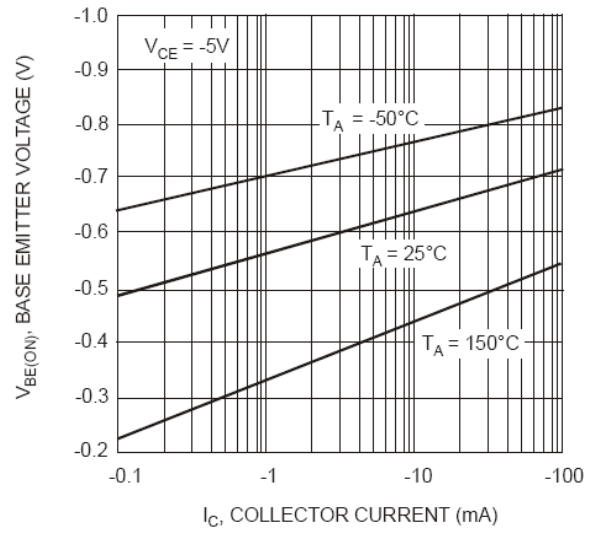


Fig. 6, Base-Emitter Voltage vs. Collector Current

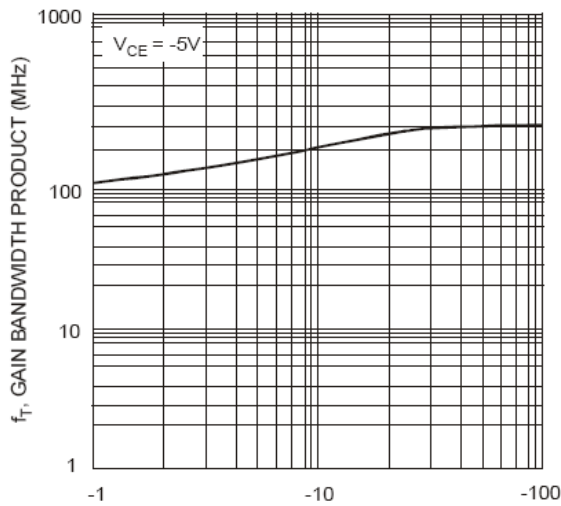


Fig. 7, Gain Bandwidth Product vs. Collector Current

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