

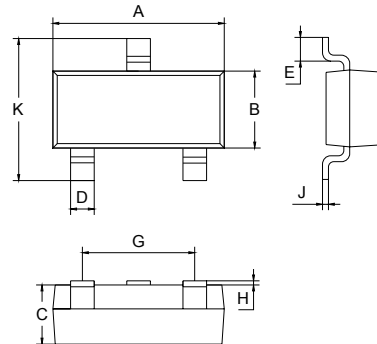
1. BASE
2. EMITTER
3. COLLECTOR

## FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available MMBT2907A.
- Ultra-small surface mount package.

## APPLICATIONS

- Use as a medium power amplifier.
- Switching requiring collector currents up to 500mA.



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
MMBT2222A	1P	SOT-23

## MAXIMUM RATING @ Ta=25°C unless otherwise specified

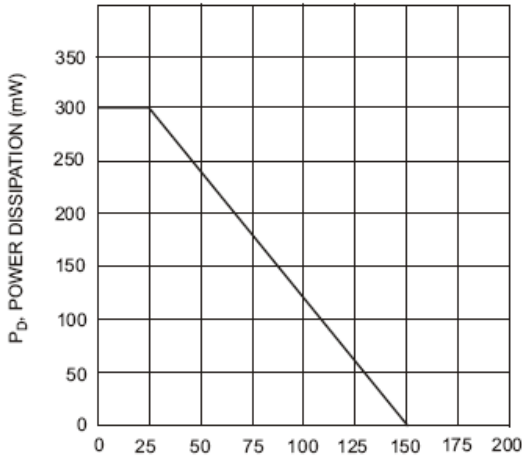
Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	75	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	600	mA
$P_C$	Collector Dissipation	300	mW
$R_{\theta JA}$	Thermal resistance junction to ambient	417	°C/W
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	°C

**ESD RATING**

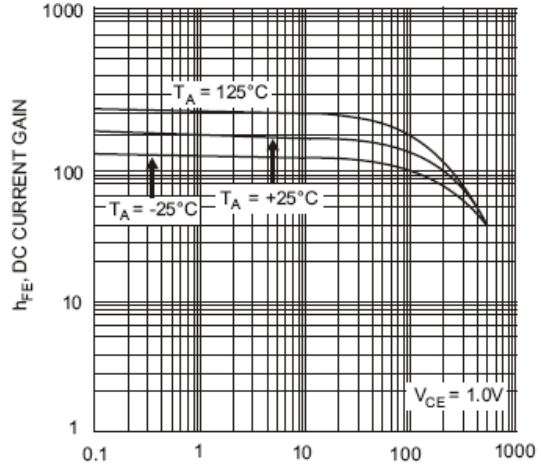
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	75			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA, I_B=0$	40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=60V, I_E=0$			0.01	$\mu A$
Collector cut-off current	$I_{CEX}$	$V_{CE}=60V, V_{BE}=-3.0V$			0.01	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3V, I_C=0$			0.01	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=10V, I_C=150mA$	100		300	
		$V_{CE}=10V, I_C=0.1mA$	35			
		$V_{CE}=10V, I_C=1.0mA$	50			
		$V_{CE}=10V, I_C=10mA$	75			
		$V_{CE}=10V, I_C=500mA$	40			
		$V_{CE}=1V, I_C=150mA$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$			1.0 0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=500mA, I_B=50mA$ $I_C=150mA, I_B=15mA$		0.6	2.0 1.2	V
Transition frequency	$f_T$	$V_{CE}=20V, I_C=20mA$ $f=100MHz$	300			MHz
Output capacitance	$C_{obo}$	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0		pF
Input capacitance	$C_{ibo}$	$V_{EB}=0.5V, I_C=0,$ $f=1.0MHz$		25		pF
Delay time	$t_d$	$V_{CC}=30V, V_{BE(off)}=-0.5V$ $I_C=150mA, I_{B1}=15mA$			10	ns
Rise time	$t_r$				25	ns
Storage time	$t_s$	$V_{CC}=30V, I_C=150mA$ $I_{B1}=-I_{B2}=15mA$			225	ns
Fall time	$t_f$				60	ns

**TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**


$T_A$ : AMBIENT TEMPERATURE (°C)  
Fig. 1 Max Power Dissipation vs Ambient Temperature



$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 2 Typical DC Current Gain vs Collector Current

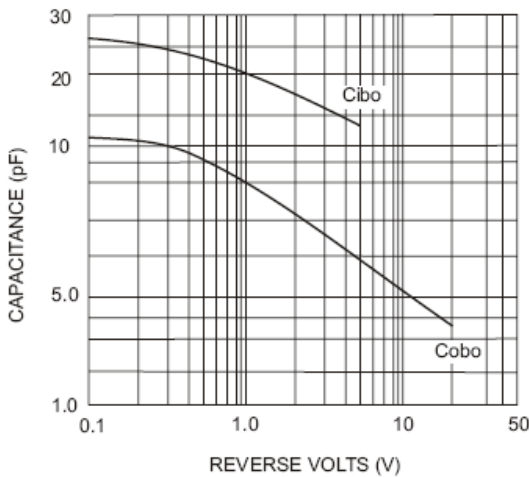
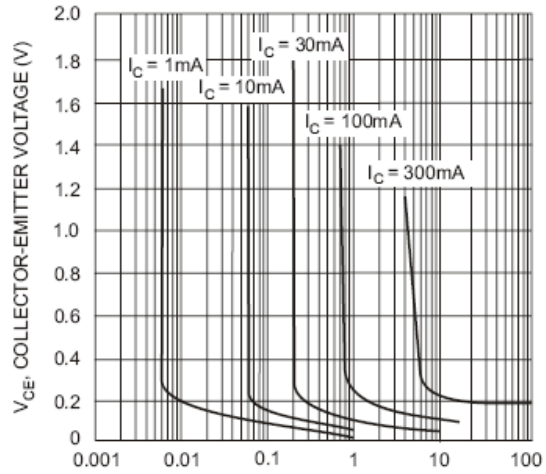
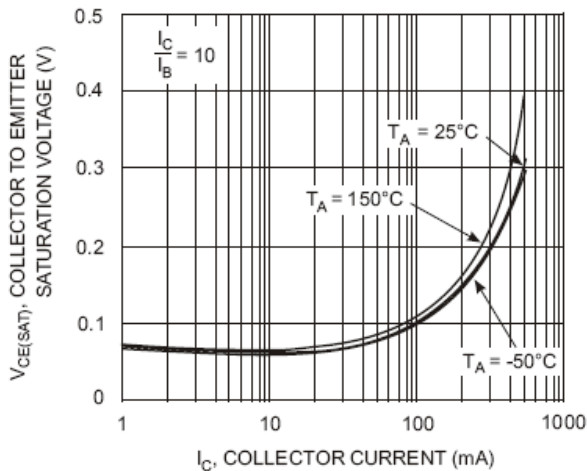


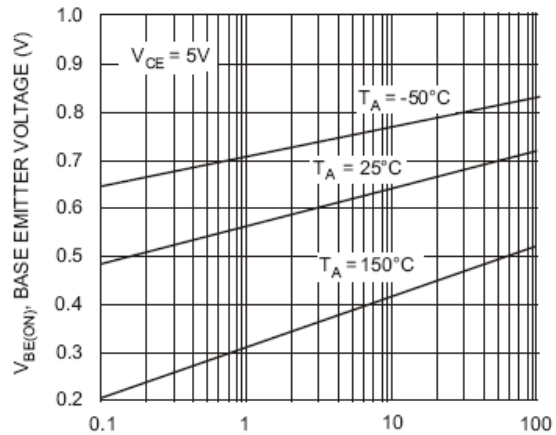
Fig. 3 Typical Capacitance



$I_B$ , BASE CURRENT (mA)  
Fig. 4 Typical Collector Saturation Region



$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current



$I_C$ , COLLECTOR CURRENT (mA)  
Fig. 6 Base Emitter Voltage vs. Collector Current

Device	Package	Shipping
MMBT2222A	SOT-23	3000/Tape&Reel