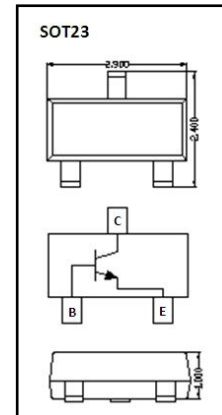


## DATA SHEET

### MMBT2222A

- ◇ Capable of 300mWatts of Power Dissipation
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ Surface Mount SOT-23 Package
- ◇ RoHS compliant / Green EMC

Device Marking Code	
MMBT2222A	1P



#### MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	75	V
V <sub>CE0</sub>	Collector-Emitter Voltage	40	V
V <sub>EB0</sub>	Emitter-Base Voltage	6	V
I <sub>c</sub>	Collector Current	600	mA
P <sub>c</sub>	Collector Power Dissipation	300	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	417	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

#### ELECTRICAL CHARACTERISTICS @ 25° C Unless Otherwise Specified

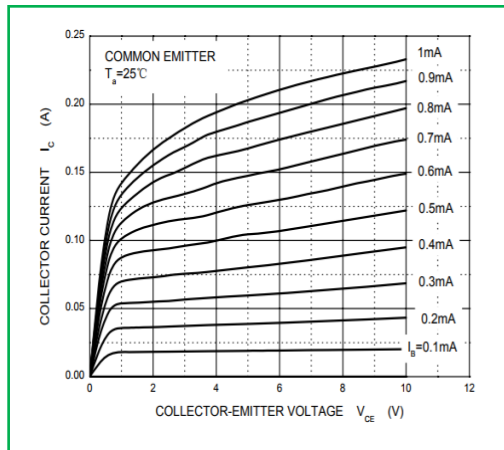
Symbol	Parameter	Test Conditions	Min	Max	Units
V <sub>CE0</sub>	Collector-Emitter Breakdown Voltage	I <sub>c</sub> =10mA, I <sub>B</sub> =0	40		V
V <sub>CB0</sub>	Collector-Base Breakdown Voltage	I <sub>c</sub> =10μA, I <sub>E</sub> =0	75		V
V <sub>EB0</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> =10μA, I <sub>c</sub> =0	6.0		V
I <sub>CEX</sub>	Collector Cutoff Current	V <sub>CE</sub> =60V, V <sub>BE</sub> =3.0V		10	nA

$h_{FE}$	DC Current Gain	$I_C=0.1mA, V_{CE}=10V$ $I_C=1.0mA, V_{CE}=10V$ $I_C=10mA, V_{CE}=10V$ $I_C=150mA, V_{CE}=10V$ $I_C=150mA, V_{CE}=10V$ $I_C=500mA, V_{CE}=10V$	35 50 75 100 50 40	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$		0.3 1.0	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$	0.6	1.2 2.0	V
$f_T$	Current Gain-Bandwidth Product	$I_C=20mA,$ $V_{CE}=20V, f=100MHz$	300		MHZ
$C_{cb}$	Collector-Base Capacitance	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	PF
$C_{eb}$	Emitter-Base Capacitance	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		25	PF

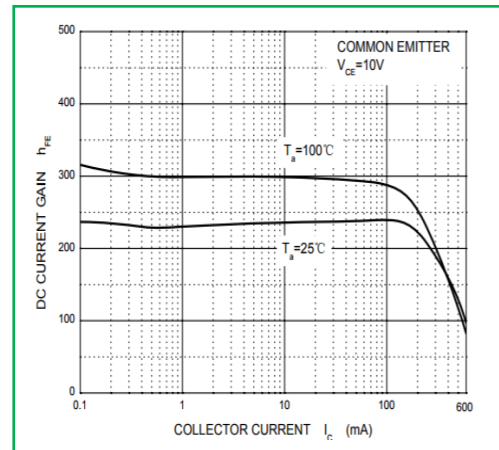
SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Max	Units
$t_d$	Delay Time	$V_{CC}=30V, V_{BE}=0.5V$ $I_C=150mA, I_{B1}=15mA$		10	ns
$t_r$	Rise Time			25	ns
$t_s$	Storage Time	$V_{CC}=30V, I_C=150mA$ $I_{B1}=I_{B2}=15mA$		225	ns
$t_f$	Fall Time			60	ns

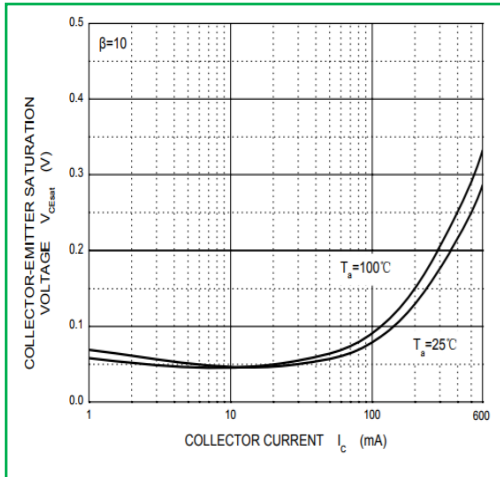
Typical Characteristics



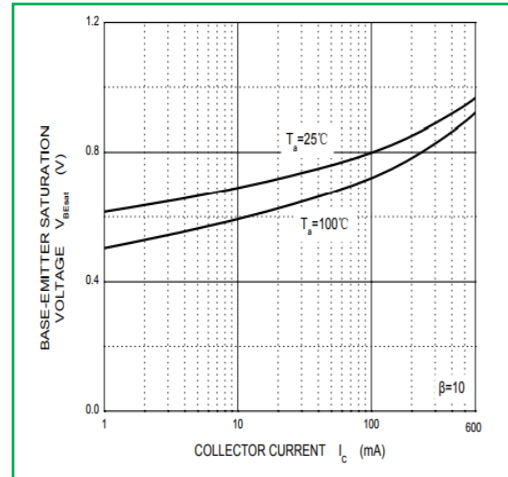
Static Characteristic



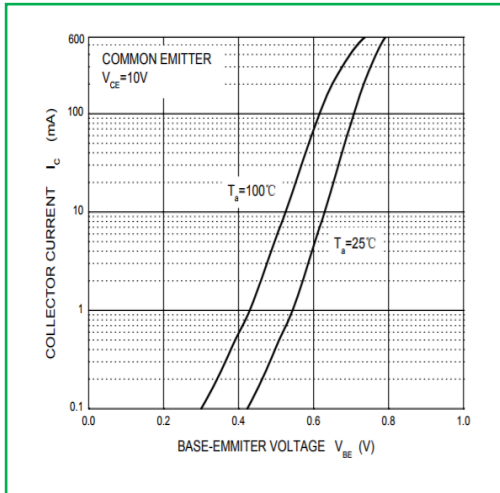
$h_{FE}-I_C$



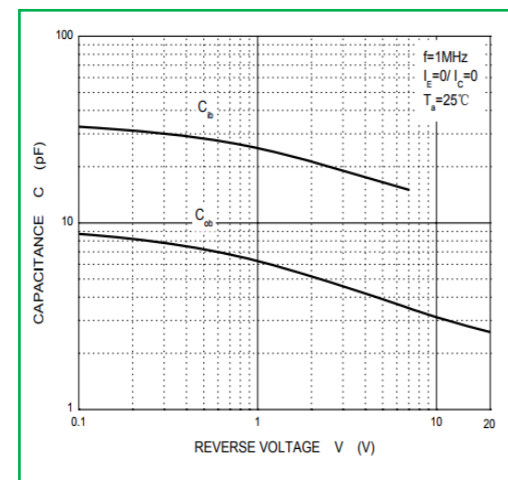
$V_{CEsat} - I_C$



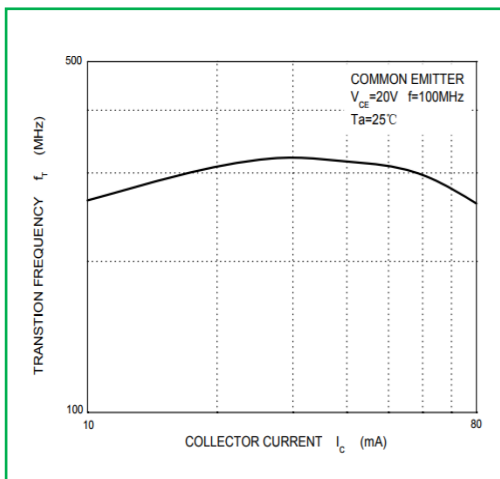
$V_{BEsat} - I_C$



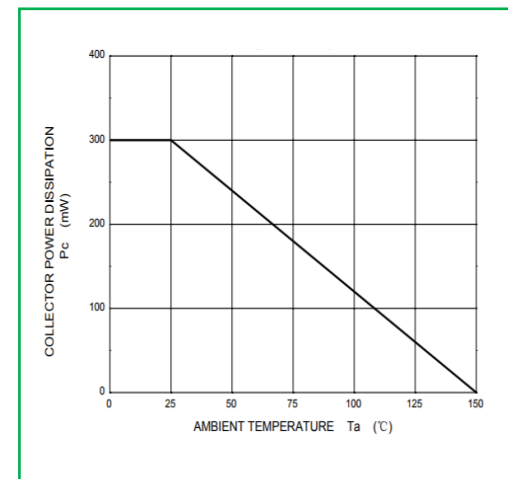
$I_C - V_{BE}$



$C_{ob}/C_{ib} - V_{CB} - V_{EB}$



$f_T - I_C$

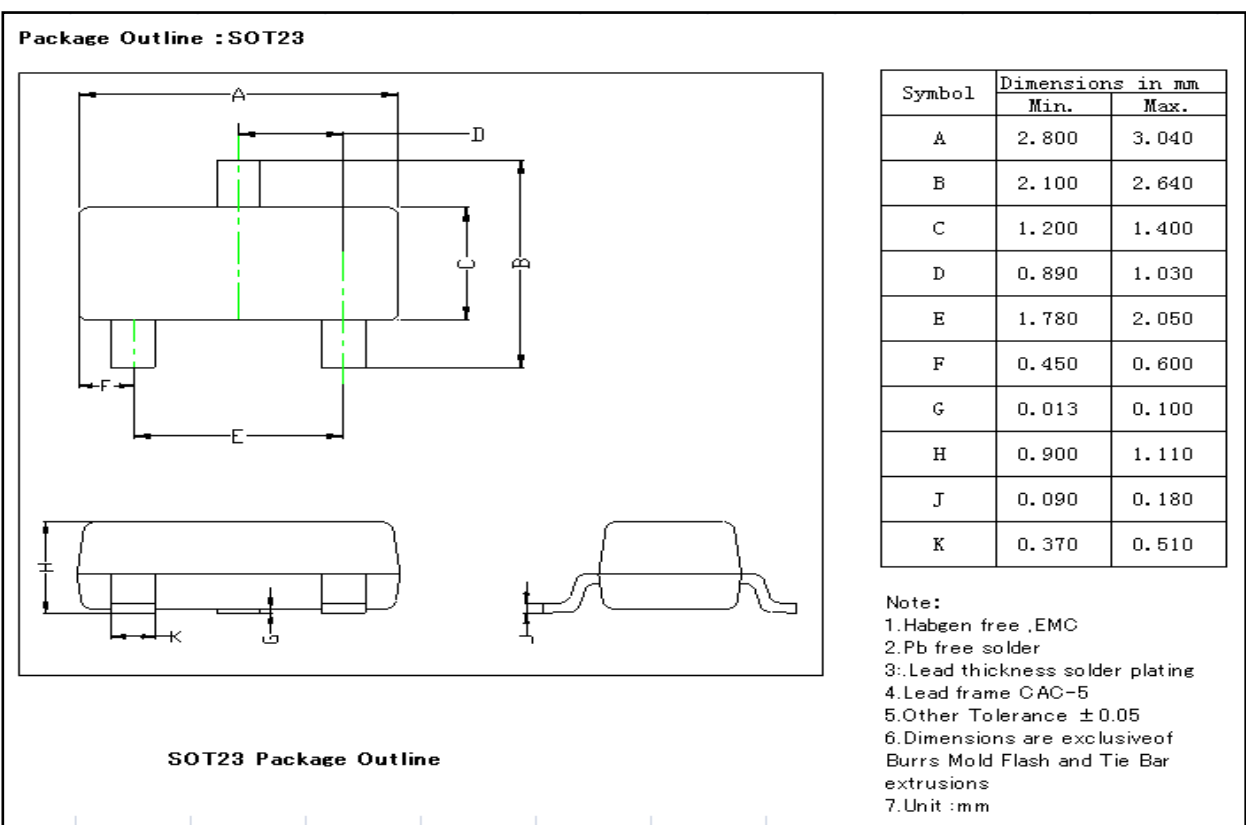


$P_C - T_a$

ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMBT2222A	SOT23	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

PACKAGE DIMENSIONS



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