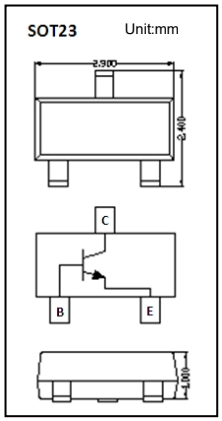
DATA SHEET

MMBT2222A



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

Device Marking Code	
MMBT2222A	1P

MAXIMUM RATINGS (Ta=25℃ unless otherwise noted)

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	600	mA
P_C	Collector Power Dissipation	300	mW
$R_{\Theta JA}$	Thermal Resistance From Junction To Ambient	417	℃/W
T_j	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55～+150	℃

ELECTRICAL CHARACTERISTICS @ 25° C Unless Otherwise Specified

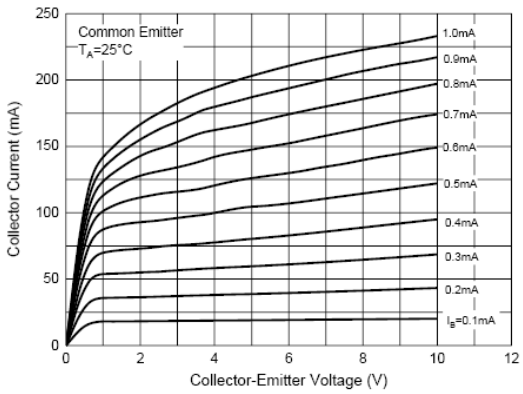
Symbol	Parameter	Test Conditions	Min	Max	Units
V_{CEO}	Collector-Emitter Breakdown Voltage	I_C=10mA, I_B=0	40		V
V_{CBO}	Collector-Base Breakdown Voltage	I_C=10μA, I_E=0	75		V
V_{EBO}	Emitter-Base Breakdown Voltage	I_E=10μA, I_C=0	6.0		V
I_{CBO}	Collector cut-off current	V_{CB}=60V, I_E=0		10	nA
I_{CEX}	Collector Cutoff Current	V_{CE}=60V, V_{BE}=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}=1.0V 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_{ob}	Collector-Base Capacitance	V_{CB}=10V, I_E=0, f=1.0MHz		8.0	PF
C_{ib}	Emitter-Base Capacitance	V_{BE}=0.5V, IC=0, f=1.0MHz		25	PF

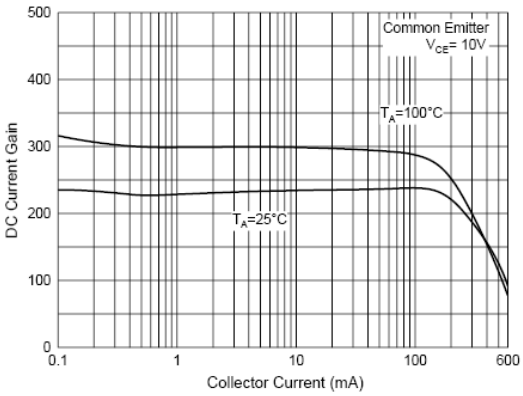
SWITCHING CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Max	Units
td	Delay Time	V_{CC}=30V, V_{BE}=0.5V I_C=150mA, I_{B1}=15mA		10	ns
tr	Rise Time			25	ns
ts	Storage Time	V_{CC}=30V, I_C=150mA I_{B1}=I_{B2}=15mA		225	ns
tf	Fall Time			60	ns

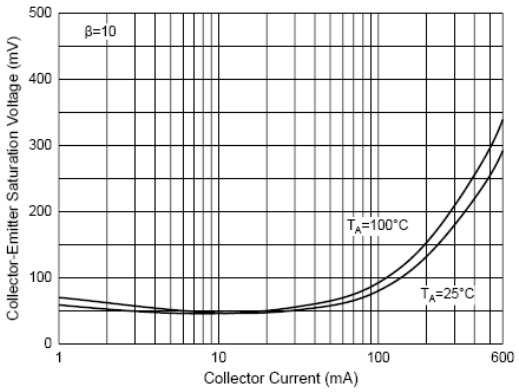
Typical Characteristics



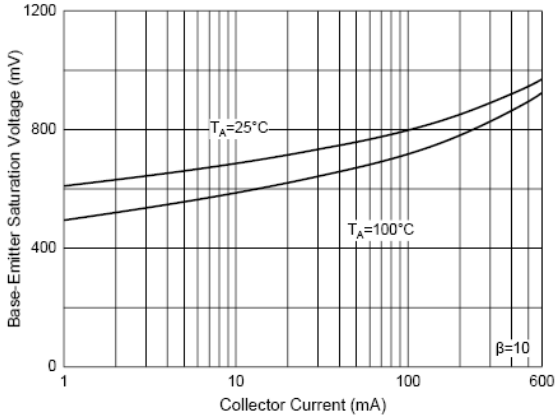
Static Characteristics



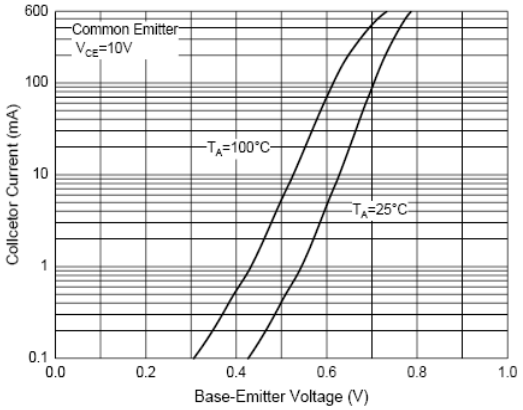
DC Current Gain Characteristics



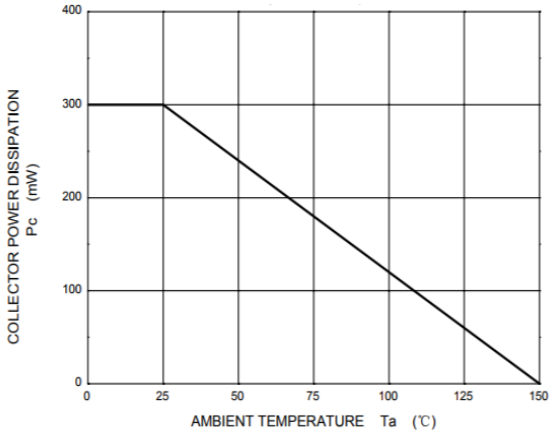
Collector-Emitter Saturation Voltage



Base-Emitter Saturation Voltage



Base-Emitter Voltage Characteristics



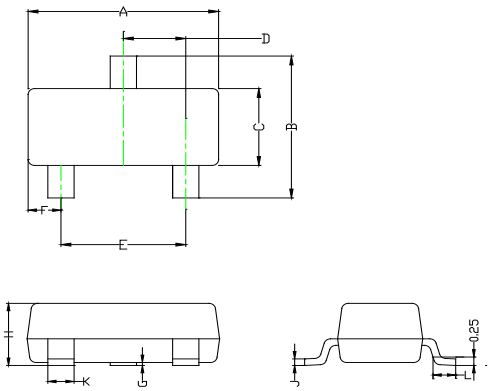
Collector Power Derating Curve

ORDERING INFORMATION

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

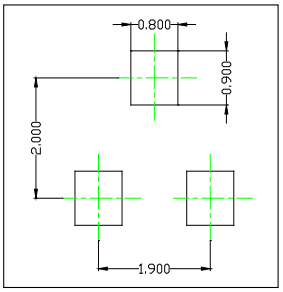
PACKAGE DIMENSIONS

Package outline : SOT23



Symbol	Dimensions in mm	
	Min.	Max.
A	2.800	3.040
B	2.100	2.640
C	1.200	1.400
D	0.890	1.030
E	1.780	2.050
F	0.450	0.600
G	0.013	0.100
H	0.900	1.110
J	0.085	0.180
K	0.370	0.510
L	0.300	0.500

SOT23 Package Outline



Land Pattern Recommendation

Notice:

1.Lead plating: Pb free solder
2.Lead thickness includes solder plating
3.Lead frame: CAC-5
4.Other Tolerance: ±0.05