

MMBT2222A

DATASHEET

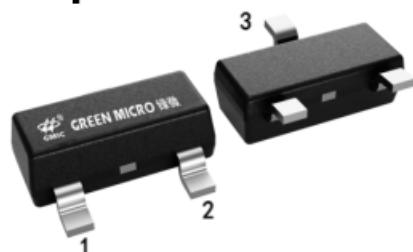
Specification Revision History:

Version	Date	Description
V1.0	2021/08	New
V1.1	2023/05	Modify Ordering Information
V1.2	2024/02	Modify Ordering Information
V1.3	2025/05	Add application precautions and overall typesetting.

Features

- ※SOT23 Plastic-Encapsulate Transistors (NPN)
- ※Collector currents up to 600 mA.
- ※General purpose amplifier.
- ※Complementary to MMBT2907A.

Simplified outline



- 1.Base
- 2.Emitter
- 3.Collector

SOT-23

Ordering Information

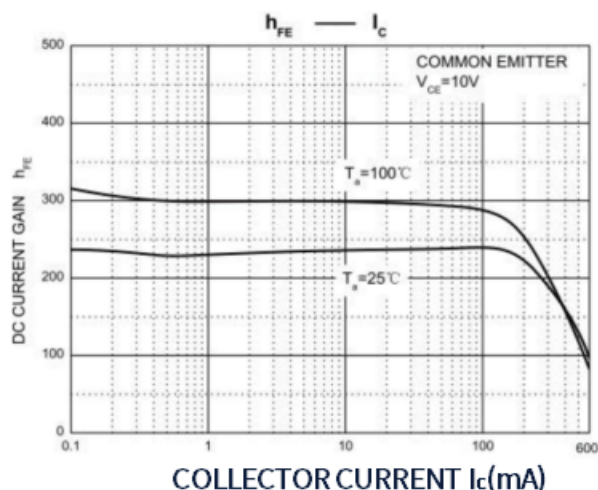
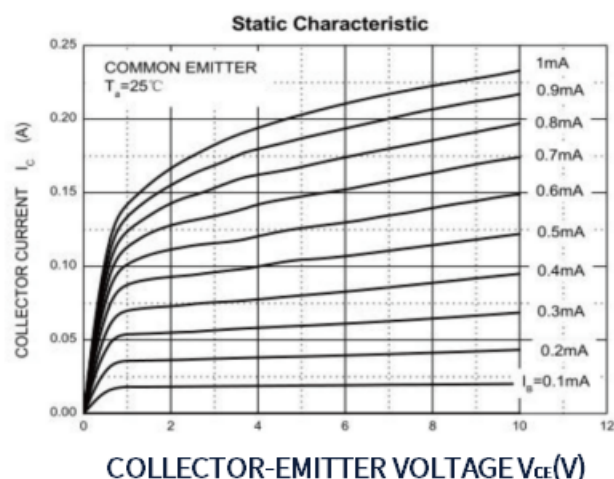
Product Model	Package Type	Marking	Packing	Packing Qty
MMBT2222A-GM	SOT-23	1P	REEL	3000 PCS/REEL

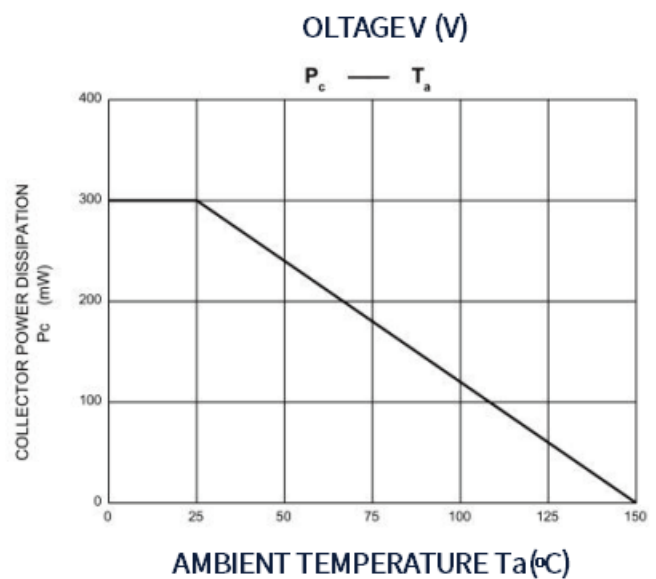
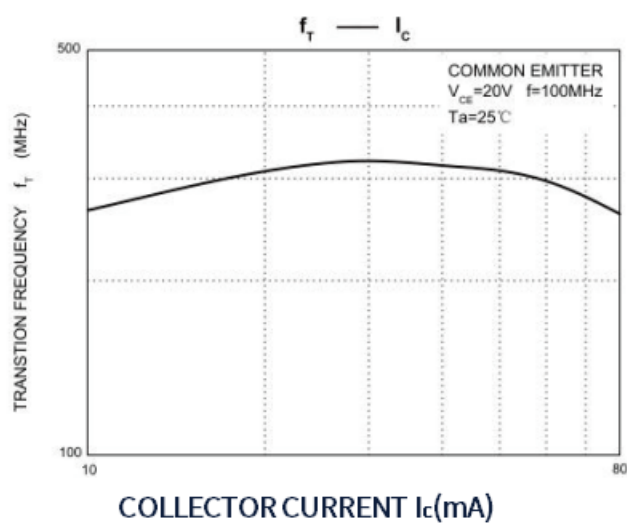
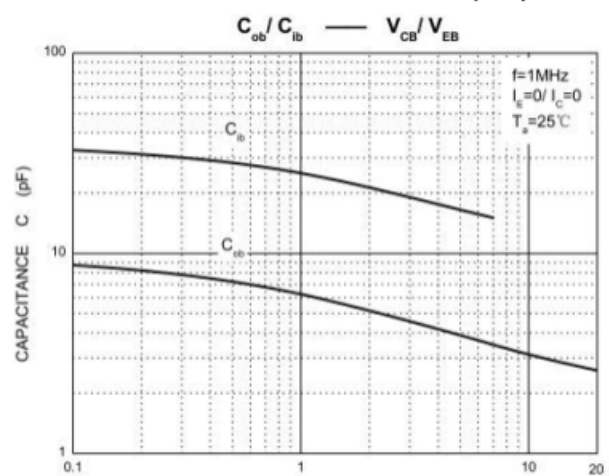
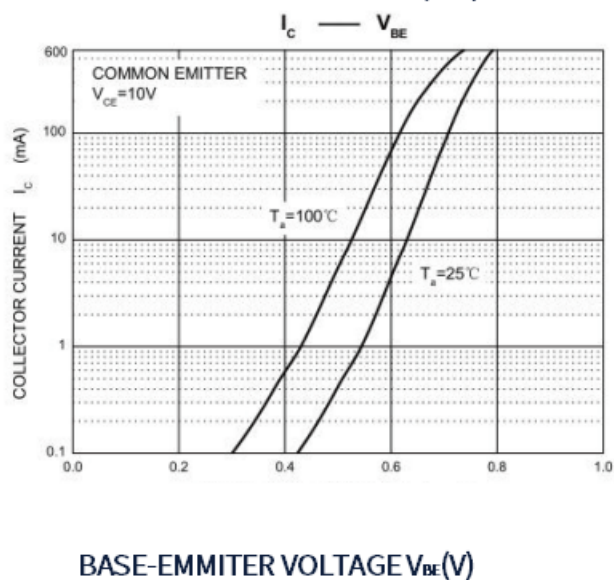
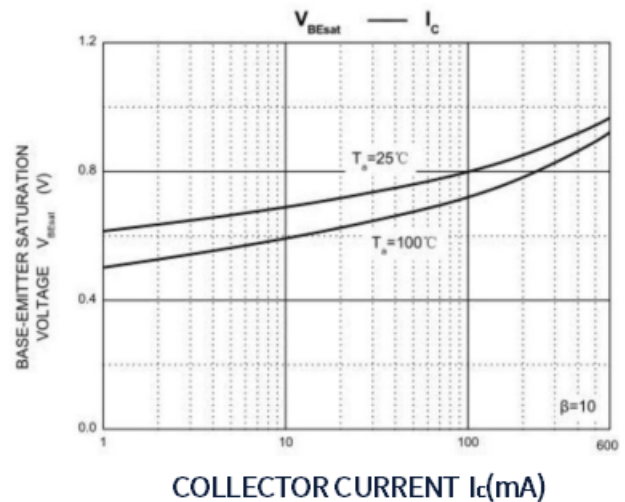
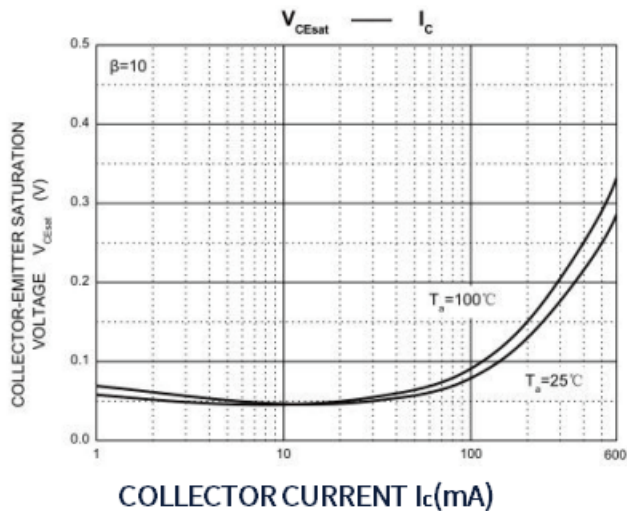
Absolute Maximum Ratings (TA=25°C)

Symbol	Parameter	Value	Unit
V _{CB0}	Collector-Base Voltage	75	V
V _{CE0}	Collector-Emitter Voltage	40	V
V _{EB0}	Emitter-Base Voltage	6	V
I _C	Collector Current	0.6	A
P _C	Collector Power Dissipation	300	mW
R _{θJA}	Thermal Resistance From Junction To Ambient	400	°C/W
T _J , T _{stg}	Operation Junction And Storage Temperature Range	-55~+150	°C/W

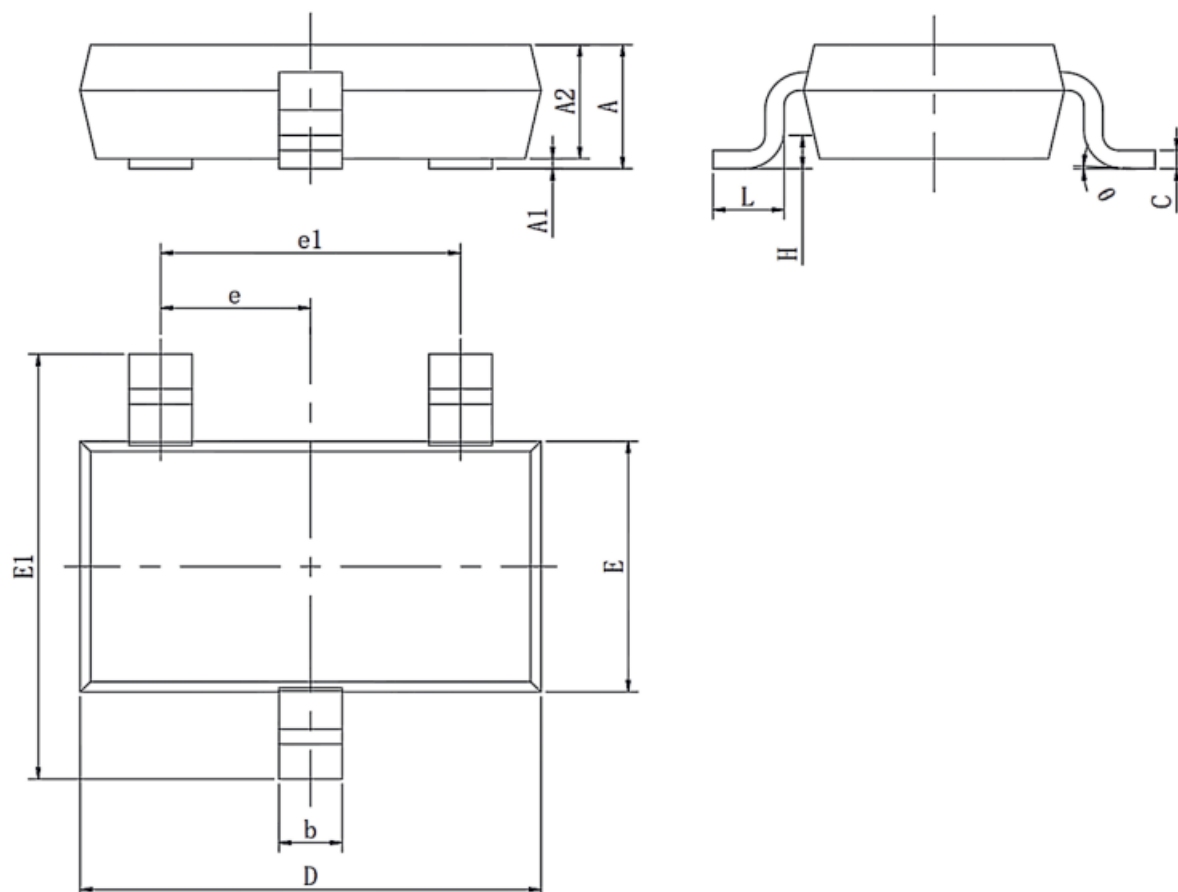
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C=10\mu\text{A}$, $I_E=0$	75			V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C=10\text{mA}$, $I_B=0$	40			V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E=10\mu\text{A}$, $I_C=0$	6			V
I_{CEX}	Collector cut-off current	$V_{CE}=30\text{V}$, $V_{EB(off)}=-3\text{V}$			10	nA
I_{CBO}	Collector cut-off current	$V_{CB}=60\text{V}$, $I_E=0$			10	nA
I_{EBO}	Emitter cut-off current	$V_{EB}=3\text{V}$, $I_C=0$			100	nA
$h_{FE(1)}$	DC current gain(1)	$V_{CE}=10\text{V}$, $I_C=150\text{mA}$	100		300	
$h_{FE(2)}$	DC current gain(2)	$V_{CE}=10\text{V}$, $I_C=0.1\text{mA}$	40			
$h_{FE(3)}$	DC current gain(3)	$V_{CE}=10\text{V}$, $I_C=500\text{mA}$	42			
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=150\text{mA}$, $I_B=15\text{mA}$			0.3	V
$V_{BE(sat)}$	Base-emitter saturation voltage				1.2	V
$V_{CE(sat)}$	Collector-emitter saturation voltage	$I_C=500\text{mA}$, $I_B=50\text{mA}$			1.0	V
$V_{BE(sat)}$	Base-emitter saturation voltage				2.0	V
f_T	Transition frequency	$V_{CE}=20\text{V}$, $I_C=20\text{mA}$, $f=100\text{MHz}$	300			MHz
t_d	Delay time	$V_{CE}=30\text{V}$, $V_{BE(off)}=-0.5\text{V}$, $I_C=150\text{mA}$, $I_{B1}=15\text{mA}$			10	ns
t_r	Rise time				25	ns
t_s	Storage time	$V_{CC}=3\text{V}$, $I_C=150\text{mA}$, $I_{B1}=I_{B2}=15\text{mA}$			225	ns
t_f	Fall time				60	ns

Typical Characteristics




Outline Dimensions

SOT-23
Unit : mm


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
C	0.080	0.200	0.003	0.008
D	2.800	3.020	0.110	0.119
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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