

MMBT2222A

MMBT2222A SOT-23 Plastic-Encapsulate Transistors(NPN)

General description

SOT-23 Plastic-Encapsulate Transistors(NPN)

FEATURES

- Complementary to MMBT2907A
- Power Dissipation of 300mW
- High Stability and High Reliability
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0



DEVICE MARKING CODE:

Device Type	Device Marking
MMBT2222A	1P

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

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

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbols	Test Condition	Limits		Unit
			Min	Max	
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_{CEX}	$V_{CE}=30V, V_{EB(off)}=3V$		10	nA
Collector cut-off current	I_{CBO}	$V_{CB}=60V, I_E=0$		10	nA
Emitter cut-off current	I_{EBO}	$V_{EB}=3V, I_C=0$		100	nA
DC current gain	$h_{FE(1)*}$	$V_{CE}=10V, I_C=150mA$	100	300	
	$h_{FE(2)*}$	$V_{CE}=10V, I_C=0.1mA$	40		
	$h_{FE(3)*}$	$V_{CE}=10V, I_C=500mA$	42		
Collector-emitter saturation voltage	$V_{CE(sat)1*}$	$I_C=500mA, I_B=50mA$		1.00	V
Collector-emitter saturation voltage	$V_{CE(sat)2*}$	$I_C=150mA, I_B=15mA$		0.30	V
Base -emitter saturation voltage	$V_{BE(sat)1*}$	$I_C=500mA, I_B=50mA$		2.00	V
Base -emitter saturation voltage	$V_{BE(sat)2*}$	$I_C=150mA, I_B=15mA$		1.20	V
Transition frequency	f_T	$V_{CE}=20V, I_C=20mA, f=100MHz$	300		MHz
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

*Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2.0\%$



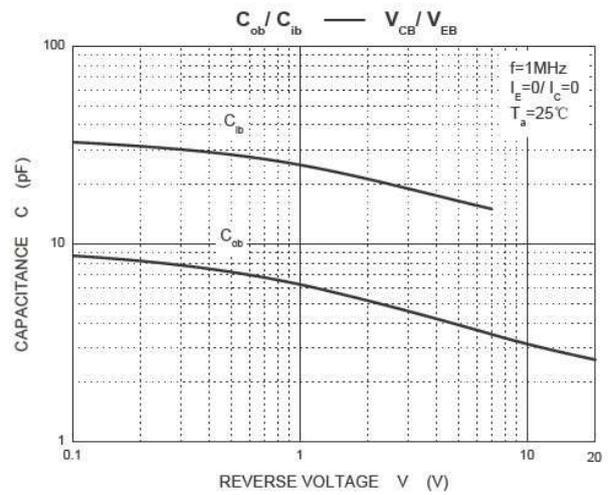
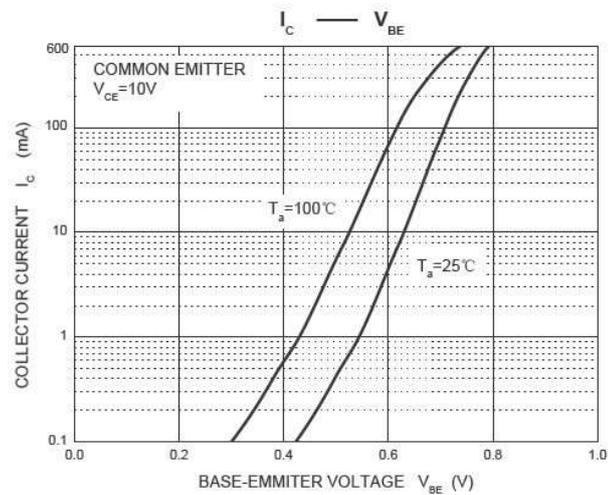
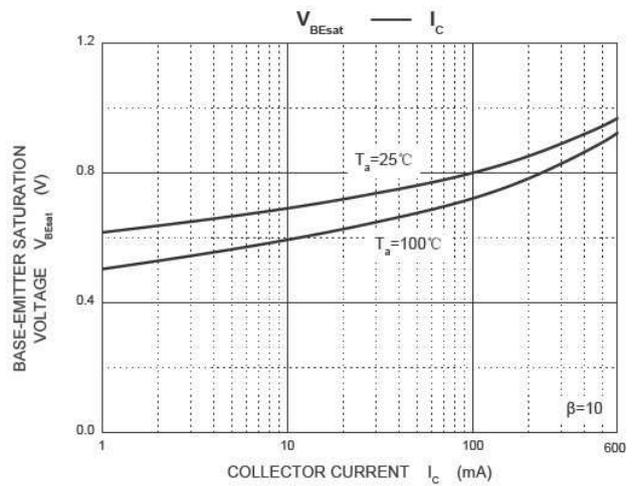
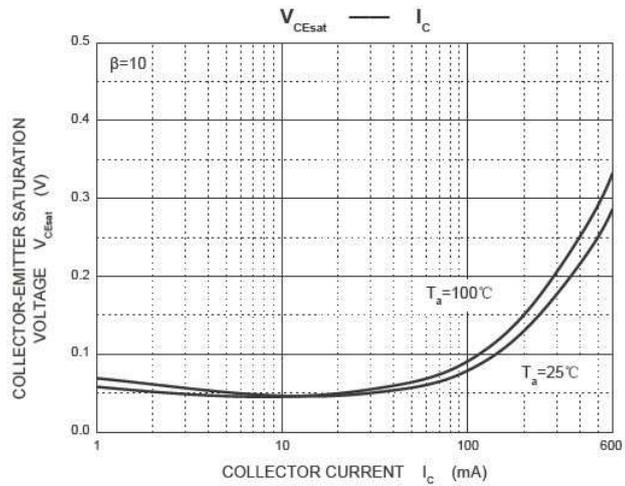
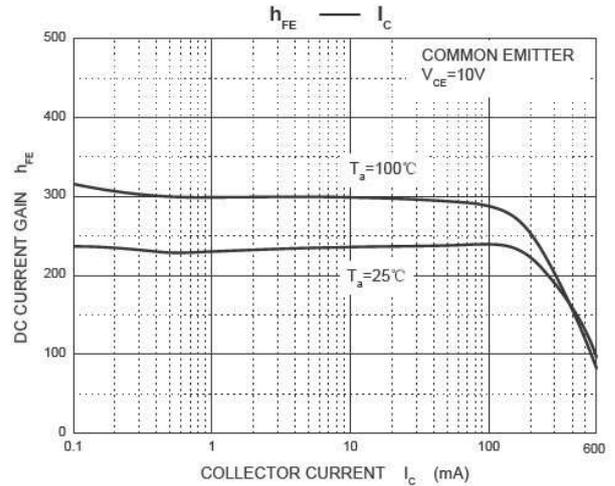
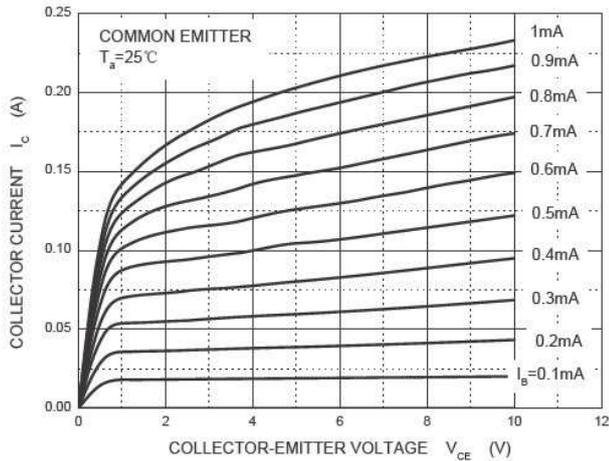
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CLASSIFICATION OF hFE(1)

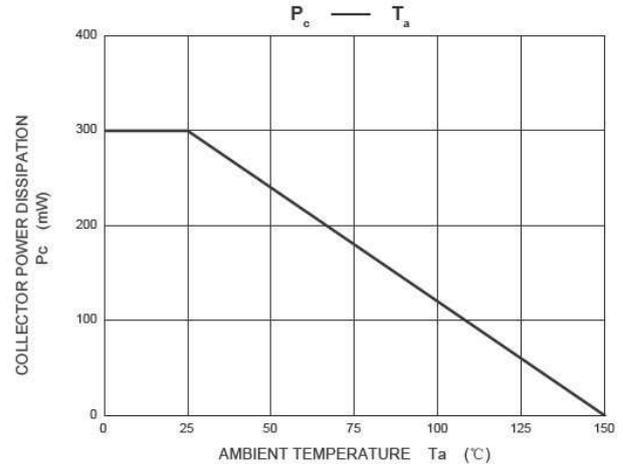
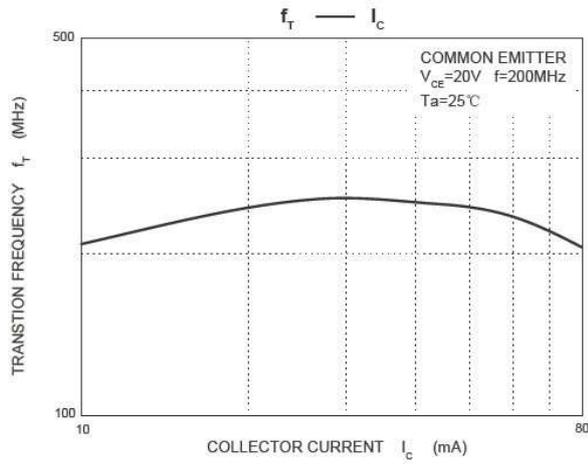
HFE	100-300	
RANK	L	H
RANGE	100-200	200-300

RATING AND CHARACTERISTIC CURVES

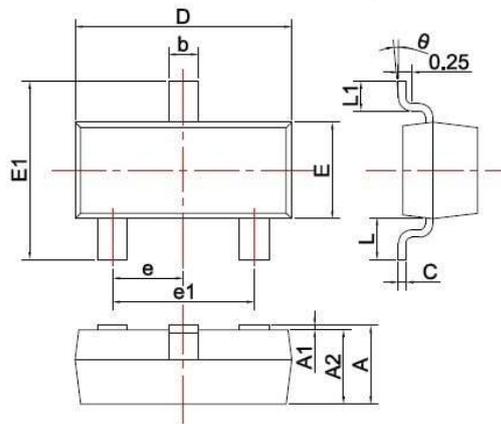
Static Characteristic



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SOT-23 PACKAGE OUTLINE Plastic surface mounted package

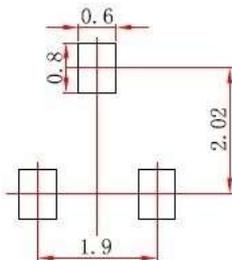


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05mm$.
3. The pad layout is for reference purposes only.

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