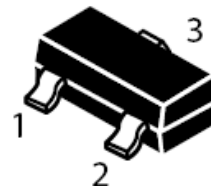
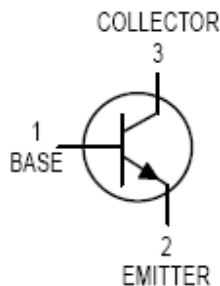


**NPN General Purpose Transistor**
**FEATURES**

- Ideal for Medium Power Amplification and Switching
- Complementary PNP Type available(MMST2907A)

**MECHANICAL DATA**

- Case: SOT-323 Plastic
- Case material: "Green" molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead Free in RoHS 2002/95/EC Compliant

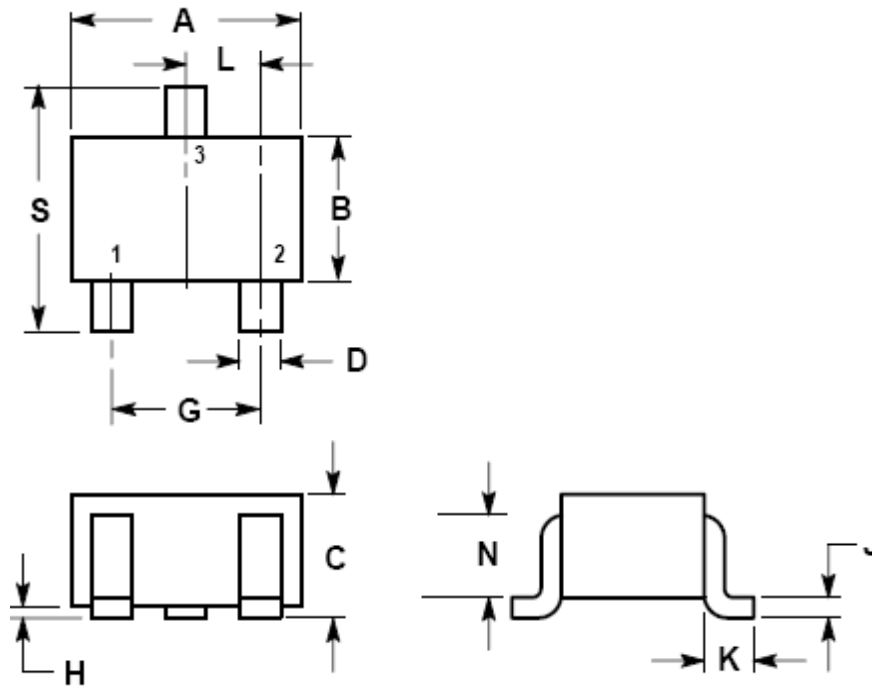

**Maximum Ratings @  $T_A = 25^\circ\text{C}$** 

Characteristic	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	$P_C$	200	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55~+150	$^\circ\text{C}$

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

Characteristic	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	$I_C=10\mu\text{A}, I_E=0$	$V_{CBO}$	75			V
Collector-emitter breakdown voltage	$I_C=10\text{mA}, I_B=0$	$V_{CEO}$	40			V
Emitter-base breakdown voltage	$I_E=10\mu\text{A}, I_C=0$	$V_{EBO}$	6			V
Collector-base cut-off current	$V_{CB}=70\text{V}, I_E=0$	$I_{CBO}$			0.1	$\mu\text{A}$
Collector-emitter cut-off current	$V_{CE}=35\text{V}, V_{BE(off)}=3\text{V}$	$I_{CEX}$			0.1	$\mu\text{A}$
Emitter-base cut-off current	$V_{EB}=3\text{V}, I_C=0$	$I_{EBO}$			0.1	$\mu\text{A}$
DC current gain	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	$h_{FE1}$	35			
	$V_{CE}=10\text{V}, I_C=1\text{mA}$	$h_{FE2}$	50			
	$V_{CE}=10\text{V}, I_C=10\text{mA}$	$h_{FE3}$	75			
	$V_{CE}=10\text{V}, I_C=150\text{mA}$	$h_{FE4}$	100		300	
	$V_{CE}=10\text{V}, I_C=500\text{mA}$	$h_{FE5}$	40			
	$V_{CE}=1\text{V}, I_C=150\text{mA}$	$h_{FE6}$	35			
Collector-emitter saturation voltage	$I_C=500\text{mA}, I_B=50\text{mA}$	$V_{CE(sat)1}$			1	V
	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{CE(sat)2}$			0.3	V
Base-emitter saturation voltage	$I_C=500\text{mA}, I_B=50\text{mA}$	$V_{BE(sat)1}$			2	V
	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{BE(sat)2}$			1.2	V
Transition frequency	$V_{CE}=2\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	$f_T$	300			MHz
Output Capacitance	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	$C_{ob}$			8	pF
Delay time	$V_{CC}=30\text{V}, V_{BE(off)}=-0.5\text{V}$	$T_d$			10	nS
Rise time	$I_C=150\text{mA}, I_{B1}=15\text{mA}$	$T_r$			25	nS
Storage time	$V_{CC}=30\text{V}, I_C=150\text{mA}$	$T_s$			225	nS
Fall time	$I_{B1}=-I_{B2}=15\text{mA}$	$T_f$			60	nS

### SOT-323 Outline Dimension



Symbol	Dimension In Millimeters	
	Min	Max.
A	1.80	2.20
B	1.15	1.35
C	0.80	1.00
D	0.30	0.40
G	1.20	1.40
H	0.00	0.10
J	0.10	0.25
K	0.425 REF	
L	0.650 BSC	
N	0.700 REF	
S	2.00	2.40

#### Device Marking :

Device P/N	Marking code
MMST2222A	P1

Electrical characteristic curves

Fig.1 DC Current Gain vs. Collector Current

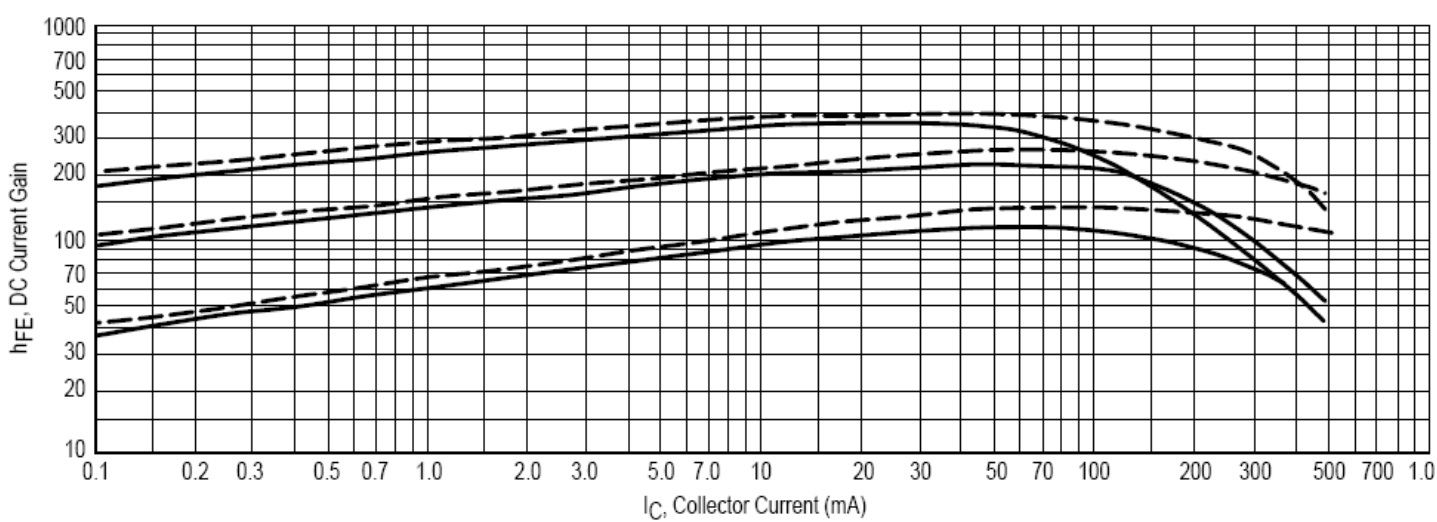


Fig.2 Collector Saturation Region

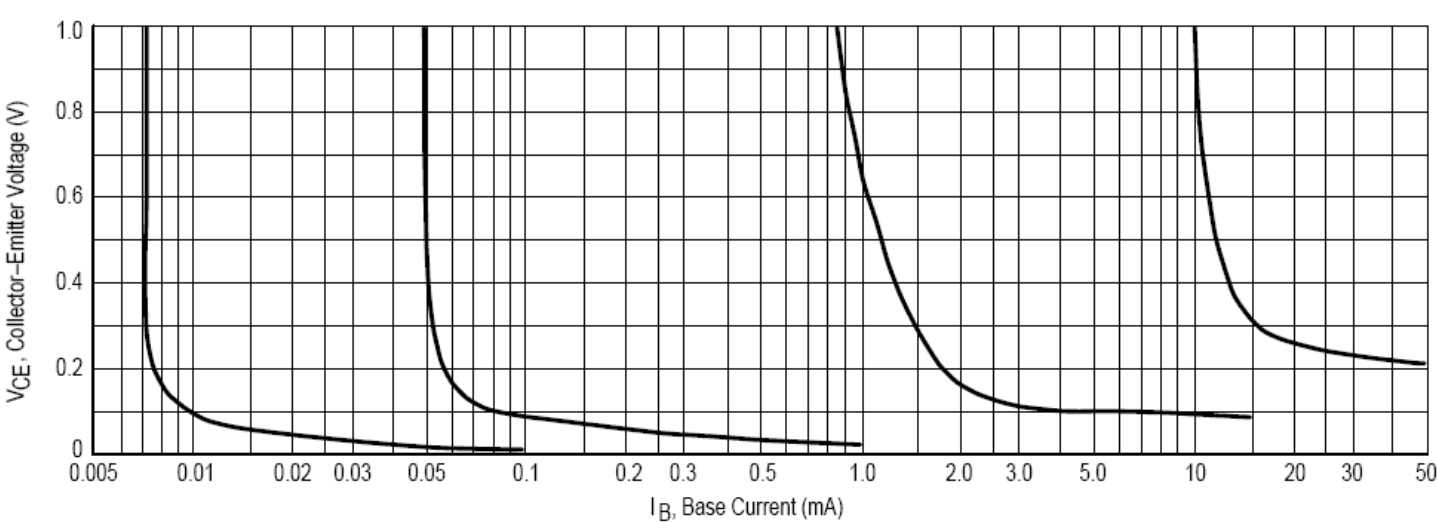


Fig.3 Turn-On Time

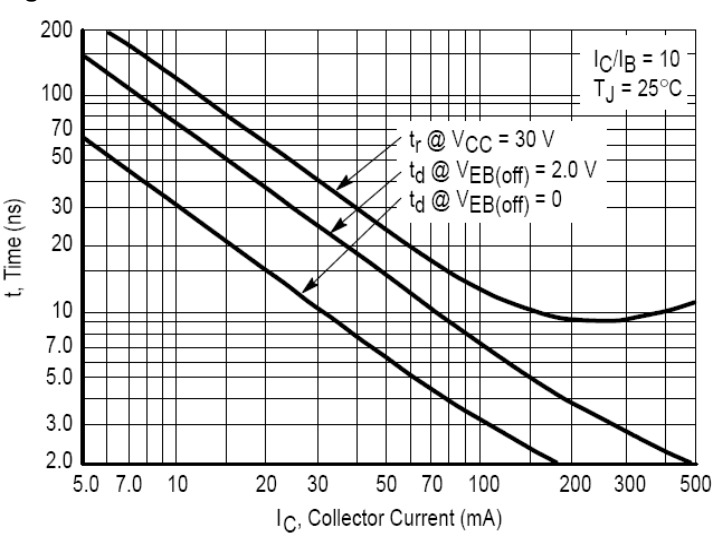
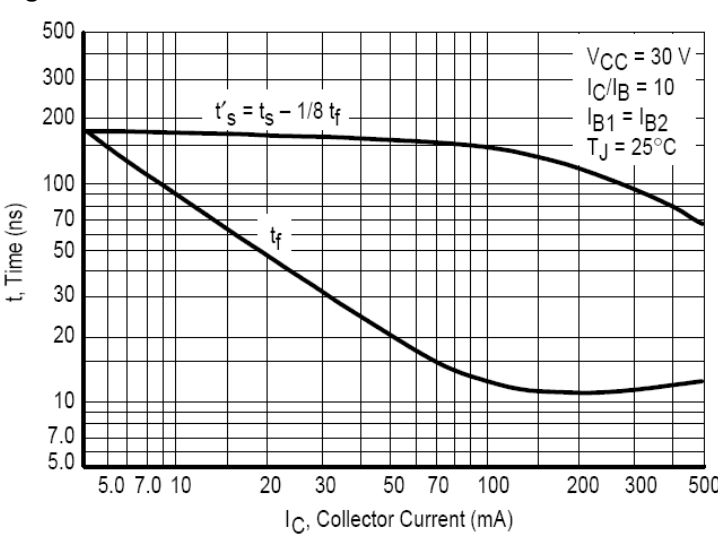
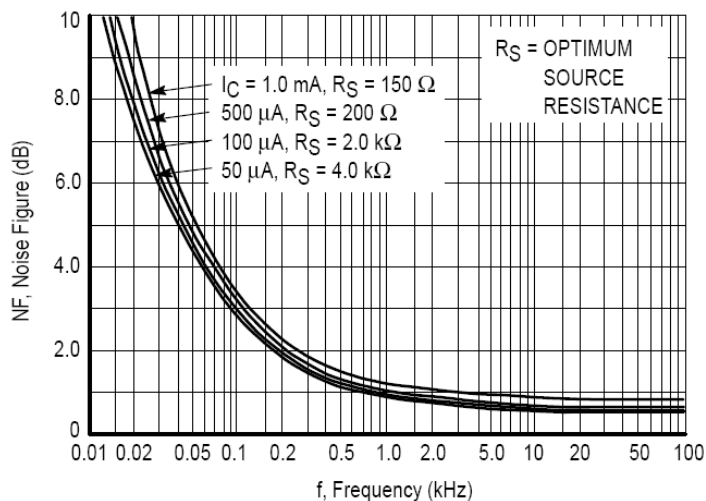


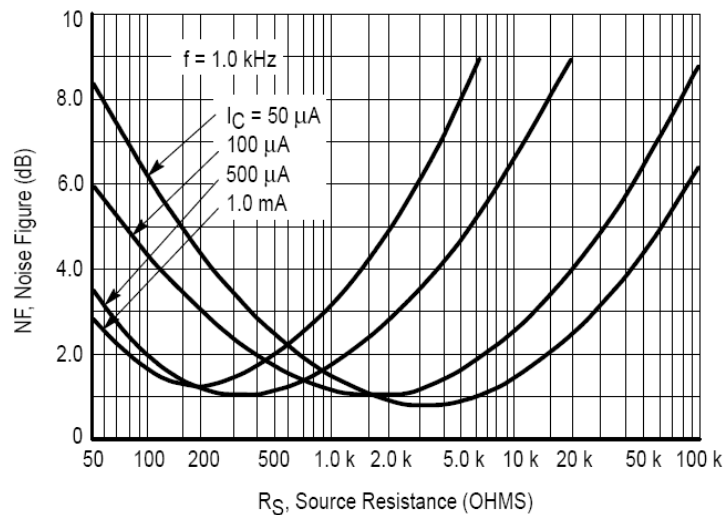
Fig.4 Turn-Off Time



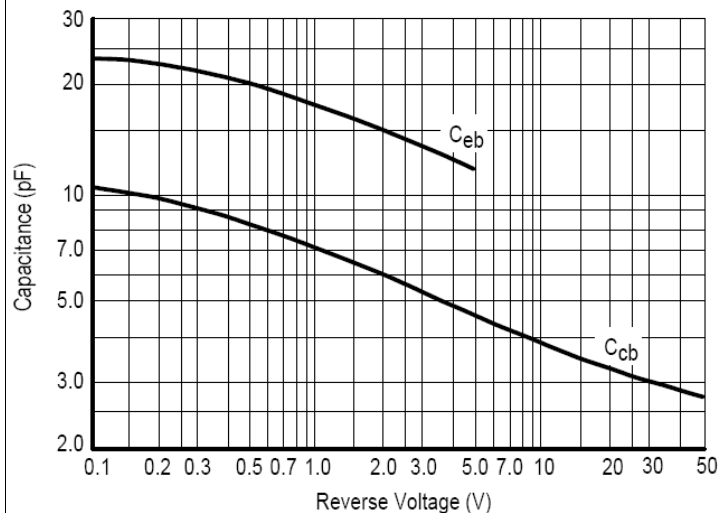
**Fig.5 Frequency Effects**



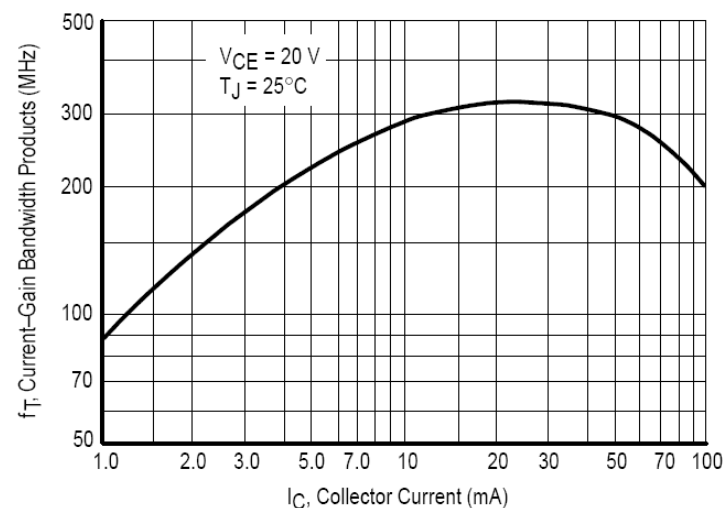
**Fig.6 Source Resistance Effects**



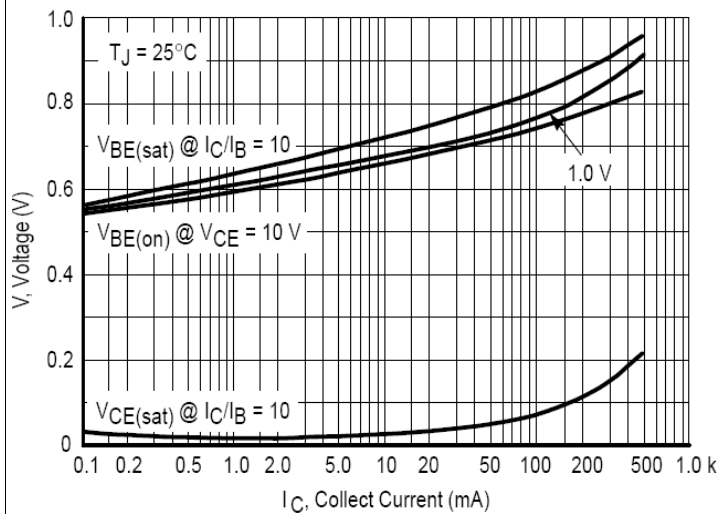
**Fig.7 Capacitances**



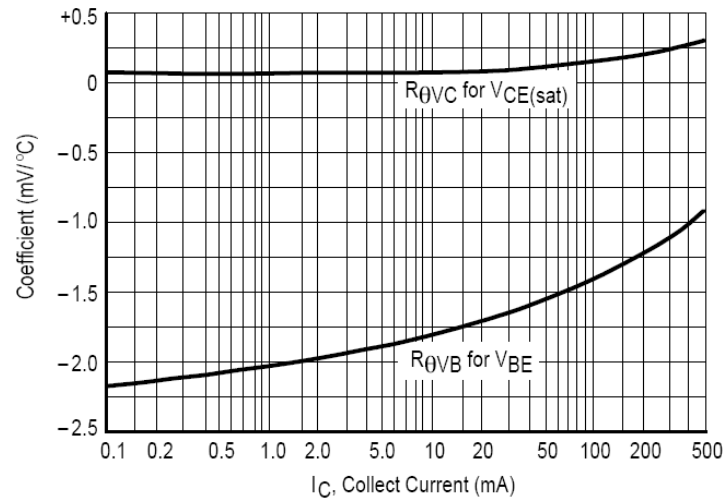
**Fig.8 Current-Gain Bandwidth Product**



**Fig.9 "On" Voltages**



**Fig.10 Temperature Coefficients**



## **Important Notice and Disclaimer**

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## New Marking Rule Notification

Range: In order to have well management in process control, the new marking rule is applied to small signal device including Switching Diode, Transistor and Schottky Diode.

Package: SOT-23 / SOT-323 / SOT-523

