

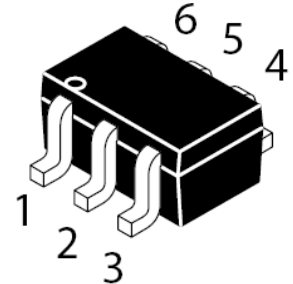
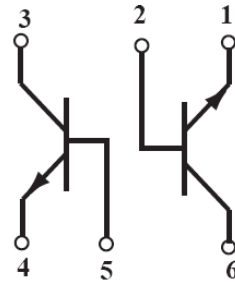
NPN/NPN Multi-Chip Transistor

FEATURES

- Ideal for low power amplification and switching

MECHANICAL DATA

- Case: SOT-363 Plastic
- Case material: "Green" molding compound, UL flammability classification 94V-0, (No Br. Sb. Cl)
- Lead Free in RoHS 2002/95/EC Compliant



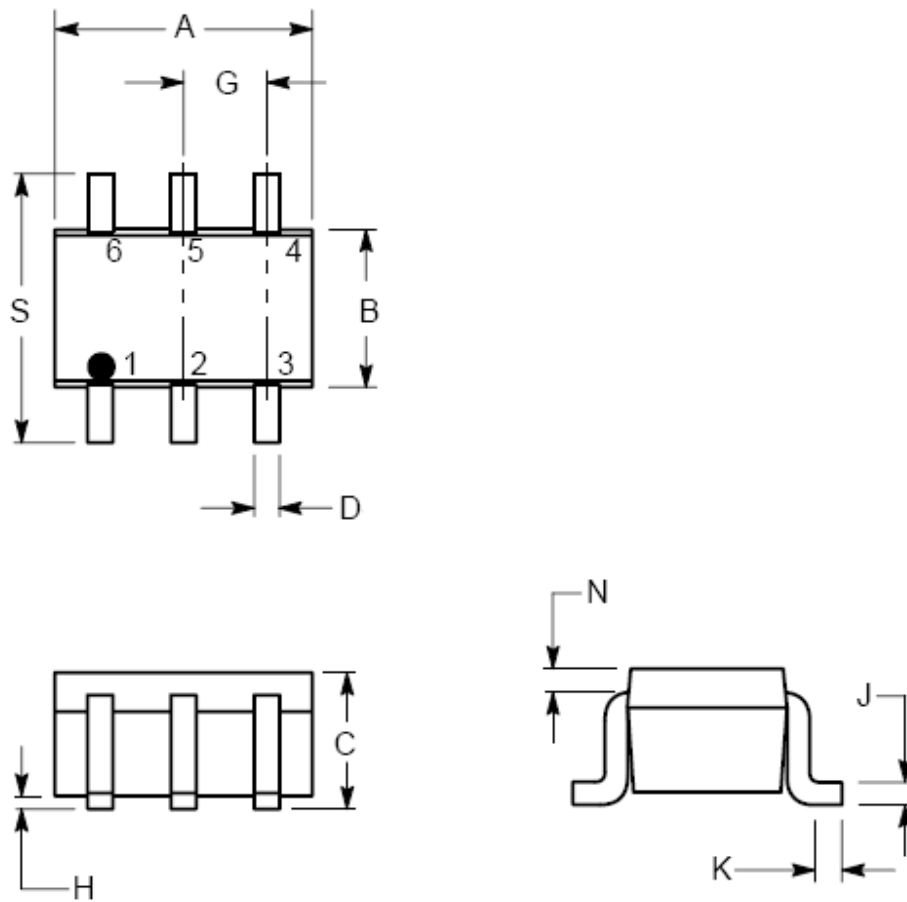
Maximum Ratings @ $T_A = 25^\circ\text{C}$

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
Total Power Dissipation	P_D	150	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	$V_{CB}=60\text{V}, I_E=0$	I_{CBO}			0.01	μA
Emitter-base cut-off current	$V_{EB}=3\text{V}, I_C=0$	I_{EBO}			0.1	μA
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	
	$V_{CE}=1\text{V}, I_C=150\text{mA}$	h_{FE5}	50			
	$V_{CE}=10\text{V}, I_C=500\text{mA}$	h_{FE6}	40			
Collector-emitter saturation voltage	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{CE(sat)1}$			0.3	V
	$I_C=500\text{mA}, I_B=50\text{mA}$	$V_{CE(sat)2}$			1.0	V
Base-emitter saturation voltage	$I_C=150\text{mA}, I_B=15\text{mA}$	$V_{BE(sat)1}$	0.60		1.2	V
	$I_C=500\text{mA}, I_B=50\text{mA}$	$V_{BE(sat)2}$			1.0	V
Transition frequency	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	f_T	300			MHz
Collector output capacitance	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	C_{ob}			8	pF
Noise figure	$V_{CE}=10\text{V}, I_C=0.1\text{mA}, f=1\text{kHz}, R_s=1\text{K}\Omega$	NF			4	dB
Delay time	$V_{CC}=30\text{V}, V_{BE}=-0.5\text{V}$	T_d			10	nS
Rise time	$I_C=150\text{mA}, I_{B1}=-I_{B2}=15\text{mA}$	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-363 Outline Dimension



Symbol	Dimension In Millimeters	
	Min	Max.
A	1.89	2.20
B	1.15	1.35
C	0.80	1.10
D	0.10	0.30
G	0.65 BSC	
H	---	0.10
J	0.10	0.25
K	0.10	0.30
N	0.20 REF	
S	2.00	2.20

Device Marking :

Device P/N	Marking code
MMDT2222A	XX

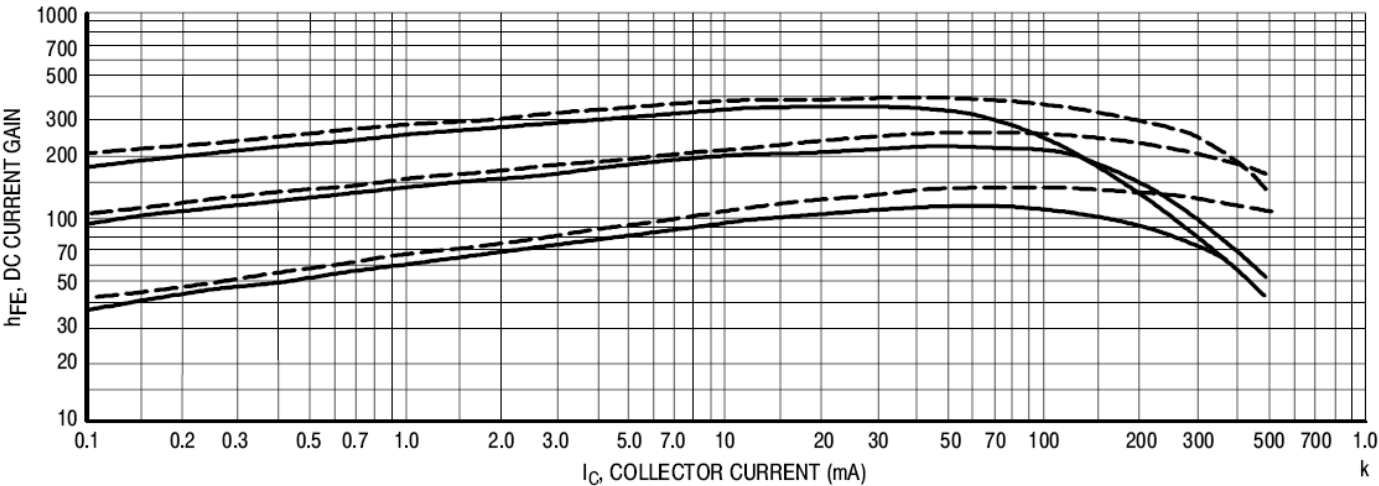


Figure 1. DC Current Gain

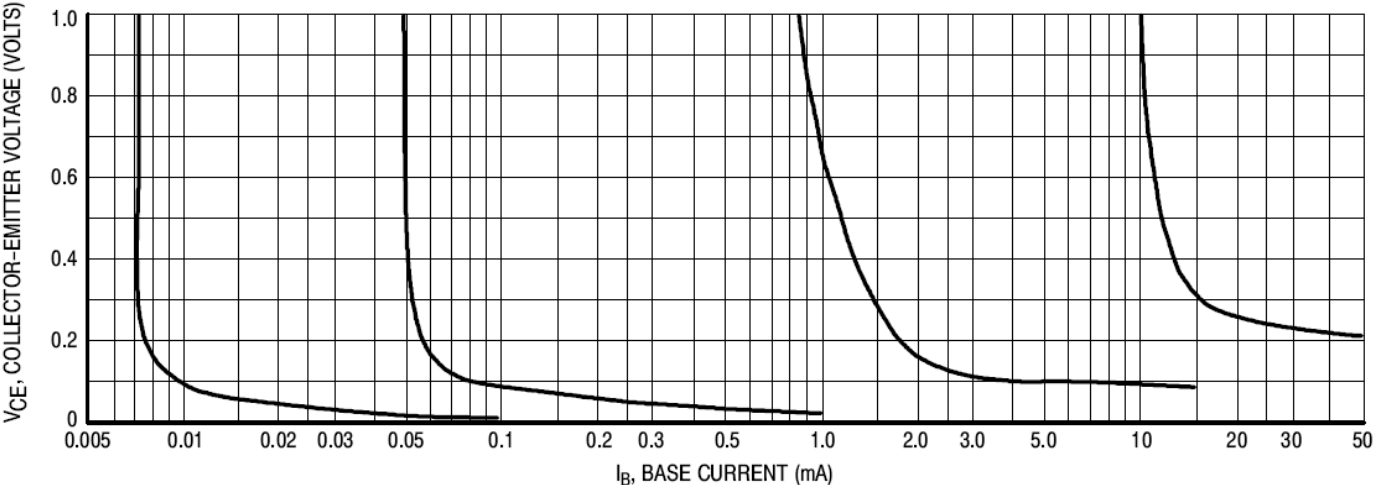


Figure 2. Collector Saturation Region

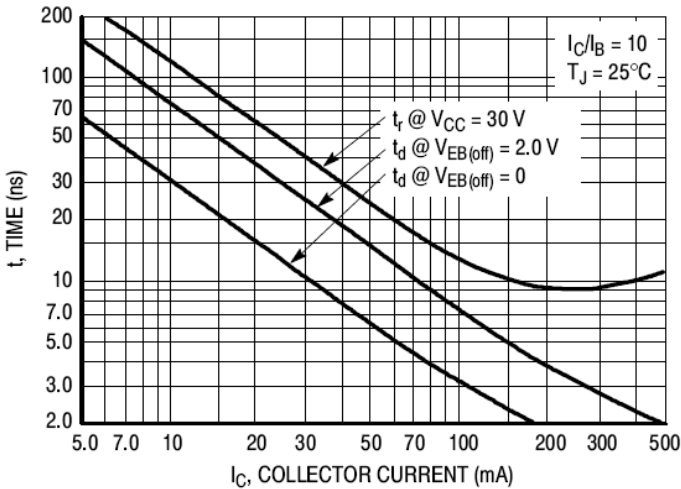


Figure 3. Turn-On Time

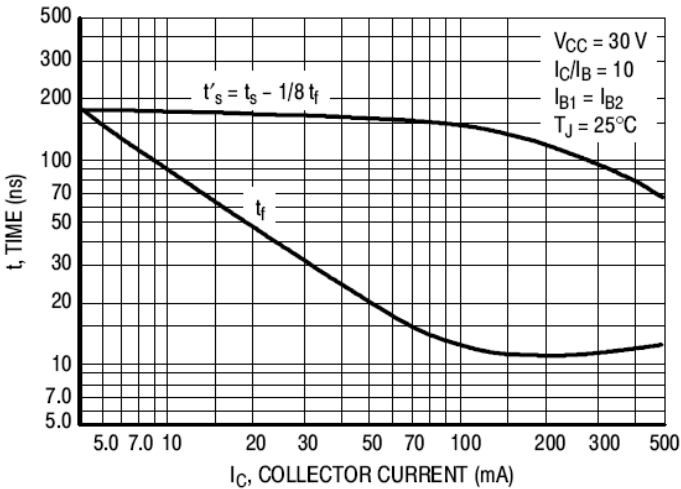


Figure 4. Turn-Off Time

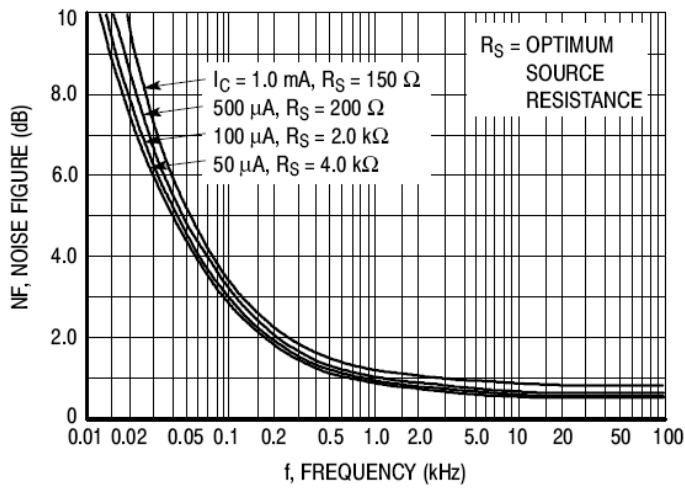


Figure 5. Frequency Effects

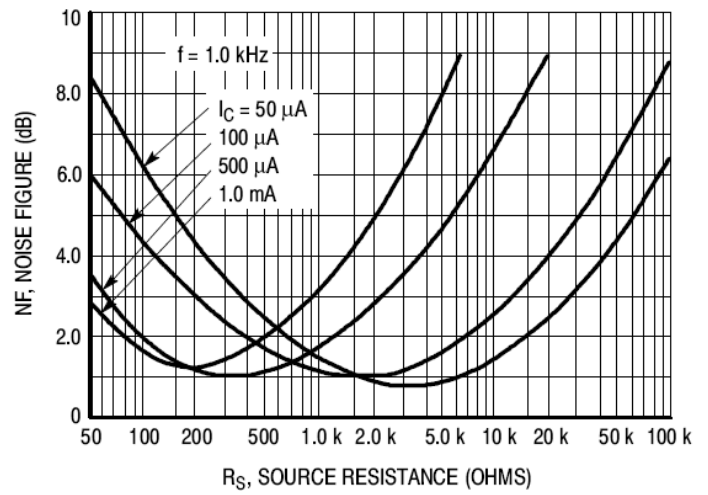


Figure 6. Source Resistance Effects

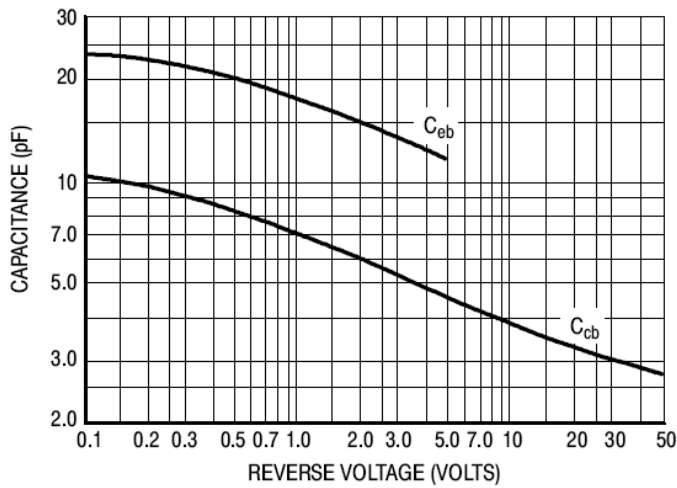


Figure 7. Capacitances

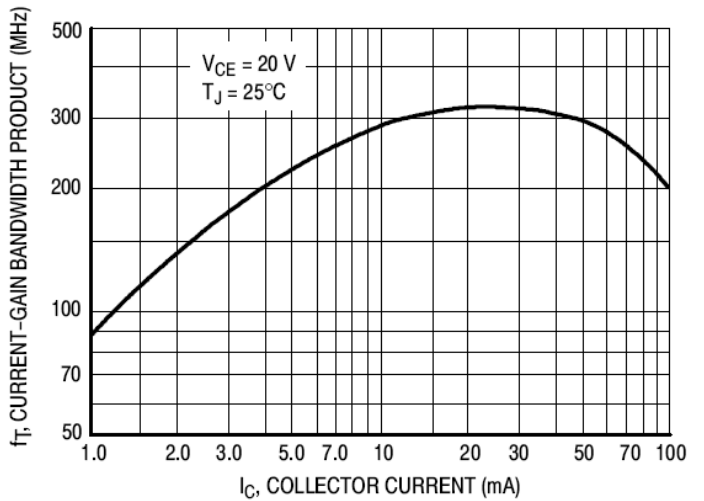


Figure 8. Current-Gain Bandwidth Product

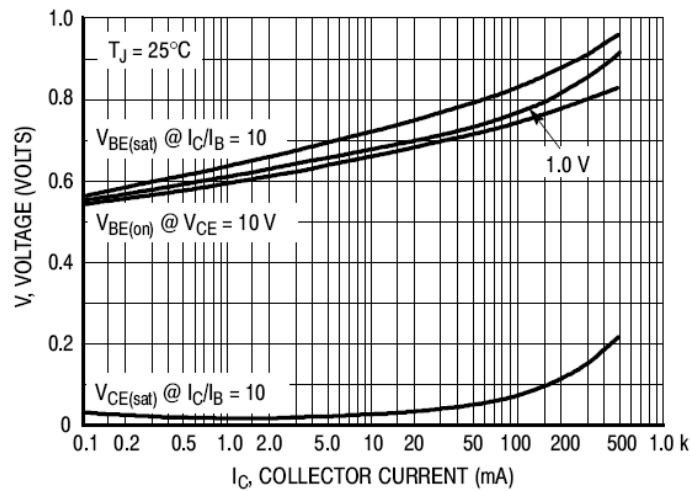


Figure 9. "On" Voltages

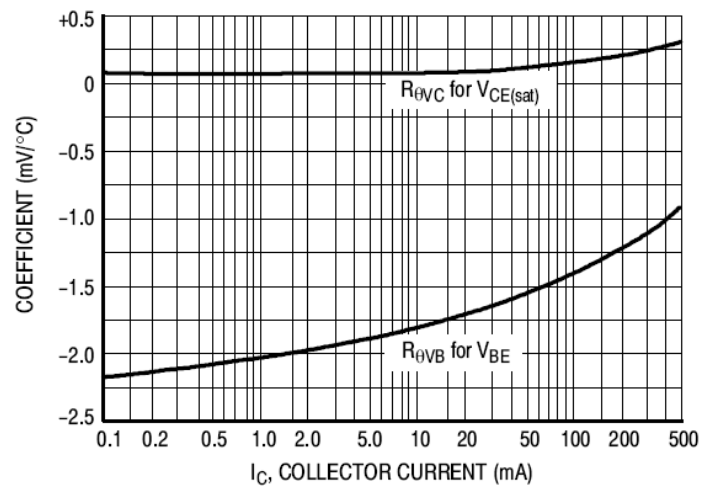


Figure 10. Temperature Coefficients

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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-363

