



**THE DATASHEET OF
FMMT222ATA**



FM1MT2222 FM1MT2222A

SOT23 NPN SILICON PLANAR SWITCHING TRANSISTOR

ISSUE 3 – FEBRUARY, 1996

FEATURES

- * Fast switching
- PARTMARKING DETAILS
FM1MT2222 – 1BZ
FM1MT2222R – 2P
- COMPLEMENTARY TYPES
FM1MT2222 – FM1MT2907
FM1MT2222A – FM1MT2907A

ABSOLUTE MAXIMUM RATINGS

PARAMETER	Collector-Base Voltage	Collector-Emitter Voltage	Emitter-Base Voltage	Continuous Collector Current	Power Dissipation at $T_{amb}=25^{\circ}C$	Operating and Storage Temperature Range
PARAMETER	Collector-Base Voltage	Collector-Emitter Voltage	Emitter-Base Voltage	Continuous Collector Current	Power Dissipation at $T_{amb}=25^{\circ}C$	Operating and Storage Temperature Range

ELECTRICAL CHARACTERISTICS

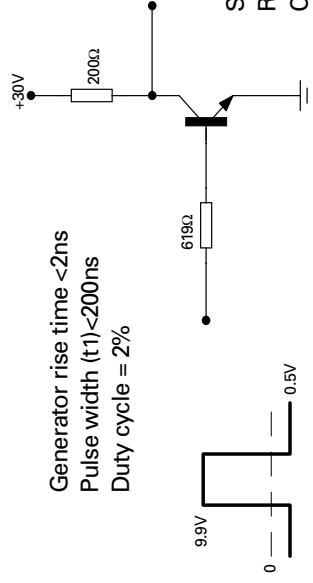
PARAMETER	SYMBOL	FM1MT2222	
		MIN.	MAX.
Collector-Base Breakdown Voltage	$V_{BR(CBO)}$	60	
Collector-Emitter Breakdown Voltage	$V_{BR(CEO)}$	30	
Emitter-Base Breakdown Voltage	$V_{BR(EB0)}$	5	
Collector Cut-Off Current	I_{CBO}		
Emitter Cut-Off Current	I_{EBO}		
Collector-Emitter Cut-Off Current	I_{CEX}		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.6	
Static Forward Current Transfer Ratio	h_{FE}	35	50
		75	35
		100	50
		50	30

*Measured under pulsed conditions. Pulse Spice parameter data is available upon request.

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	FM1MT2222		FM1MT2222A		UNIT	CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
Transition Frequency	f_T	250	300	300		MHz	$I_C=20mA, V_{CE}=20V, f=100MHz$
Output Capacitance	C_{obo}	8	8	8	8	pF	$V_{CE}=10V, I_E=0, f=140KHz$
Input Capacitance	C_{ibo}	30	30	25	25	pF	$V_{EB}=0.5V, I_C=0, f=140KHz$
Delay Time	t_d	10	10	10	10	ns	$V_{CC}=30V, V_{BE(off)}=0.5V, I_C=150mA, I_B=15mA$ (See Delay Test Circuit)
Rise Time	t_r	25	25	25	25	ns	(See Delay Test Circuit)
Storage Time	t_s	225	225	225	225	ns	$V_{CC}=30V, I_C=150mA, I_B=15mA$ (See Storage Test Circuit)
Fall Time	t_f	60	60	60	60	ns	

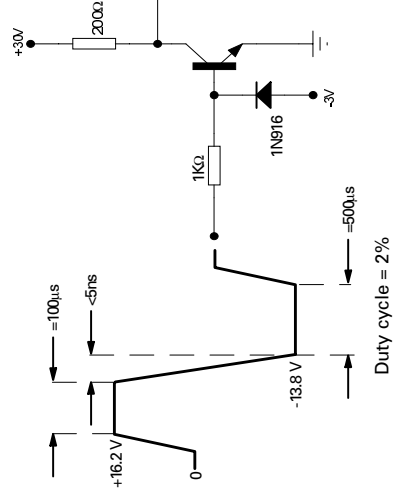
DELAY AND RISE – TEST CIRCUIT



Generator rise time <2ns
Pulse width (t1)<200ns
Duty cycle = 2%

Scope:
 $R_{in} > 100\text{ k}\Omega$
 $C_{in} < 12\text{ pF}$
Rise Time < 5 ns

STORAGE TIME AND FALL TIME – TEST CIRCUIT



Generator rise time <2ns
Pulse width (t1)<200ns
Duty cycle = 2%

Scope:
 $R_{in} > 100\text{ k}\Omega$
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ABSOLUTE MAXIMUM RATINGS

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Collector-Base Voltage						
Collector-Emitter Voltage						
Emitter-Base Voltage						
Continuous Collector Current						
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$						

ELECTRICAL CHARACTERISTICS

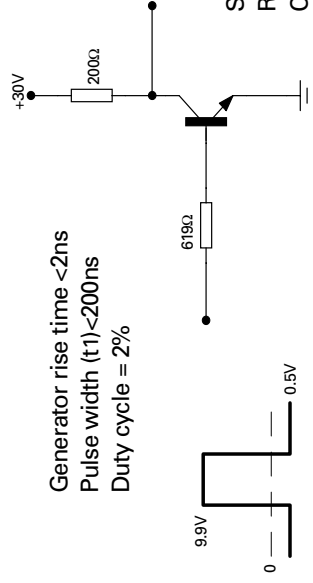
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		100	100
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Output Capacitance	C_{obo}		8		8	pF	$V_{CB}=10\text{V}, I_E=0,$ $f=140\text{KHz}$
Input Capacitance	C_{ibo}		30		25	pF	$V_{EB}=0.5\text{V}, I_C=0$ $f=140\text{KHz}$
Delay Time	t_d		10		10	ns	$V_{CC}=30\text{V}, V_{BE(off)}=0.5\text{V}$ $I_C=150\text{mA}, I_B=15\text{mA}$ (See Delay Test Circuit)
Rise Time	t_r		25		25	ns	(See Delay Test Circuit)
Storage Time	t_s		225		225	ns	$V_{CC}=30\text{V}, I_C=150\text{mA}$ $I_B=I_C=15\text{mA}$ (See Storage Test Circuit)
Fall Time	t_f		60		60	ns	

DELAY AND RISE – TEST CIRCUIT

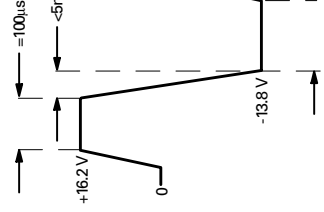
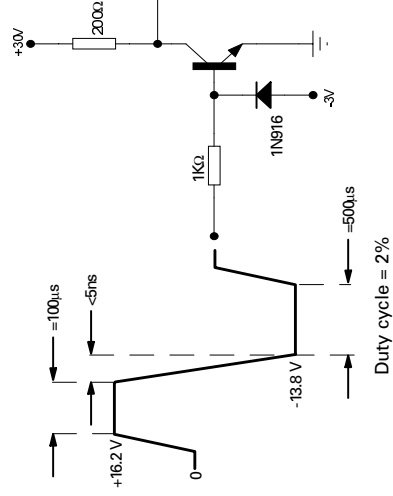


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STORAGE TIME AND FALL TIME – TEST CIRCUIT



Scope:
 $R_{in} > 100\text{ k}\Omega$
 $C_n < 12\text{ pF}$
Rise Time < 5 ns

Duty cycle = 2%

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- ⊖ [Diodes Incorporated](#) Information

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- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management