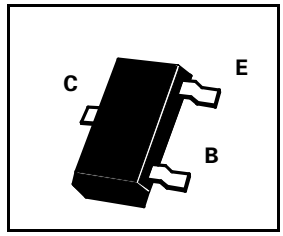
SOT23 NPN SILICON PLANAR SWITCHING TRANSISTORS

ISSUE 2 – SEPTEMBER 94 ✪

FMMT3903
FMMT3904

COMPLIMENTARY TYPES – FMMT3903 - FMMT3905
FMMT3904 - FMMT3906

PARTMARKING DETAIL – FMMT3903 - 1W
FMMT3904 - 1A



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	60	V
CollectorEmitter Voltage	V_{CEO}	40	V
EmitterBase Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	200	mA
Power Dissipation at T_{amb}=25°C	P_{tot}	330	mW
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	FMMT3903		FMMT3904		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Collector Base Breakdown Voltage	$V_{(BR)CBO}$	60		60		V	I_C=10μA, I_E=0
CollectorEmitter Breakdown Voltage	$V_{(BR)CEO}$	40		40		V	I_C=1mA, I_B=0*
EmitterBase Breakdown Voltage	$V_{(BR)EBO}$	6		6		V	I_E=10μA, I_C=0
CollectorEmitter CutOff Current	I_{CEX}		50		50	nA	V_{CE}=30V, $V_{BE(off)}$=3V
Base CutOff Current	I_{BEX}		50		50	nA	V_{CE}=30V, $V_{EB(off)}$=3V
Static Forward Current Transfer Ratio	h_{FE}	20 35 50 30 15	 150 	40 70 100 60 30	 300 		I_C=0.1mA, V_{CE}=1V* I_C=1mA, V_{CE}=1V* I_C=10mA, V_{CE}=1V* I_C=50mA, V_{CE}=1V* I_C=100mA, V_{CE}=1V*
CollectorEmitter Saturation Voltage	$V_{CE(sat)}$		0.2 0.3		0.2 0.3	V V	I_C=10mA, I_B=1mA* I_C=50mA, I_B=5mA*
BaseEmitter Saturation Voltage	$V_{BE(sat)}$	0.65	0.85 0.95	0.65	0.85 0.95	V V	I_C=10mA, I_B=1mA* I_C=50mA, I_B=5mA*
Transition Frequency	f_T	250		300		MHz	I_C=10mA, V_{CE}=20V f=100MHz
Output Capacitance	C_{obo}		4		4	pF	V_{CB}=5V, I_E=0, f=100KHz
Input Capacitance	C_{ibo}		8		8	pF	V_{BE}=0.5V, I_C=0, f=100KHz

FMMT3903
FMMT3904

SWITCHING CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	FMMT3903		FMMT3904		UNIT	CONDITIONS.
		MIN.	MAX.	MIN.	MAX.		
Noise Figure	N		6		5	dB	V_{CE}=5V I_C=200μA, R_g=2KΩ f=30Hz to 15KHz at -3dB points
Delay Time	t_d		35		35	ns	V_{CC}=3V, I_C=10mA, I_{B1}=1mA $V_{BE(off)}$=0.5V (See Figure1)
Rise Time	t_r		35		35	ns	
Storage Time	t_s		175		200	ns	V_{CC}=3V, I_C=10mA I_{B1}= I_{B2}=1mA (See Figure2)
Fall Time	t_f		50		50	ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%

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