

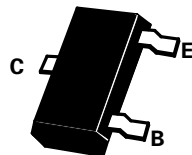
# SOT23 NPN SILICON PLANAR SWITCHING TRANSISTOR

## FMMT4124

ISSUE 2 – MARCH 94



PARTMARKING DETAIL – ZC



### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	30	V
Collector-Emitter Voltage	$V_{CEO}$	25	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Continuous Collector Current	$I_C$	200	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	330	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

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

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	30		V	$I_C=10\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	25		V	$I_C=1mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5		V	$I_E=10\mu A$
Collector Cut-Off Current	$I_{CBO}$		50	nA	$V_{CB}=20V$
Emitter Cut-Off Current	$I_{EBO}$		50	nA	$V_{EB}=3V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.3	V	$I_C=50mA, I_B=5mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.95	V	$I_C=50mA, I_B=5mA^*$
Static Forward Current Transfer Ratio	$h_{FE}$	120 60	360		$I_C=2mA, V_{CE}=1V^*$ $I_C=50mA, V_{CE}=1V^*$
Transition Frequency	$f_T$	300		MHz	$I_C=10mA, V_{CE}=20V, f=100MHz$
Output Capacitance	$C_{obo}$		4	pF	$V_{CB}=5V, I_E=0, f=140KHz$
Input Capacitance	$C_{ibo}$		8	pF	$V_{BE}=0.5V, I_E=0, f=140KHz$
Noise Figure	N		6	dB	$I_C=200\mu A, V_{CE}=5V, R_g=2k\Omega$ $f=30Hz$ to $15KHz$ at 3dB points
Small Signal Current Transfer	$h_{fe}$	120	480		$I_C=2mA, V_{CE}=1V, f=1KHz$

### SWITCHING CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ ).

PARAMETER	SYMBOL	TYP.	UNIT	CONDITIONS
Delay Time	$t_d$	24	ns	$V_{CC}=3V, V_{BE(off)}=0.5V$ $I_C=10mA, I_{B1}=1mA$
Rise Time	$t_r$	13	ns	
Storage Time	$t_s$	125	ns	$V_{CC}=3V, I_C=10mA$ $I_{B1}=I_{B2}=1mA$
Fall Time	$t_f$	11	ns	

\*Measured under pulsed conditions. Pulse width=300 $\mu s$ . Duty cycle  $\leq 2\%$