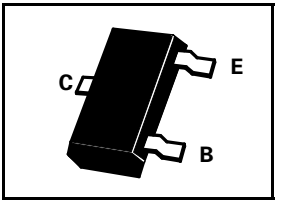
SOT23 NPN SILICON PLANAR GENERAL PURPOSE TRANSISTORS

ISSUE 4 – FEBRUARY 1997 ✪

FMMT4400
FMMT4401

PARTMARKING DETAILS: FMMT4400 - 1KZ
FMMT4401 - 1L



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	600	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)

		FMMT4400		FMMT4401			
PARAMETER	SYMBOL	MIN.	MAX.	MIN.	MAX.	UNIT	CONDITIONS
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40		40		V	I_C=1mA, I_B=0
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	60		60		V	I_C=0.1mA, I_E=0
Emitter-Base Breakdown Current	$V_{(BR)EBO}$	6		6		V	I_E=0.1mA, I_C=0
Collector-Emitter Cut-Off Current	I_{CEX}		0.1		0.1	µA	V_{CE}=35V $V_{EB(off)}$ =0.4V
Base Cut-Off Current	I_{BEX}		0.1		0.1	µA	V_{CE}=35V $V_{EB(off)}$ =3V
Static Forward Current TransferRatio	h_{FE}	 20 40 50 20	 150	20 40 80 100 40	 300		I_C=0.1mA, V_{CE}=1V I_C=1mA, V_{CE}=1V I_C=10mA, V_{CE}=1V I_C=150mA, V_{CE}=1V* I_C=500mA, V_{CE}=2V*
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.4 0.75		0.4 0.75	V V	I_C=150mA,I_B=15mA* I_C=500mA,I_B=50mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	0.75	0.95 1.2	0.75	0.95 1.2	V V	I_C=150mA,I_B=15mA* I_C=500mA,I_B=50mA*
Transition Frequency	f_T	200		250		MHz	I_C=20mA,V_{CE}=10V f=100kHz
Output Capacitance	C_{obo}		6.5		6.5	pF	V_{CB}=5 V,I_E=0 f=100kHz
Input Capacitance	C_{ibo}		30		30	pF	V_{BE}=0.5V, I_C=0 f=100kHz

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

SWITCHING CHARACTERISTICS (at T_{amb}= 25°C)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS
Turn-On Time	t_{on}		35	ns	V_{CC}=30V, $V_{BE(off)}$=2V I_C=150mA, I_{B1}=15mA (See Fig.1)
Turn-Off Time	t_{off}		255	ns	V_{CC}=30V, I_C=150mA I_{B1}=I_{B2}=15mA (See Fig. 2)