

FMMT4400
FMMT4401

SOT23 NPN SILICON PLANAR
GENERAL PURPOSE TRANSISTORS

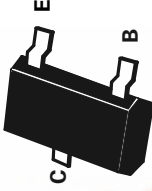
ISSUE 4 – FEBRUARY 1997

FMMT4400
FMMT4401

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 _B =15mA (See Fig. 1)
Turn-Off Time	t _{off}		255	ns	V _{CC} =30V, I _C =150mA I _B =I _{B2} =15mA (See Fig. 2)

PARTMARKING DETAILS: FMMT4400 - 1KZ
FMMT4401 - 1L



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CE0}	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)

PARAMETER	SYMBOL	FMMT4400		FMMT4401		UNIT	CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	40		40		V	I _C =1mA, I _E =0
Collector-Base Breakdown Voltage	V _{(BR)CBO}	60		60		V	I _C =0.1mA, I _E =0
Emitter-Base Breakdown Voltage	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	h _{FE}	20		20			I _C =0.1mA, V _{CE} =1V
Transfer Ratio		40		40			I _C =1mA, V _{CE} =1V
		50	150	80			I _C =10mA, V _{CE} =1V
		20		100	300		I _C =150mA, V _{CE} =1V*
				40			I _C =500mA, V _{CE} =2V*
Collector-Emitter Saturation Voltage	V _{CE(sat)}	0.4	0.75	0.4	0.75	V	I _C =150mA, I _B =15mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}	0.75	0.95	0.75	0.95	V	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} =5V, 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%

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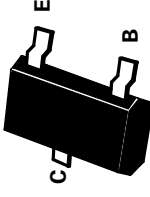
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SWITCHING CHARACTERISTICS (at T_{amb}= 25°C)

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS
Turn-On Time	t _{on}		35	ns	V _{CE} =30V, V _{BE(off)} =2V I _C =150mA, I _B =15mA (See Fig.1)
Turn-Off Time	t _{off}		255	ns	V _{CE} =30V, I _C =150mA I _B =I _{B2} =15mA (See Fig. 2)

PARTMARKING DETAILS: FMMT4400 - 1KZ

FMMT4401 - 1L



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V _{CB0}	60	V
Collector-Emitter Voltage	V _{CE0}	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)

PARAMETER	SYMBOL	FMMT4400		FMMT4401		UNIT	CONDITIONS
		MIN.	MAX.	MIN.	MAX.		
Collector-Emitter Breakdown Voltage	V _{(BR)CEO}	40		40		V	I _C =1mA, I _E =0
Collector-Base Breakdown Voltage	V _{(BR)CBO}	60		60		V	I _C =0.1mA, I _E =0
Emitter-Base Breakdown Voltage	V _{(BR)EBO}	6		6		V	I _E =0.1mA, I _C =0
Collector-Emitter 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	h _{FE}	20		20			I _C =0.1mA, V _{CE} =1V
Transfer Ratio		40		40			I _C =1mA, V _{CE} =1V
		80		80			I _C =10mA, V _{CE} =1V
		100	150	100	300		I _C =150mA, V _{CE} =1V*
Collector-Emitter Saturation Voltage	V _{CE(sat)}	0.4	0.75	0.4	0.75	V	I _C =150mA, I _B =15mA*
		0.75	1.2	0.75	1.2	V	I _C =500mA, I _B =50mA*
Base-Emitter Saturation Voltage	V _{BE(sat)}	0.75	0.95	0.75	0.95	V	I _C =150mA, I _B =15mA*
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} =5V, 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%