

FMV10N60E

FUJI POWER MOSFET

Super FAP-E³ series

N-CHANNEL SILICON POWER MOSFET

■ Features

Maintains both low power loss and low noise Lower R_{DS}(on) characteristic More controllable switching dv/dt by gate resistance Smaller V_{GS} ringing waveform during switching Narrow band of the gate threshold voltage (3.0±0.5V) High avalanche durability

Applications

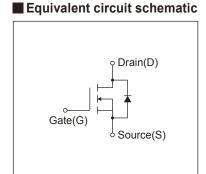
Switching regulators UPS (Uninterruptible Power Supply) DC-DC converters

Maximum Ratings and Characteristics

● Absolute Maximum Ratings at Tc=25°C (unless otherwise specified)

		TO-220F(SLS) 10 m.s 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2.7 m 2 2.7
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■ Outline Drawings [mm]



Description	Symbol	Characteristics	Unit	Remarks
Dania Carras Valtana	V _{DS}	600	V	
Drain-Source Voltage	V _{DSX}	600	V	V _{GS} = -30V
Continuous Drain Current	I _D	±10	Α	
Pulsed Drain Current	IDP	±40	А	
Gate-Source Voltage	V _{GS}	±30	V	
Repetitive and Non-Repetitive Maximum AvalancheCurrent	IAR	10	Α	Note*1
Non-Repetitive Maximum Avalanche Energy	Eas	416	mJ	Note*2
Repetitive Maximum Avalanche Energy	Ear	6.0	mJ	Note*3
Peak Diode Recovery dV/dt	dV/dt	4.4	kV/μs	Note*4
Peak Diode Recovery -di/dt	-di/dt	100	A/µs	Note*5
Mandanian Barrer Biratian	Б	2.16	10/	Ta=25°C
Maximum Power Dissipation	PD	60	W	Tc=25°C
O	Tch	150	°C	
Operating and Storage Temperature range	Tstg	-55 to + 150	°C	
Isolation Voltage	Viso	2	kVrms	t = 60sec, f = 60H

● Electrical Characteristics at Tc=25°C (unless otherwise specified)

Description	Symbol	Conditions	Conditions		typ.	max.	Unit
Drain-Source Breakdown Voltage	BVoss	I _D =250μA, V _{GS} =0V		600	-	-	V
Gate Threshold Voltage	V _{GS} (th)	In=250µA, Vns=Vgs	I _D =250µA, V _{DS} =V _{GS}		3.0	3.5	V
Zana Cata Valtana Busin Comment		V _{DS} =600V, V _{GS} =0V	T _{ch} =25°C	-	-	25	
Zero Gate Voltage Drain Current	Inss	V _{DS} =480V, V _{GS} =0V	T _{ch} =125°C	-	-	250	μA
Gate-Source Leakage Current	Igss	V _{GS} =±30V, V _{DS} =0V	V _{GS} =±30V, V _{DS} =0V		10	100	nA
Drain-Source On-State Resistance	R _{DS} (on)	I _D =5A, V _{GS} =10V		-	0.675	0.79	Ω
Forward Transconductance	g fs	I _D =5A, V _{DS} =25V		6	12	-	S
Input Capacitance	Ciss	V _{DS} =25V		-	1800	2700	
Output Capacitance	Coss	V _{GS} =0V		-	140	210	pF
Reverse Transfer Capacitance	Crss	f=1MHz		-	10.5	16	
T O. T	td(on)	Vcc=300V	-	-	20	30	
Turn-On Time	tr	V _{GS} =10V		-	9	13.5	1
T 0// T'	td(off)	ID=5A		-	100	150	ns
Turn-Off Time	tf	R _G =15Ω		-	18	27	
Total Gate Charge	QG	Vcc=300V	-	-	47	70.5	
Gate-Source Charge	Qss	ID=10A	I _D =10A		10.5	16	nC
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		-	13.5	20	
Avalanche Capability	lav	L=3.05mH, Tch=25°C		10	-	-	Α
Diode Forward On-Voltage	V _{SD}	I _F =10A, V _{GS} =0V, T _{ch} =25°	С	-	0.86	1.30	V
Reverse Recovery Time	trr	I _F =10A, V _{GS} =0V		-	0.51	-	μS
Reverse Recovery Charge	Qrr	-di/dt=100A/µs, Tch=25	°C	-	5.4	-	μC

Thermal Characteristics

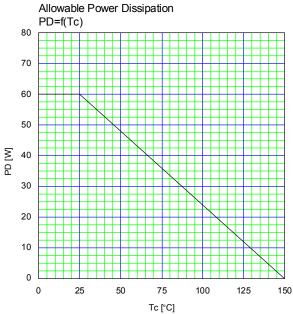
Description	Symbol	Test Conditions	min.	typ.	max.	Unit
Thermal resistance	Rth (ch-c)	Channel to Case			2.083	°C/W
	Rth (ch-a)	Channel to Ambient			58.0	°C/W

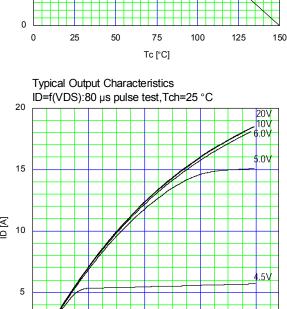
Note *1 : Tch≤150°C

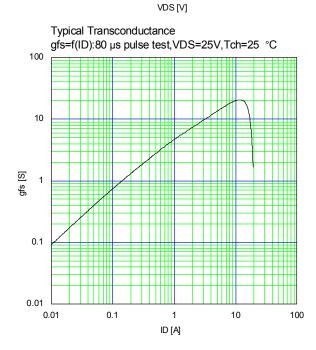
Note *2 : Stating Tch=25°C, Ias=4A, L=47.7mH, Vcc=60V, Rc=50Ω
Eas limited by maximum channel temperature and avalanche current.
See to 'Avalanche Energy' graph.

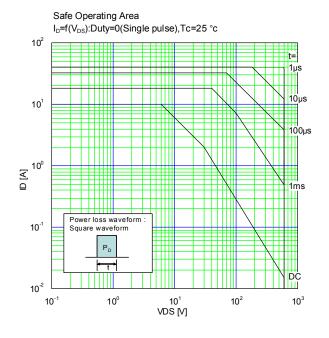
Note *3 : Repetitive rating : Pulse width limited by maximum channel temperature. See to the 'Transient Themal impeadance' graph. Note *4 : $| F \le -10$, $-di/dt = 100A/\mu s$, $Vcc \le BV_Dss$, $Tch \le 150$ °C.

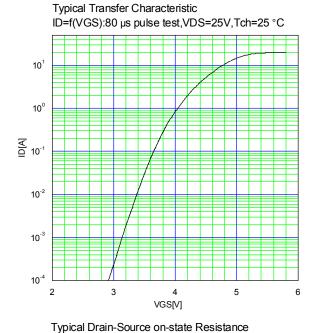
Note *5 : IF≤-ID, dv/dt=4.4kV/µs, Vcc≤BVDss, Tch≤150°C.

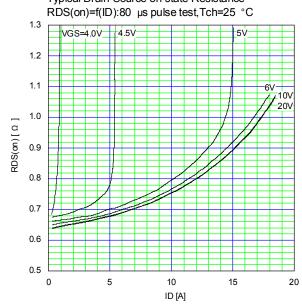




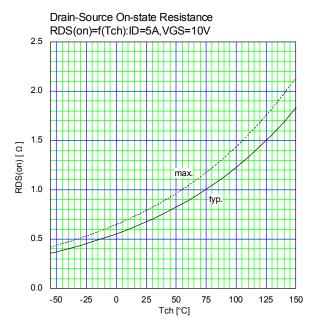


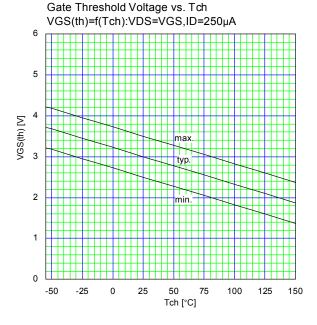


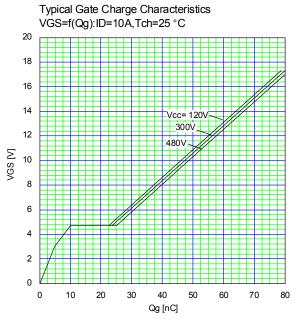


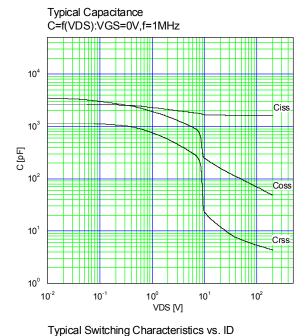


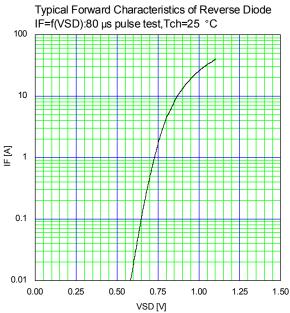
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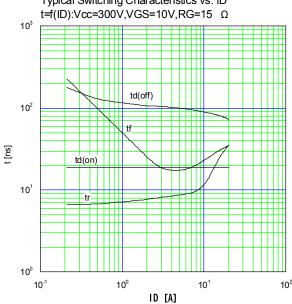


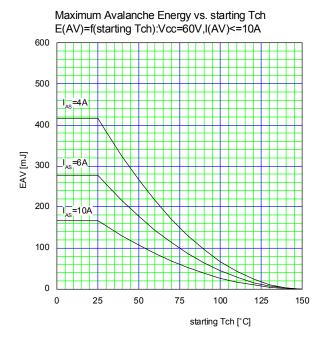


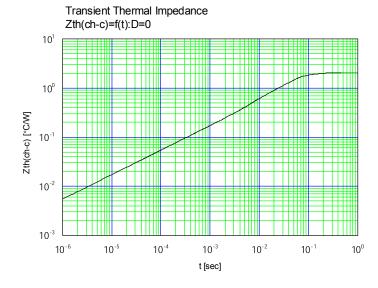












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