

FMV17N60ES

FUJI POWER MOSFET

Super FAP-E^{3S} 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 (4.2±0.5V) High avalanche durability

Applications

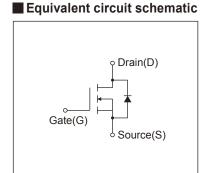
Switching regulators UPS (Uninterruptible Power Supply) DC-DC converters

Maximum Ratings and Characteristics

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

TO-220F(SLS) ① ② ③

■ Outline Drawings [mm]



Description	Symbol	Characteristics	Unit	Remarks	
Duain Course Voltage	V _{DS}	600	V		
Drain-Source Voltage	V _{DSX}	600	V	V _{GS} = -30V	
Continuous Drain Current	In	±17	А		
Pulsed Drain Current	IDP	±68	А		
Gate-Source Voltage	V _{GS}	±30	V		
Repetitive and Non-Repetitive Maximum AvalancheCurrent	IAR	17	А	Note*1	
Non-Repetitive Maximum Avalanche Energy	Eas	765.5	mJ	Note*2	
Repetitive Maximum Avalanche Energy	Ear	12	mJ	Note*3	
Peak Diode Recovery dV/dt	dV/dt	4.2	kV/μs	Note*4	
Peak Diode Recovery -di/dt	-di/dt	100	A/µs	Note*5	
Maximum Dawar Dissination	PD	2.16	W	Ta=25°C	
Maximum Power Dissipation		120	VV	Tc=25°C	
Oneveting and Stavens Temperature vans	Tch	150	°C		
Operating and Storage Temperature range	T _{stg}	-55 to + 150	°C		
Isolation Voltage	Viso	2	kVrms	t = 60sec, f = 60Hz	

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

Description	Symbol	Conditions		min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	BVDSS	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}		4.2	4.7	V
Zero Gate Voltage Drain Current		V _{DS} =600V, V _{GS} =0V	T _{ch} =25°C	-	-	25	μА
	Ipss	V _{DS} =480V, V _{GS} =0V	T _{ch} =125°C	-	-	250	
Gate-Source Leakage Current	Igss	V _{GS} =±30V, V _{DS} =0V		-	10	100	nA
Drain-Source On-State Resistance	R _{DS} (on)	I _D =8.5A, V _{GS} =10V		-	0.34	0.40	Ω
Forward Transconductance	g _{fs}	I _D =8.5A, V _{DS} =25V		5.5	11	-	S
Input Capacitance	Ciss	V _{DS} =25V V _{GS} =0V		-	2500	3750	pF
Output Capacitance	Coss			-	280	420	
Reverse Transfer Capacitance	Crss	f=1MHz	-	16	24		
Turn-()n Time	td(on)	Vcc=300V		-	46	69	ns
	tr	V _{GS} =10V		-	41	61.5	
Turn-Off Time	td(off)	I _D =8.5A R _G =15Ω		-	110	165	
	tf			-	20	30	
Total Gate Charge	Q _G	14 00014			68	114	nC
Gate-Source Charge	Qss	- V _∞ =300V - I _D =17A - V _G s=10V		-	23	34.5	
Gate-Drain Charge	Q _{GD}			-	24	36	
Gate-Drain Crossover Charge	Qsw			-	10	15	
Avalanche Capability	lav	L=2.00mH, Tch=25°C	L=2.00mH, Tch=25°C		-	-	Α
Diode Forward On-Voltage	V _{SD}	I _F =17A, V _{GS} =0V, T _{ch} =25°C		-	0.90	1.35	V
Reverse Recovery Time	trr	I _F =17A, V _{GS} =0V		-	0.75	-	μS
Reverse Recovery Charge	Qrr	-di/dt=100A/μs, Tch=25°C		-	10	-	μC

Thermal Characteristics

Description	Symbol	Test Conditions	min.	typ.	max.	Unit
Thermal resistance	Rth (ch-c)	Channel to case			1.040	°C/W
	Rth (ch-a)	Channel to ambient			58.0	°C/W

Note *1 : Tch≤150°C

Note *2 : Stating Tch=25°C, Ias=7A, L=28.6mH, Vcc=60V, Rc=50Ω

Eas limited by maximum channel temperature and avalanche current.

See to 'Avalanche Energy' graph.

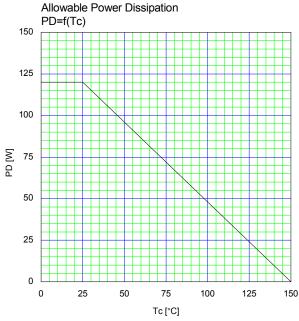
Note $^{\star}3$: Repetitive rating : Pulse width limited by maximum channel temperature

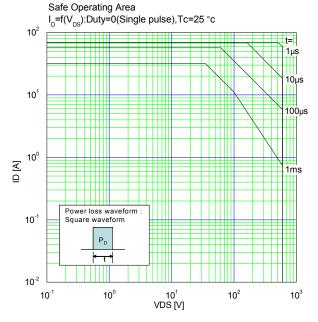
See to the 'Transient Themal impeadance' graph.

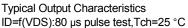
Note *4 : I₅≤-I₀, -di/dt=100A/μ₅, Vcc≤BVbss, Tch≤150°C.

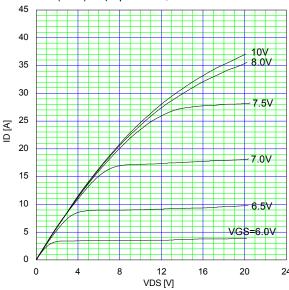
Note *5 : I₅≤-I₀, dv/dt=4.2kV/μ₅, Vcc≤BVbss, Tch≤150°C.

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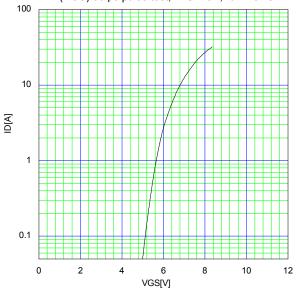




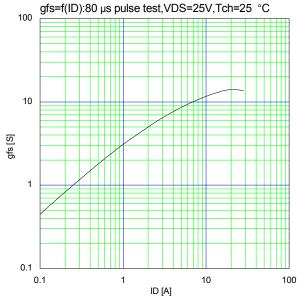




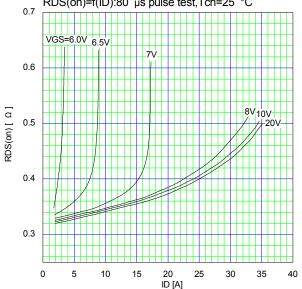
Typical Transfer Characteristic ID=f(VGS):80 µs pulse test,VDS=25V,Tch=25 °C



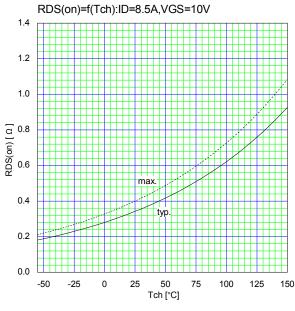
Typical Transconductance



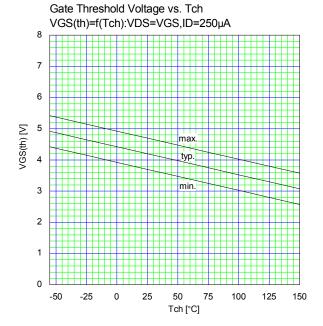
Typical Drain-Source on-state Resistance RDS(on)=f(ID):80 µs pulse test,Tch=25 °C

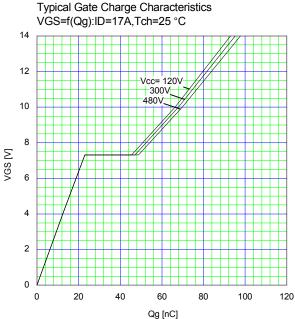


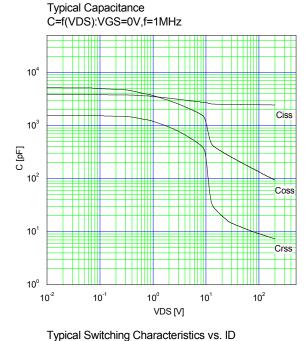
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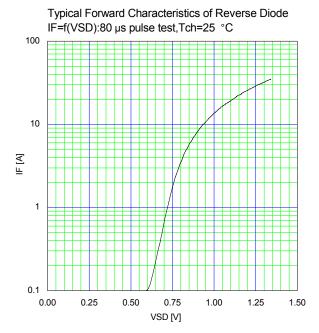


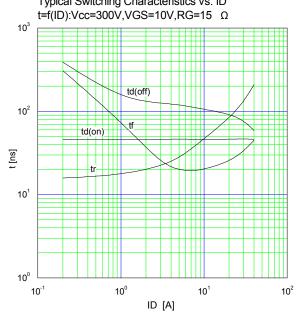
Drain-Source On-state Resistance

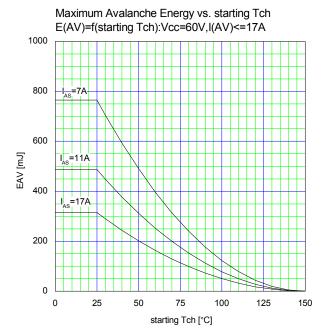


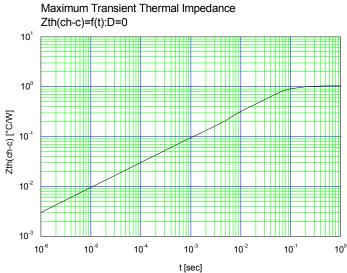












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