FMI03N60E

e-Front runners

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

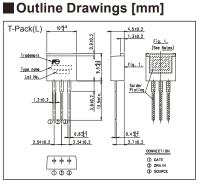
More controllable switching dv/dt by gate resistance Smaller V_{GS} ringing waveform during switching Narrow band of the gate threshold voltage (3.0±0.5V) High avalanche durability

Applications

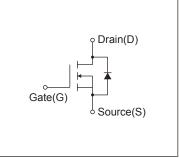
Switching regulators UPS (Uninterruptible Power Supply) **DC-DC converters**

Maximum Ratings and Characteristics

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



Equivalent circuit schematic



Description	Symbol	Characteristics	Unit	Remarks	
Durin Courses Vieldene	VDS	600	V		
Drain-Source Voltage	VDSX	600	V	V _{GS} = -30V	
Continuous Drain Current	lo	±3	A		
Pulsed Drain Current	IDP	±12	A		
Gate-Source Voltage	Vgs	±30	V		
Repetitive and Non-Repetitive Maximum AvalancheCurrent	lar	3	A	Note*1	
Non-Repetitive Maximum Avalanche Energy	Eas	237	mJ	Note*2	
Repetitive Maximum Avalanche Energy	Ear	6.0	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 Power Dissipation	PD	1.67	W	Ta=25°C	
		60	VV VV	Tc=25°C	
	Tch	150	°C		
Operating and Storage Temperature range	Tstg	-55 to + 150	°C		

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

Description	Symbol	Conditions		min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	BVDSS	ID=250µA, VGS=0V		600	-	-	V
Gate Threshold Voltage	V _{GS} (th)	ID=250µA, VDS=VGS		2.5	3.0	3.5	V
Zero Gate Voltage Drain Current		V _{DS} =600V, V _{GS} =0V	Tch=25°C	-	-	25	μA
	IDSS	V _{DS} =480V, V _{GS} =0V	Tch=125°C	-	-	250	
Gate-Source Leakage Current	Igss	V _{GS} =±30V, V _{DS} =0V		-	10	100	nA
Drain-Source On-State Resistance	RDS (on)	ID=1.5A, VGS=10V		-	1.966	2.30	Ω
Forward Transconductance	g fs	ID=1.5A, VDS=25V		1.75	3.5	-	S
Input Capacitance	Ciss	V _{DS} =25V V _{GS} =0V f=1MHz		-	610	915	pF
Output Capacitance	Coss			-	59	88.5	
Reverse Transfer Capacitance	Crss			-	4.5	6.8	
Turn-On Time	td(on)	V _{cc} =300V V _{cs} =10V I _b =1.5A R _s =27Ω		-	7	10.5	ns
	tr			-	7.5	11.3	
Turn-Off Time	td(off)			-	51	76.5	
	tf			-	16	24.0	
Total Gate Charge	QG	V _{cc} =300V I _D =3A V _{GS} =10V		-	21.5	32	nC
Gate-Source Charge	QGS			-	5.5	8	
Gate-Drain Charge	QGD			-	6	9	
Avalanche Capability	lav	L=19.3mH, Tch=25°C		3	-	-	А
Diode Forward On-Voltage	Vsd	IF=3A, VGS=0V, Tch=25°C		-	0.86	1.30	V
Reverse Recovery Time	trr	I⊧=3A, V₀s=0V -di/dt=100A/µs, Tch=25°C		-	0.38	-	μS
Reverse Recovery Charge	Qrr			-	1.8	-	μC

Thermal Characteristics

Description	Symbol	Test Conditions	min.	typ.	max.	Unit
Thermal resistance	Rth (ch-c)	Channel to Case			1.200	°C/W
	Rth (ch-a)	Channel to Ambient			62.0	°C/W

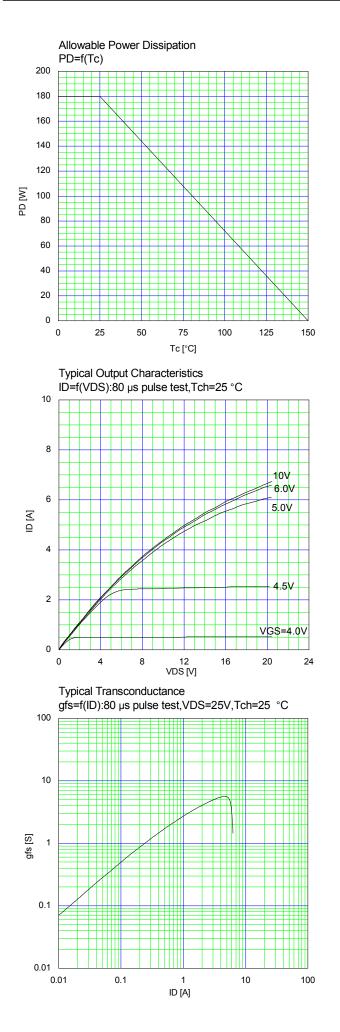
Note *1 : Tch≤150°C

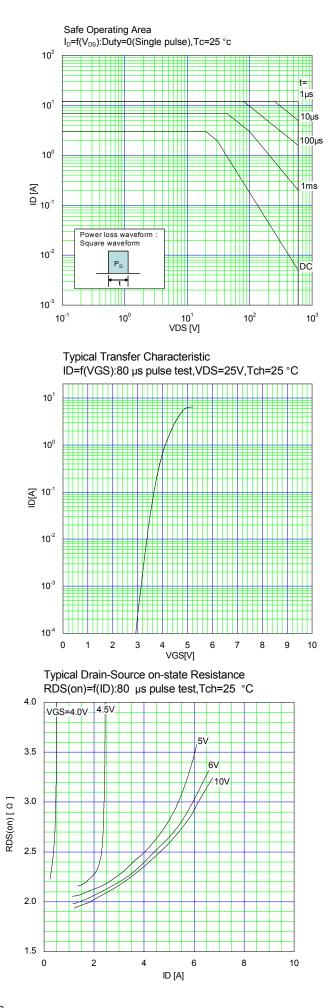
Note 1 : Italia 50 °C, IAs=1.2A, L=302mH, Vcc=60V, Rg=50Ω EAs limited by maximum channel temperature and avalanche current. See to 'Avalanche Energy' graph.

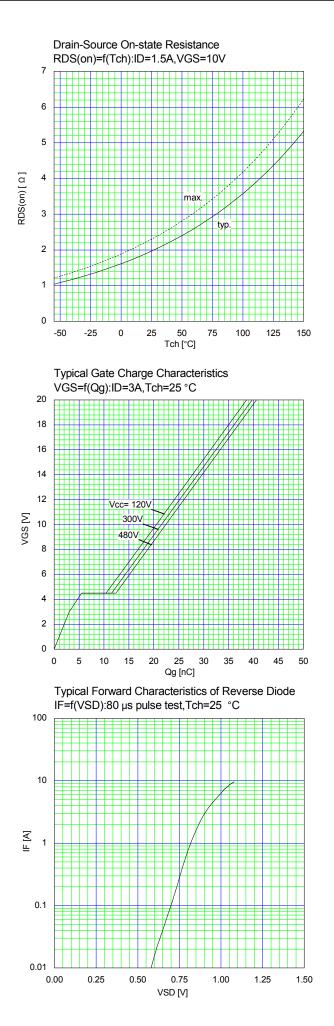
Note *3 : Repetitive rating : Pulse width limited by maximum channel temperature

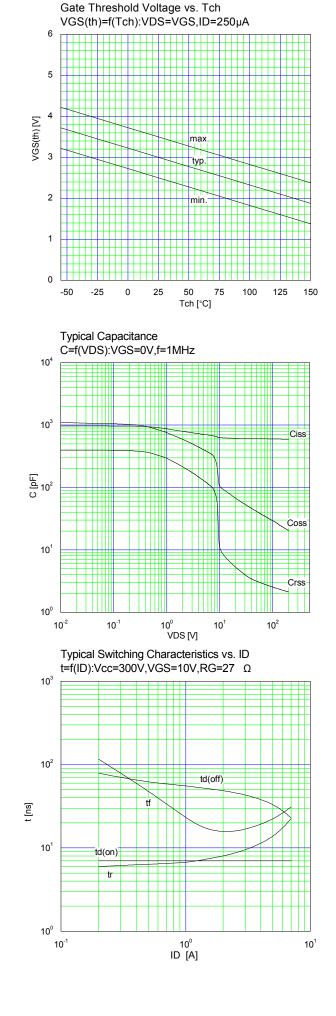
See to the 'Transient Themal impeadance' graph.

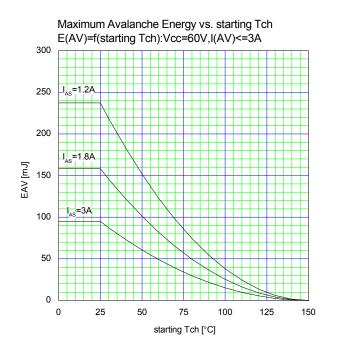
Note *4 : IFS-ID, -di/dt=100A/µs, VccSBVDss, TchS150°C. Note *5 : IFS-ID, dv/dt=4.2kV/µs, VccSBVDss, TchS150°C.

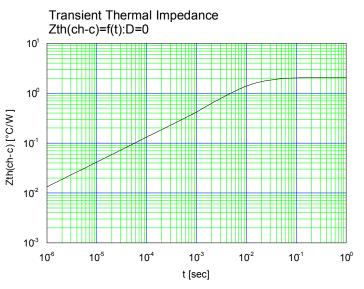












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