

FMV06N60E

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

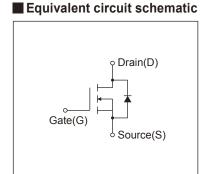
Applications

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

Maximum Ratings and Characteristics

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

■ Outline Drawings [mm] TO-220F(SLS) 10 st. 5 0.5 1.3 CONNECTION



Description	Symbol	Characteristics	Unit	Remarks
Dunin Common Voltano	VDS	600	V	
Drain-Source Voltage	V _{DSX}	600	V	V _{GS} = -30V
Continuous Drain Current	ID	±6	Α	
Pulsed Drain Current	IDP	±24	Α	
Gate-Source Voltage	V _G s	±30	V	
Repetitive and Non-Repetitive Maximum AvalancheCurrent	Iar	6	Α	Note*1
Non-Repetitive Maximum Avalanche Energy	Eas	313.7	mJ	Note*2
Repetitive Maximum Avalanche Energy	Ear	3.7	mJ	Note*3
Peak Diode Recovery dV/dt	dV/dt	4.5	kV/µs	Note*4
Peak Diode Recovery -di/dt	-di/dt	100	A/µs	Note*5
Manifestore Barrar Biantina	В	2.16	10/	Ta=25°C
Maximum Power Dissipation	P□	37	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		min.	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
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	R _{DS} (on)	I _D =3.0A, V _{GS} =10V		-	1.03	1.20	Ω
Forward Transconductance	g fs	I _D =3.0A, V _{DS} =25V		4	8	-	S
Input Capacitance	Ciss	V _{DS} =25V V _{GS} =0V f=1MHz		-	1100	1650	pF
Output Capacitance	Coss			-	100	150	
Reverse Transfer Capacitance	Crss			-	7.5	11	
Turn-On Time	td(on)	V_{cc} =300V V_{ds} =10V I_{D} =3.0A R_{e} =24 Ω		-	20	30	ns
	tr			-	9.0	14	
Turn-Off Time	td(off)			-	100	150	
	tf			-	17.5	26.5	
Total Gate Charge	Q _G	V _{cc} =300V I _D =6A V _{SS} =10V		-	35	53	nC
Gate-Source Charge	Qss			-	9.0	14	
Gate-Drain Charge	Q _{GD}			-	10	15	
Avalanche Capability	lav	L=6.39mH, Tch=25°C		6	-	-	А
Diode Forward On-Voltage	V _{SD}	I _F =6A, V _{GS} =0V, T _{ch} =25°C	I _F =6A, V _{GS} =0V, T _{ch} =25°C		0.90	1.35	V
Reverse Recovery Time	trr	I _F =6A, V _{GS} =0V	I _F =6A, V _{GS} =0V		0.4	-	μS
Reverse Recovery Charge	Qrr	-di/dt=100A/µs, Tch=25°C		-	3.3	-	μC

Thermal Characteristics

Description	Symbol	Test Conditions	min.	typ.	max.	Unit
Thermal resistance	Rth (ch-c)	Channel to Case			3.38	°C/W
	Rth (ch-a)	Channel to Ambient			58.0	°C/W

Note *1 : Tch≤150°C

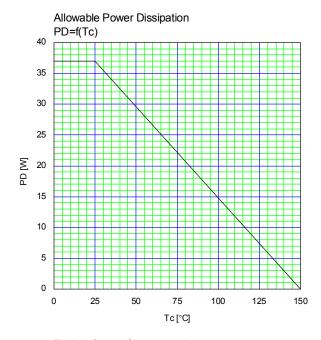
Note *2 : Stating Tch=25°C, Ias=2.4A, L=99.8mH, Vcc=60V, R_G=50Ω
Eas limited by maximum channel temperature and avalanche current.
See to 'Avalanche Energy' graph.

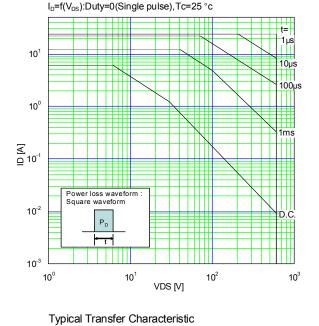
Note $^{\star}3$: Repetitive rating : Pulse width limited by maximum channel temperature

See to the 'Transient Themal impeadance' graph.

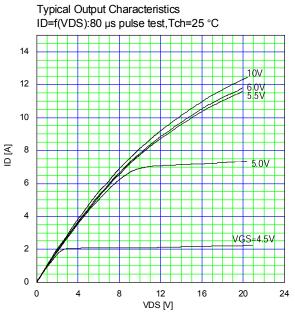
Note *4 : Ir≤-Ip, -di/dt=100A/µs, Vcc≤BVbss, Tch≤150°C.

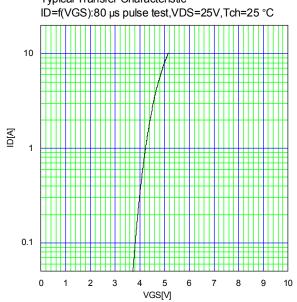
Note *5 : Ir≤-Ip, dv/dt≤4.5kV/µs, Vcc≤BVbss, Tch≤150°C.

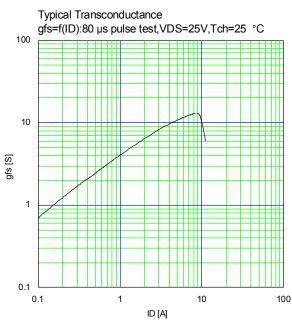


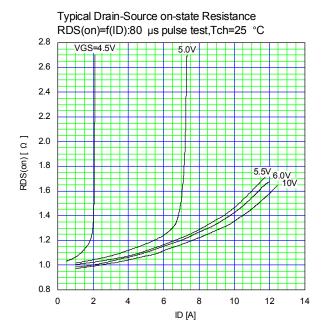


Safe Operating Area

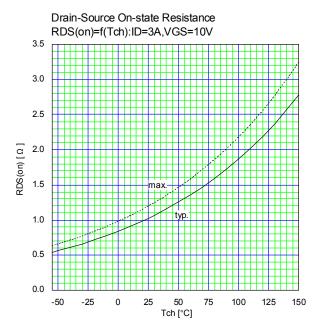


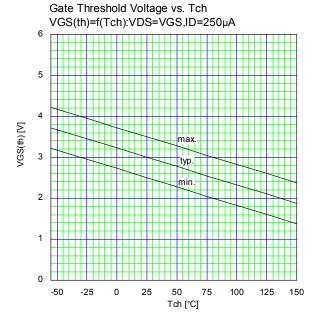


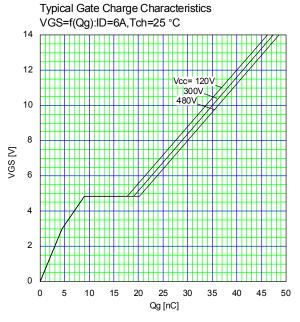


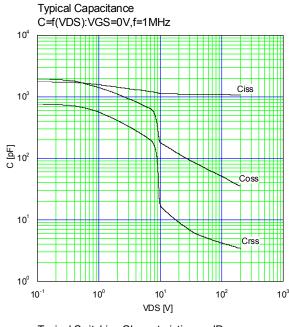


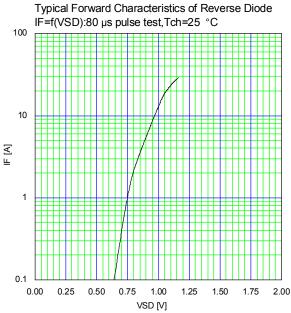
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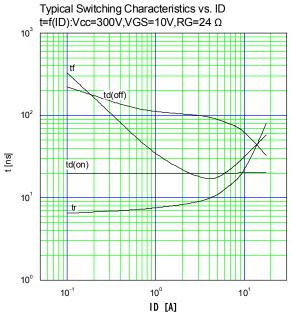


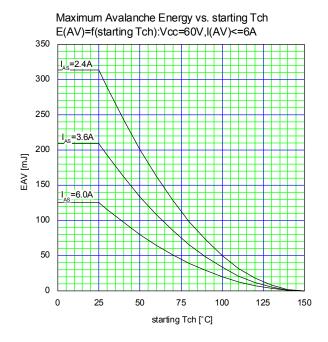


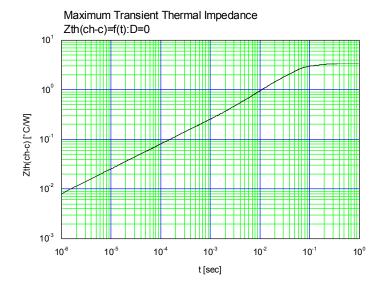












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