

FMV24N25G

FUJI POWER MOSFET

Super FAP-G series

N-CHANNEL SILICON POWER MOSFET

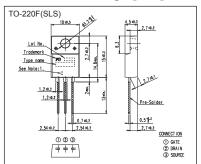
■ Features

High speed switching Low on-resistance No secondary breadown Low driving power Avalanche-proof

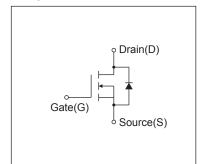
Applications

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

■ Outline Drawings [mm]



■ Equivalent circuit schematic



■ Maximum Ratings and Characteristics

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

Description	Symbol	Characteristics	Unit	Remarks	
Dunin Sauraa Valtana	V _{DS}	250	V		
Drain-Source Voltage	V _{DSX}	220	V	V _{GS} = -30V	
Continuous Drain Current	I _D	±24	А		
Pulsed Drain Current	IDP	±96	А		
Gate-Source Voltage	V _{GS}	±30	V		
Repetitive and Non-Repetitive Maximum AvalancheCurrent	Iar	24	А	Note*1	
Non-Repetitive Maximum Avalanche Energy	Eas	192	mJ	Note*2	
Maximum Drain-Source dV/dt	dVds/dt	20	kV/μs	VDS=≤200V	
Peak Diode Recovery dV/dt	dV/dt	5	kV/μs	Note*3	
Manifester Bassas Biantina	Ь	2.16	14/	Ta=25°C	
Maximum Power Dissipation	P□	65	W	Tc=25°C	
O	Tch	150	°C		
Operating and Storage Temperature range	Tstg	-55 to +150	°C		
Isolation	Viso	2	KVrms	t=60sec, f=60Hz	

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

Description	Symbol	Conditions	Conditions		typ.	max.	Unit	
Drain-Source Breakdown Voltage	BVDSS	In=250µA, Vgs=0V		250	-	-	V	
Gate Threshold Voltage	V _{GS} (th)	In=250µA, Vns=Vgs		3.0	-	5.0	V	
Zero Gate Voltage Drain Current		V _{DS} =250V, V _{GS} =0V	Tch=25°C	-	-	25	μА	
	IDSS	V _{DS} =200V, V _{GS} =0V	Tch=125°C	-	-	250		
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	Ros (on)	I _D =12A, V _{GS} =10V		-	0.11	0.13	Ω	
Forward Transconductance	g _{fs}	I _D =12A, V _{DS} =25V		8	16	-	S	
Input Capacitance	Ciss	V _{DS} =75V V _{SS} =0V f=1MHz		-	1150	1725	pF	
Output Capacitance	Coss			-	200	300		
Reverse Transfer Capacitance	Crss			-	13	19.5		
Turn-On Time	td(on)	V _{cc} =72V V _{GS} =10V		-	27	40.5		
	tr			-	22	33		
Turn-Off Time	td(off)	I _D =12A		-	35	52.5	ns -	
	tf	R _G =10Ω		-	14	21		
Total Gate Charge	QG	Vcc=72V	V _{cc} =72V		36	54	nC	
Gate-Source Charge	QGS	I _D =24A		-	14.5	21.8		
Gate-Drain Charge	Q _{GD}			11.5	17.3			
Avalanche Capability	lav	L=560uH, Tch=25°C	L=560uH, Tch=25°C		-	-	Α	
Diode Forward On-Voltage	VsD	I _F =24A, V _{GS} =0V, T _{ch} =25°C	I _F =24A, V _{GS} =0V, T _{ch} =25°C		1.0	1.5	V	
Reverse Recovery Time	trr	I _F =24A, V _{GS} =0V		-	0.23	-	μS	
Reverse Recovery Charge	Qrr	-di/dt=100A/µs, Tch=25°C		-	2.5	-	μC	

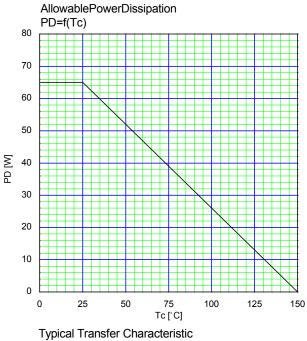
Thermal Characteristics

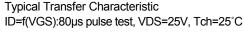
Description	Symbol	min.	typ.	max.	Unit
Channel to Case	Rth (ch-c)			1.923	°C/W
Channel to Ambient	Rth (ch-a)			58.0	°C/W

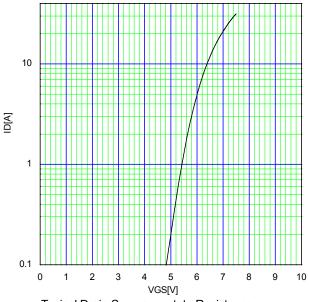
Note *2 : Stating Tch=25°C, Ias=A, L=560uH, Vcc=48V, R_G=50Ω,

Eas limited by maximum channel temperature and avalanche current.

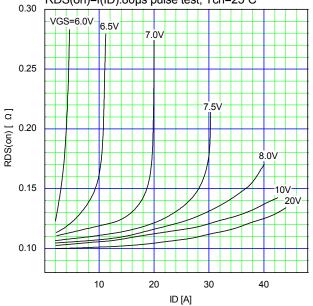
Note *3 : Ir≤-Ip, -di/dt=50A/µs, Vcc≤BVpss, Tch≤150°C.



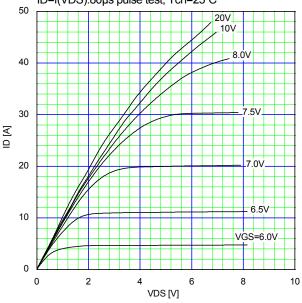




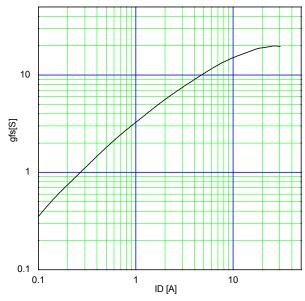
Typical Drain-Source on-state Resistance RDS(on)=f(ID):80µs pulse test, Tch=25°C



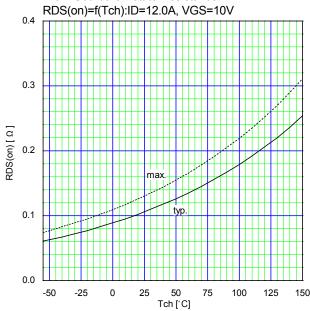
Typical Output Characteristics ID=f(VDS):80µs pulse test, Tch=25°C

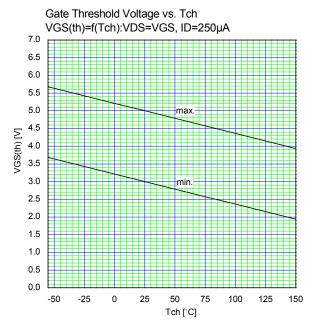


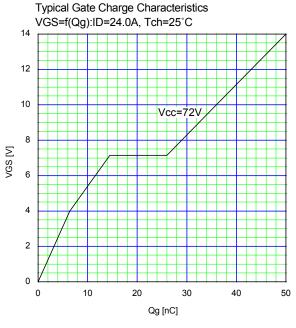
Typical Transconductance gfs=f(ID):80 μs pulse test, VDS=25V, Tch=25°C



Drain-Source On-state Resistance



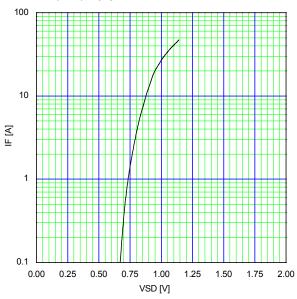




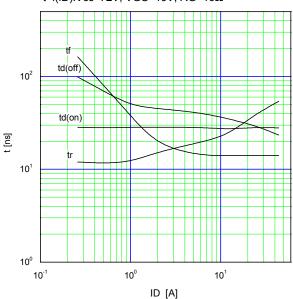
Typical Capacitance C=f(VDS):VGS=0V, f=1MHz

10⁴
10³
Ciss
10²
10¹
10⁰
10¹
10²
VDS [V]

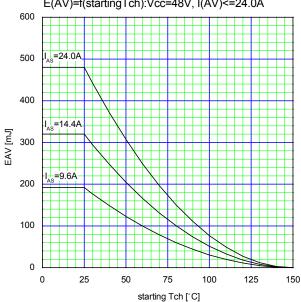
Typical Forward Characteristics of Reverse Diode IF=f(VSD):80µspulsetest, Tch=25°C

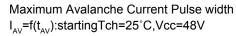


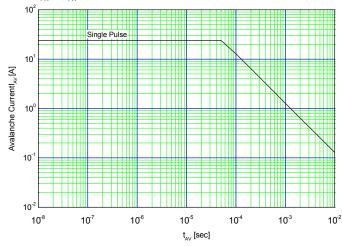
Typical Switching Characteristics vs. ID t=f(ID):Vcc=72V, VGS=10V, RG=10 Ω



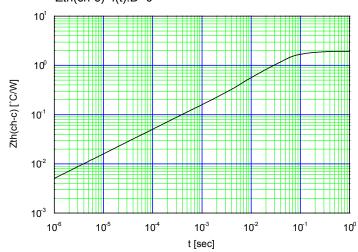
Maximum Avalanche Energy vs. starting Tch E(AV)=f(startingTch):Vcc=48V, I(AV)<=24.0A







Transient Thermal Impedance Zth(ch-c)=f(t):D=0



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