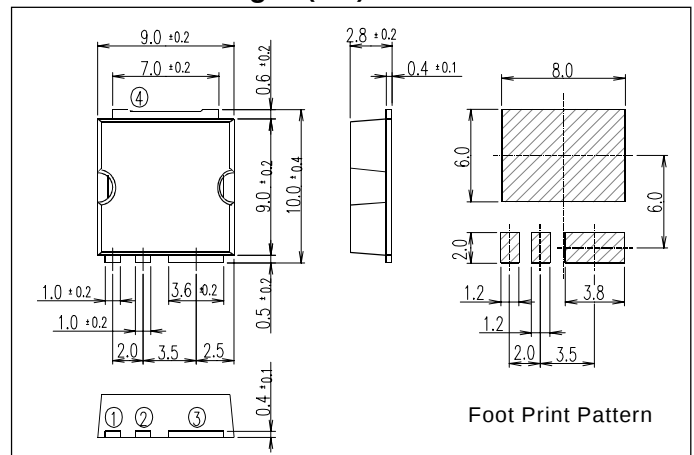


FUJI POWER MOSFET

Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

■ Outline Drawings (mm)



■ Features

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

■ Applications

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

■ Maximum ratings and characteristic

Absolute maximum ratings

(T_c=25°C unless otherwise specified)

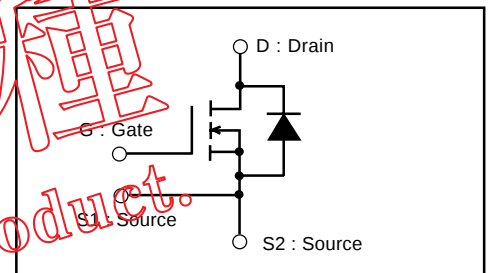
Item	Symbol	Ratings	Unit	
Drain-source voltage	V _{DS}	100	V	
	V _{DSX} *5	70	V	
Continuous drain current	I _D	T _c =25°C	±41	A
		T _a =25°C	±5.2 **	A
Pulsed drain current	I _D (puls)	±164	A	
Gate-source voltage	V _{GS}	±30	V	
Non-repetitive Avalanche current	I _{AS} *2	41	A	
Maximum Avalanche Energy	E _{AS} *1	204.7	mJ	
Maximum Drain-Source dV/dt	dV _{DS} /dt *4	20	kV/μs	
Peak Diode Recovery dV/dt	dV/dt *3	5	kV/μs	
Max. power dissipation	P _D / T _c =25°C	150	W	
	T _a =25°C	2.4 **		
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	

** Surface mounted on 1000mm² t=1.6mm FR-4 PCB(Drain pad area : 500mm²)

*1 L=146μH, V_{CC}=48V, T_{ch}=25°C, See to Avalanche Energy Graph *2 t_{ch} ≤ 150μs

*3 I_F ≤ -I_D, -di/dt=50A/μs, V_{CC} ≤ B V_{DSS}, T_{ch} ≤ 150°C *4 V_{DS} ≤ 100V *5 V_{GS}=-30V *6 t=60sec f=60Hz

■ Equivalent circuit schematic



● Electrical characteristics (T_c=25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250μA V _{GS} =0V	100			V
Gate threshold voltage	V _{GS(th)}	I _D =250μA V _{DS} =V _{GS}	3.0		5.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =100V V _{GS} =0V			25	μA
		V _{DS} =80V V _{GS} =0V			250	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =15A V _{GS} =10V		34	44	mΩ
Forward transconductance	g _{fs}	I _D =15A V _{DS} =25V	9	18		S
Input capacitance	C _{iss}	V _{DS} =75V		1110	1665	pF
Output capacitance	C _{oss}	V _{GS} =0V		280	420	pF
Reverse transfer capacitance	C _{rss}	f=1MHz		22	33	pF
Turn-on time t _{on}	td(on)	V _{CC} =48V I _D =15A		16	24	ns
	t _r	V _{GS} =10V		23	35	ns
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		31	47	ns
	t _f			16	24	ns
Total Gate Charge	Q _G	V _{CC} =50V		32	48	nC
Gate-Source Charge	Q _{GS}	I _D =30A		13	20	nC
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		9	14	nC
Avalanche capability	I _{AV}	L=146μH T _{ch} =25°C	41			A
Diode forward on-voltage	V _{SD}	I _F =30A V _{GS} =0V T _{ch} =25°C		1.10	1.65	V
Reverse recovery time	t _{rr}	I _F =30A V _{GS} =0V		0.1		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		0.38		μC

● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.833	°C/W
	R _{th(ch-a)}	channel to ambient			87.0	°C/W
	R _{th(ch-a)} **	channel to ambient			52.0	°C/W

** Surface mounted on 1000mm², t=1.6mm FR-4 PCB(Drain pad area : 500mm²)

Characteristics

