

FUJI POWER MOSFET

Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

Features

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

Applications

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

Maximum ratings and characteristic Absolute maximum ratings (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit	Remarks
Drain-source voltage	V _{DS}	300	V	
	V _{DSX}	300	V	V _{GS} =-30V
Continuous drain current	I _D	32	A	
Pulsed drain current	I _D (puls)	±128	A	
Gate-source voltage	V _{GS}	±30	V	
Non-Repetitive	I _{AS}	32	A	T _{ch} ≤150°C
Maximum avalanche current				
Non-Repetitive	E _{AS}	597.4	mJ	*1
Maximum avalanche energy				
Repetitive	E _{AR}	9.5	mJ	*2
Maximum avalanche energy				
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤300V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*3
Max. power dissipation	P _D	2.16	W	T _a =25°C
		95	W	T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{slg}	-55 to +150	°C	
Isolation voltage	V _{ISO}	2	V	t=60sec, f=60Hz

*1 Starting T_{ch}=25°C, I_{AS}=13A, L=6.13mH, V_{CC}=48V, R_G=50Ω

E_{AS} limited by maximum channel temperature and avalanche current.
See to the 'Avalanche Energy' graph.

*2 Repetitive rating : Pulse width limited maximum channel temperature.
See to the 'Transient Thermal impedance' graph.

*3 I_F≤-I_D, -di/dt=50A/μs, V_{CC}≤BV_{DSS}, T_{ch}≤150°C

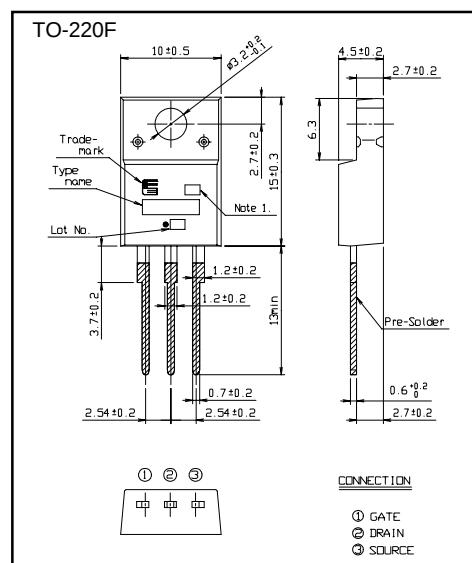
Electrical characteristics (T_c=25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250μA V _{GS} =0V	300			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} =300V V _{GS} =0V T _{ch} =25°C			25	μA
		V _{DS} =240V V _{GS} =0V T _{ch} =125°C			250	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V			100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =16A V _{GS} =10V		0.10	0.13	Ω
Forward transconductance	g _{fs}	I _D =16A V _{DS} =25V	12	24		S
Input capacitance	C _{iss}	V _{DS} =25V		1970	2955	pF
Output capacitance	C _{oss}	V _{GS} =0V		335	502	pF
Reverse transfer capacitance	C _{rss}	f=1MHz		20	30	pF
Turn-on time t _{on}	td(on)	V _{CC} =180V I _D =16A		29	44	ns
	t _r	V _{GS} =10V		7.5	11	ns
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		57	86	ns
	t _f			7	10.5	ns
Total Gate Charge	Q _G	V _{CC} =150V		44.5	67	nC
Gate-Source Charge	Q _{GS}	I _D =32A		18	27	nC
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		13.5	20.5	nC
Diode forward on-voltage	V _{SD}	I _F =32A V _{GS} =0V T _{ch} =25°C		0.90	1.50	V
Reverse recovery time	t _{rr}	I _F =32A V _{GS} =0V		270		ns
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		3.0		μC

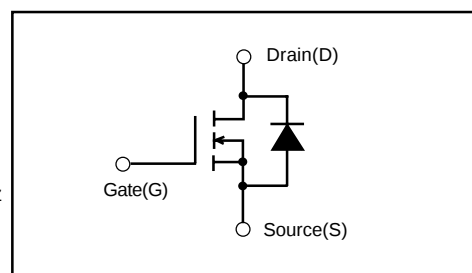
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.316	°C/W
	R _{th(ch-a)}	channel to ambient			58.0	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

