

2SK3687-01MR

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}	600	V	
	V _{DSX}	600	V	V _{GS} =-30V
Continuous drain current	I _D	±16	A	
Pulsed drain current	I _{D(puls)}	±64	A	
Gate-source voltage	V _{GS}	±30	V	
Non-Repetitive Maximum avalanche current	I _{AS}	16	A	T _{ch} ≤ 150°C
Non-Repetitive Maximum avalanche energy	E _{AS}	242.7	mJ	L=1.74mH V _{CC} =60V *1
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤ 600V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*2
Max. power dissipation	P _D	2.16	W	T _a =25°C
		97		T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	
Isolation voltage	V _{ISO}	2	kVrms	t=60sec, f=60Hz

*1 See to Avalanche Energy Graph

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

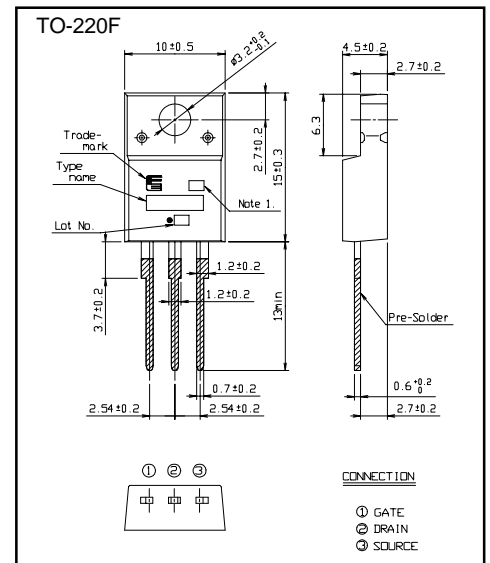
Electrical characteristics (Tc =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	I _D = 250μA V _{GS} =0V	600			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} =600V V _{GS} =0V T _{ch} =25°C			25	μA
		V _{DS} =480V V _{GS} =0V T _{ch} =125°C			250	
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 =8A V _{GS} =10V		0.42	0.57	Ω
Forward transconductance	g _{fs}	I _D =8A V _{DS} =25V	6.5	13		S
Input capacitance	C _{iss}	V _{DS} =25V		1590	2390	pF
Output capacitance	C _{oss}	V _{GS} =0V		200	300	
Reverse transfer capacitance	C _{rss}	f=1MHz		8	12	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =8A		29	43.5	ns
	t _r	V _{GS} =10V		16	24	
Turn-off time t _{off}	td(off)	R _{GS} =10Ω		58	87	
	t _f			8	12	
Total Gate Charge	Q _G	V _{CC} =300V		34	51	nC
Gate-Source Charge	Q _{GS}	I _D =16A		12	18	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		10	15	
Avalanche capability	I _{AV}	L=1.74mH T _{ch} =25°C	16			A
Diode forward on-voltage	V _{SD}	I _F =16A V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =16A V _{GS} =0V		0.68		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		7.8		μC

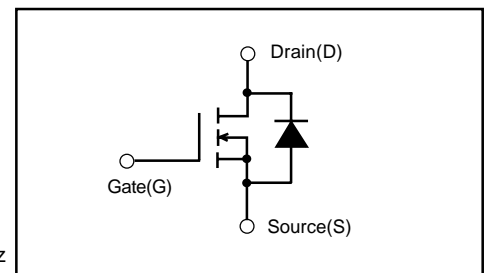
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.289	°C/W
	R _{th(ch-a)}	channel to ambient			3.00	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

