

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

■ Maximum ratings and characteristicAbsolute maximum ratings

● (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V_{DS}	100	V
	$V_{BSX} \times 5$	70	V
Continuous drain current	I_D	± 29	A
Pulsed drain current	$I_{D(puls)}$	± 116	A
Gate-source voltage	V_{GS}	± 30	V
Non-repetitive Avalanche current	$I_{AS} \times 2$	29	A
Maximum Avalanche Energy	$E_{AS} \times 1$	155.8	mJ
Maximum Drain-Source dV/dt	$dV_{DS}/dt \times 4$	20	kV/ μ s
Peak Diode Recovery dV/dt	$dV/dt \times 3$	5	kV/ μ s
Max. power dissipation	P_D	$T_a = 25^\circ C$	W
		$T_C = 25^\circ C$	
Operating and storage temperature range	T_{ch}	+150	$^\circ C$
	T_{stg}	-55 to +150	$^\circ C$
Isolation voltage	$V_{iso} \times 6$	2	kVrms

*1 L=222μH, Vcc=48V, Tch=25°C, See to Avalanche Energy Graph *2 Tch ≤ 150°C

*3 $I_F \leq -I_D$, $-di/dt = 50 \text{ A}/\mu\text{s}$, $V_{CC} \leq BV_{DSS}$, $T_{ch} \leq 150^\circ\text{C}$ *4 $V_{DS} \leq 100\text{V}$ *5 $V_{GS} = -30\text{V}$ *6 $t = 60\text{sec}$ $f = 60\text{Hz}$

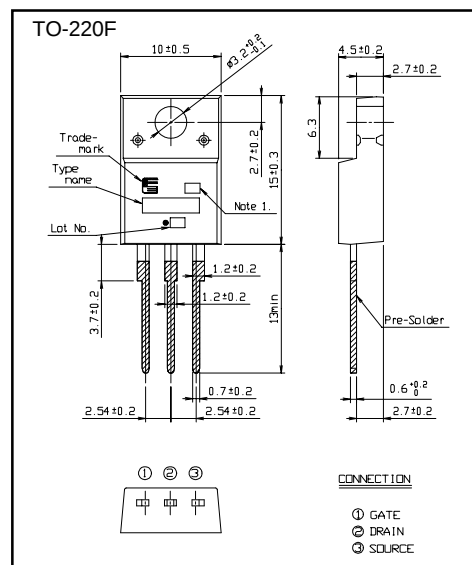
● Electrical characteristics (T_c =25°C unless otherwise specified)

Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	ID= 250μA VGS=0V		100			V
Gate threshold voltage	VGS(th)	ID= 250μA VDS=VGS		3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=100V VGS=0V	Tch=25°C			25	μA
		VDS=80V VGS=0V	Tch=125°C			250	
Gate-source leakage current	IGSS	VGS=±30V VDS=0V			10	100	nA
Drain-source on-state resistance	RDS(on)	ID=10A VGS=10V			47	62	mΩ
Forward transconductance	gfs	ID=10A VDS=25V		6	12		S
Input capacitance	Ciss	VDS=75V			730	1095	pF
Output capacitance	Coss	VGS=0V			190	285	
Reverse transfer capacitance	Crss	f=1MHz			12	18	
Turn-on time ton	td(on)	VCC=48V ID=10A			12	18	ns
	tr	VGS=10V			3.8	6	
Turn-off time toff	td(off)	RGS=10 Ω			23	35	
	tf				8.5	13	
Total Gate Charge	QG	VCC=50V			22	33	nC
Gate-Source Charge	QGS	ID=20A			9	13.5	
Gate-Drain Charge	QGD	VGS=10V			6	9	
Avalanche capability	I _{AV}	L=222μH Tch=25°C		29			A
Diode forward on-voltage	VSD	IF=20A VGS=0V Tch=25°C			1.10	1.65	V
Reverse recovery time	trr	IF=20A VGS=0V			65		ns
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs Tch=25°C			0.17		μC

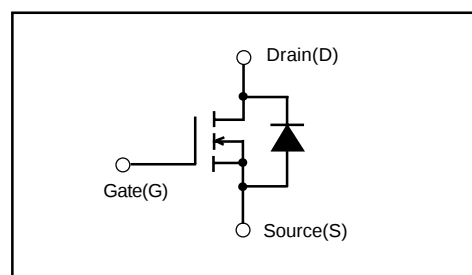
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			3.378	°C/W
	R _{th(ch-a)}	channel to ambient			58.0	°C/W

■ Outline Drawings (mm)



■ Equivalent circuit schematic



Characteristics

