

FUJI POWER MOSFET
Super FAP-G Series

200309
N-CHANNEL SILICON POWER MOSFET

■ Features

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

■ Applications

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

■ Maximum ratings and characteristicAbsolute 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	±43	A	
Pulsed drain current	I _{D(puls)}	±172	A	
Gate-source voltage	V _{GS}	±30	V	
Non-Repetitive Maximum avalanche current	I _{AS}	43	A	T _{ch} =25°C *1
Repetitive or Maximum avalanche current	I _{AR}	21.5	A	T _{ch} ≤150°C *1
Non-Repetitive Maximum avalanche energy	E _{AS}	808.9	mJ	L=802μH V _{CC} =60V *2
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤600V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*3
Max. power dissipation	P _D	2.50	W	T _a =25°C
		600		T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stq}	-55 to +150	°C	

*1 See to Avalanche Current Graph

*2 See to Avalanche Energy Graph

*3 $I_F \leq -I_D$, $-di/dt = 50 \text{ A}/\mu\text{s}$, $V_{CC} \leq BV_{DSS}$, $T_{ch} \leq 150^\circ\text{C}$

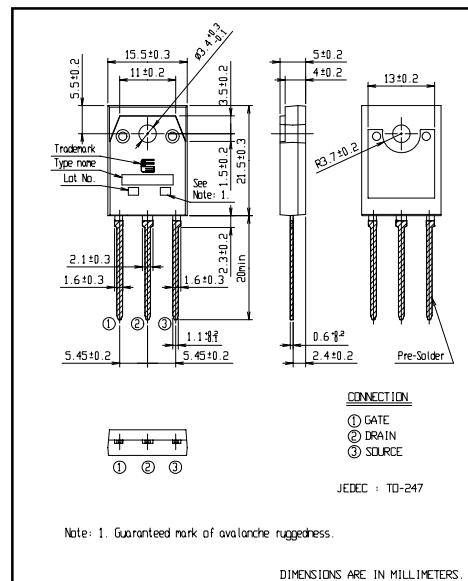
● Electrical characteristics (T_c = 25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	ID= 250μA VGS=0V	600			V
Gate threshold voltage	VGS(th)	ID= 250μA VDS=VGS	3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=600V VGS=0V Tch=25°C			25	μA
		VDS=480V 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=26A VGS=10V		0.12	0.16	Ω
Forward transconductance	gfs	ID=21.5A VDS=25V	15	30		S
Input capacitance	Ciss	VDS=25V		5360	8040	pF
Output capacitance	Coss	VGS=0V		680	1020	
Reverse transfer capacitance	Crss	f=1MHz		40	60	
Turn-on time ton	td(on)	VCC=300V ID=21.5A		80	120	ns
	tr	VGS=10V		87	131	
Turn-off time toff	td(off)	RGS=10 Ω		190	285	
	tf			44	66	
Total Gate Charge	QG	VCC=300V		112	168	nC
Gate-Source Charge	QGS	ID=43A		34	51	
Gate-Drain Charge	QGD	VGS=10V		40	60	
Avalanche capability	IAV	L=802μH Tch=25°C	43			A
Diode forward on-voltage	VSD	IF=43A VGS=0V Tch=25°C		1.00	1.50	V
Reverse recovery time	trr	IF=43A VGS=0V		0.98		μs
Reverse recovery charge	Qrr	-di/dt=100A/μs Tch=25°C		22.0		μC

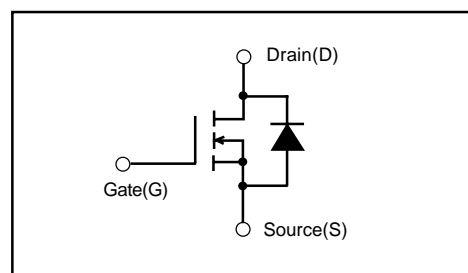
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$	channel to case			0.208	°C/W
	$R_{th(ch-a)}$	channel to ambient			50.0	°C/W

■ Outline Drawings [mm]



■ Equivalent circuit schematic



Characteristics

