

# 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	$V_{DS}$	900	V
	$V_{BSX} \times 5$	900	V
Continuous drain current	$I_D$	$\pm 7$	A
Pulsed drain current	$I_{D(puls)}$	$\pm 28$	A
Gate-source voltage	$V_{GS}$	$\pm 30$	V
Repetitive or non-repetitive	$I_{AR} \times 2$	7	A
Maximum Avalanche Energy	$E_{AS} \times 1$	269.5	mJ
Maximum Drain-Source $dV/dt$	$dV_{DS}/dt \times 4$	40	kV/ $\mu$ s
Peak Diode Recovery $dV/dt$	$dV/dt \times 3$	5	kV/ $\mu$ s
Max. power dissipation	$P_D$	$T_a=25^\circ\text{C}$	W
		$T_c=25^\circ\text{C}$	
Operating and storage temperature range	$T_{ch}$	+150	$^\circ\text{C}$
	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*1 L=10.1mH, Vcc=90V, Tch=25°C, See to Avalanche Energy Graph      \*2 Tch≤150°C

\*3  $I_F \leq -I_D$ ,  $-di/dt = 50A/\mu s$ ,  $V_{CC} \leq BV_{DSS}$ ,  $T_{ch} \leq 150^\circ C$       \*4  $V_{DS} \leq 900V$       \*5  $V_{GS} = -30V$

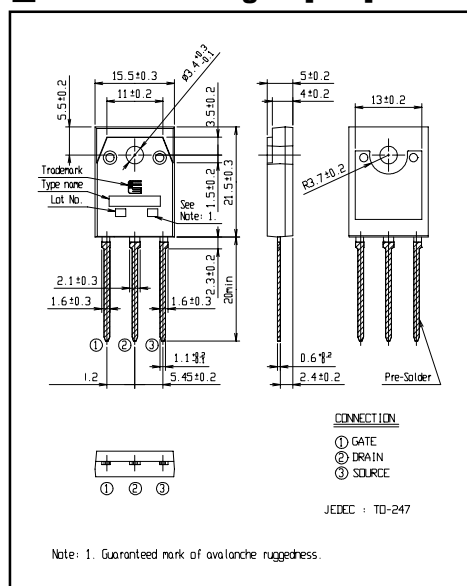
● Electrical characteristics (T<sub>c</sub> = 25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	I <sub>D</sub> =250μA V <sub>GS</sub> =0V	900			V
Gate threshold voltage	V <sub>GS(th)</sub>	I <sub>D</sub> = 250μA V <sub>DS</sub> =V <sub>GS</sub>	3.0		5.0	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =900V V <sub>GS</sub> =0V			25	μA
		V <sub>DS</sub> =720V V <sub>GS</sub> =0V			250	
Gate-source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±30V V <sub>DS</sub> =0V			100	nA
Drain-source on-state resistance	R <sub>DS(on)</sub>	I <sub>D</sub> =3.5A V <sub>GS</sub> =10V		1.54	2.00	Ω
Forward transconductance	g <sub>fs</sub>	I <sub>D</sub> =3.5A V <sub>DS</sub> =25V	4.1	8.2		S
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V		920	1380	pF
Output capacitance	C <sub>oss</sub>	V <sub>GS</sub> =0V		115	175	
Reverse transfer capacitance	C <sub>rss</sub>	f=1MHz		6.6	10	
Turn-on time t <sub>on</sub>	t <sub>d(on)</sub>	V <sub>CC</sub> =600V I <sub>D</sub> =3.5A		22	33	ns
	t <sub>r</sub>	V <sub>GS</sub> =10V		8.0	12	
Turn-off time t <sub>off</sub>	t <sub>d(off)</sub>	R <sub>GS</sub> =10 Ω		45	67.5	
	t <sub>f</sub>			10.5	16	
Total Gate Charge	Q <sub>G</sub>	V <sub>CC</sub> =450V		25	37.5	nC
Gate-Source Charge	Q <sub>GS</sub>	I <sub>D</sub> =7A		4	6	
Gate-Drain Charge	Q <sub>GD</sub>	V <sub>GS</sub> =10V		8.5	13	
Avalanche capability	I <sub>AV</sub>	L=10.1mH T <sub>ch</sub> =25°C	7			A
Diode forward on-voltage	V <sub>SD</sub>	I <sub>F</sub> =7A V <sub>GS</sub> =0V T <sub>ch</sub> =25°C		0.90	1.50	V
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> =7A V <sub>GS</sub> =0V		2.6		μs
Reverse recovery charge	Q <sub>rr</sub>	-di/dt=100A/μs T <sub>ch</sub> =25°C		8.0		μC

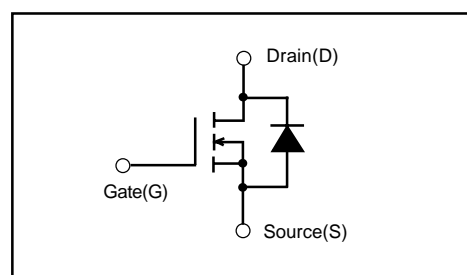
## ● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R <sub>th(ch-c)</sub>	channel to case			0.640	°C/W
	R <sub>th(ch-a)</sub>	channel to ambient			50.0	°C/W

### ■ Outline Drawings [mm]



### ■ Equivalent circuit schematic



## Characteristics

