

FUJI POWER MOSFET

Super FAP-G Series

200304
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}	150	V
	$V_{BSX} \times 5$	120	V
Continuous drain current	I_D	± 33	A
Pulsed drain current	$I_{D(puls)}$	± 132	A
Gate-source voltage	V_{GS}	± 30	V
Repetitive or non-repetitive	$I_{AR} \times 2$	33	A
Maximum Avalanche Energy	$E_{AS} \times 1$	169	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	$T_a = 25^\circ\text{C}$	W
		$T_c = 25^\circ\text{C}$	
Operating and storage temperature range	T_{ch}	+150	$^\circ\text{C}$
	T_{sta}	-55 to +150	$^\circ\text{C}$

*1 L=228μH, 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 $V_{DS} \leq 150\text{V}$ *5 $V_{GS} = -30\text{V}$

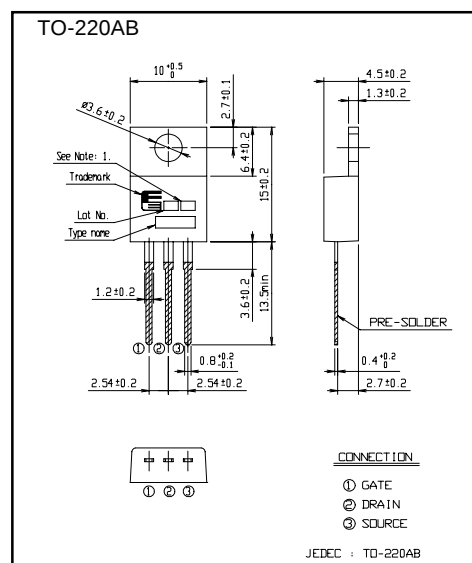
● **Electrical characteristics (T_c =25°C unless otherwise specified)**

Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR)DSS	ID=250μA VGS=0V		150			V
Gate threshold voltage	VGS(th)	ID= 250μA	VDS=VGS	3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=150V VGS=0V	Tch=25°C			25	μA
		VDS=120V 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=11.5A	VGS=10V		54	70	mΩ
Forward transconductance	gfs	ID=11.5A	VDS=25V	8	16		S
Input capacitance	Ciss	VDS=75V			1150	1730	pF
Output capacitance	Coss	VGS=0V			200	300	
Reverse transfer capacitance	Crss	f=1MHz			17	26	
Turn-on time ton	td(on)	VCC=48V ID=11.5A			13	20	ns
	tr	VGS=10V			15	23	
Turn-off time toff	td(off)	RGS=10 Ω			34	51	
	tr				15	23	
Total Gate Charge	QG	VCC=48V			34	51	nC
Gate-Source Charge	QGS	ID=23A			9	13.5	
Gate-Drain Charge	QGD	VGS=10V			12.5	19	
Avalanche capability	IAS	L=228μH Tch=25°C		33			A
Diode forward on-voltage	VSD	IF=23A VGS=0V Tch=25°C			1.10	1.65	V
Reverse recovery time	trr	IF=23A VGS=0V			130		ns
Reverse recovery charge	Qrr	-di/dt=100A/μs Tch=25°C			0.6		μC

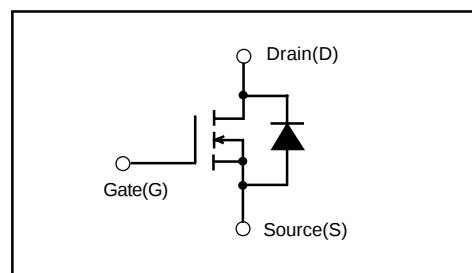
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	Rth(ch-c)	channel to case			0.833	°C/W
	Rth(ch-a)	channel to ambient			62.0	°C/W

■ Outline Drawings [mm]



■ Equivalent circuit schematic



Characteristics

