

FUJI POWER MOSFET

N-CHANNEL SILICON POWER MOSFET

Super FAP-G Series

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 characteristic Absolute maximum ratings

($T_c=25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V_{DS}	900	V
	$V_{DSX} *5$	900	V
Continuous drain current	I_D	± 10	A
Pulsed drain current	$I_{D(puls)}$	± 40	A
Gate-source voltage	V_{GS}	± 30	V
Repetitive or non-repetitive	$I_{AR} *2$	10	A
Maximum Avalanche Energy	$E_{AS} *1$	330	mJ
Maximum Drain-Source dV/dt	$dV_{DS}/dt *4$	40	kV/ μs
Peak Diode Recovery dV/dt	$dV/dt *3$	5	kV/ μs
Max. power dissipation	P_D	$T_a=25^\circ\text{C}$	2.50
		$T_c=25^\circ\text{C}$	270
Operating and storage temperature range	T_{ch}	+150	$^\circ\text{C}$
	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 $L=6.06\text{mH}$, $V_{CC}=90\text{V}$, $T_{ch}=25^\circ\text{C}$, See to Avalanche Energy Graph *2 $T_{ch} \leq 150^\circ\text{C}$

*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 $V_{DS} \leq 900\text{V}$ *5 $V_{GS} = -30\text{V}$

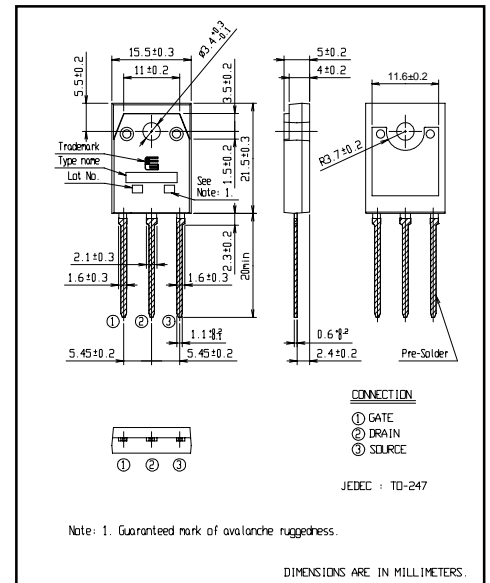
Electrical characteristics ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D = 250\mu\text{A}$ $V_{GS} = 0\text{V}$	900			V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 250\mu\text{A}$ $V_{DS} = V_{GS}$	3.0		5.0	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 900\text{V}$ $V_{GS} = 0\text{V}$			25	μA
		$V_{DS} = 720\text{V}$ $V_{GS} = 0\text{V}$			250	
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 30\text{V}$ $V_{DS} = 0\text{V}$			100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 5\text{A}$ $V_{GS} = 10\text{V}$		1.08	1.40	Ω
Forward transconductance	g_{fs}	$I_D = 5\text{A}$ $V_{DS} = 25\text{V}$	6	12		S
Input capacitance	C_{iss}	$V_{DS} = 25\text{V}$		1250	1900	pF
Output capacitance	C_{oss}	$V_{GS} = 0\text{V}$		160	240	
Reverse transfer capacitance	C_{rss}	$f = 1\text{MHz}$		12	18	
Turn-on time t_{on}	$t_{d(on)}$	$V_{CC} = 600\text{V}$ $I_D = 5\text{A}$		26	39	ns
	t_r	$V_{GS} = 10\text{V}$		23	35	
Turn-off time t_{off}	$t_{d(off)}$	$R_{GS} = 10\Omega$		60	90	
	t_f			17	26	
Total Gate Charge	Q_G	$V_{CC} = 450\text{V}$		34.5	52	nC
Gate-Source Charge	Q_{GS}	$I_D = 10\text{A}$		5	7.5	
Gate-Drain Charge	Q_{GD}	$V_{GS} = 10\text{V}$		12	18	
Avalanche capability	I_{AV}	$L = 6.06\text{mH}$ $T_{ch} = 25^\circ\text{C}$	10			A
Diode forward on-voltage	V_{SD}	$I_F = 10\text{A}$ $V_{GS} = 0\text{V}$ $T_{ch} = 25^\circ\text{C}$		0.90	1.50	V
Reverse recovery time	t_{rr}	$I_F = 10\text{A}$ $V_{GS} = 0\text{V}$		3.1		μs
Reverse recovery charge	Q_{rr}	$-di/dt = 100\text{A}/\mu\text{s}$ $T_{ch} = 25^\circ\text{C}$		17.0		μC

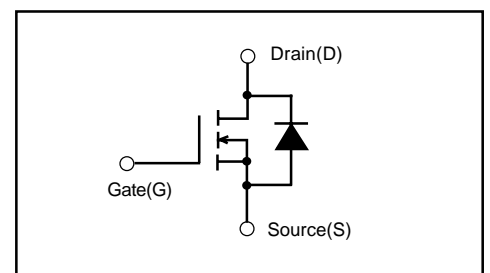
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$	channel to case			0.463	$^\circ\text{C}/\text{W}$
	$R_{th(ch-a)}$	channel to ambient			50.0	$^\circ\text{C}/\text{W}$

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

