

2SK3680-01



200309

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

Maximum ratings and characteristic Absolute maximum ratings

(Tc=25°C unless otherwise specified)

Item	Symbol	Rated	Unit	Remarks
Drain-source voltage	V _{DS}	500	V	
	V _{DSX}	500	V	V _{GS} =-30V
Continuous drain current	I _D	±52	A	
Pulsed drain current	I _{D(puls)}	±208	A	
Gate-source voltage	V _{GS}	±30	V	
Non-Repetitive Maximum avalanche current	I _{AS}	52	A	T _{ch} =25°C *1
Repetitive or Maximum avalanche current	I _{AR}	26	A	T _{ch} ≤150°C *1
Non-Repetitive Maximum avalanche energy	E _{AS}	802.7	mJ	L=544μH V _{CC} =50V *2
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤500V
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 _{stg}	-55 to +150	°C	

*1 See to Avalanche Current Graph

*2 See to Avalanche Energy Graph

*3 I_F≤-I_D, -di/dt=50A/μs, V_{CC}≤BV_{DSS}, T_{ch}≤150°C

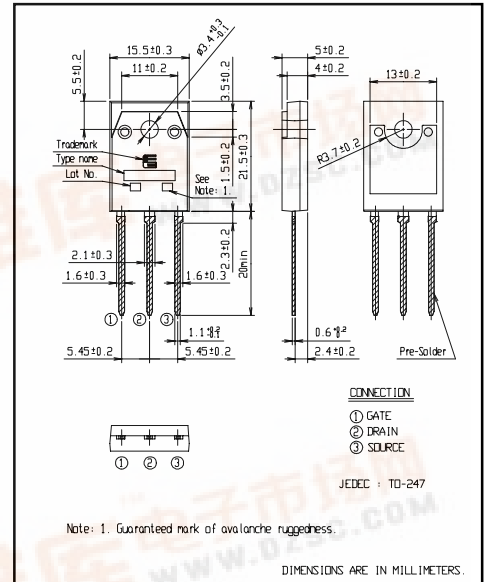
Electrical characteristics (Tc = 25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250μA V _{GS} =0V	500			V
Gate threshold voltage	V _{GS(th)}	I _D =250μA V _{DS} =V _{GS}	3.0		5.0	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =500V V _{GS} =0V T _{ch} =25°C			25	μA
		V _{DS} =400V V _{GS} =0V T _{ch} =125°C			250	
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V		10	100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =26A V _{GS} =10V		0.09	0.11	Ω
Forward transconductance	g _{fs}	I _D =26A V _{DS} =25V	15	30		S
Input capacitance	C _{iss}	V _{DS} =25V		5350	8025	pF
Output capacitance	C _{oss}	V _{GS} =0V		760	1140	
Reverse transfer capacitance	C _{rss}	f=1MHz		42	63	
Turn-on time t _{on}	t _{d(on)}	V _{CC} =300V I _D =26A		80	120	ns
		V _{GS} =10V		103	155	
Turn-off time t _{off}	t _{d(off)}	R _{GS} =10Ω		190	285	
					49	74
Total Gate Charge	Q _G	V _{CC} =250V		114	171	nC
Gate-Source Charge	Q _{GS}	I _D =52A		36	54	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		40	60	
Avalanche capability	I _{AV}	L=544μH T _{ch} =25°C	52			A
Diode forward on-voltage	V _{SD}	I _F =52A V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =52A V _{GS} =0V		0.83		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		19.0		μC

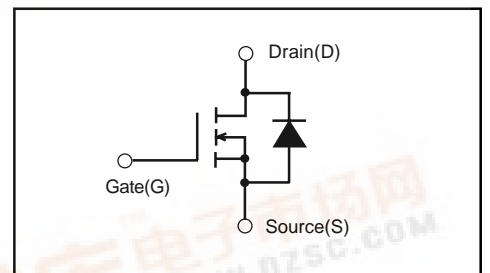
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.208	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

