

2SK3752-01R

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

(T_c=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit	Remarks
Drain-source voltage	V _{DS}	500	V	
Continuous drain current	I _D	±16	A	
Pulsed drain current	I _D (puls)	±64	A	
Gate-source voltage	V _{GS}	±30	V	
Repetitive and Non-Repetitive Maximum avalanche current	I _{AS}	16	A	T _{ch} ≤ 150°C
Non-Repetitive Maximum avalanche energy	E _{AS}	212.2	mJ	*1
Maximum Drain-Source dV/dt	dV _{DS} /dt	20	kV/s	V _{DS} ≤ 500V
Peak diode recovery dV/dt	dV/dt	5	kV/μs	*2
Max. power dissipation	P _D	3.13	W	T _a =25°C
		95		T _c =25°C
Operating and storage temperature range	T _{ch}	+150	°C	
	T _{stg}	-55 to +150	°C	
Isolation voltage	V _{ISO}	2	kV _{rms}	t=60sec f=60Hz

*1 L=1.52mH, V_{CC}=50V, Starting T_{ch}=25°C, See to Avalanche Energy Graph

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

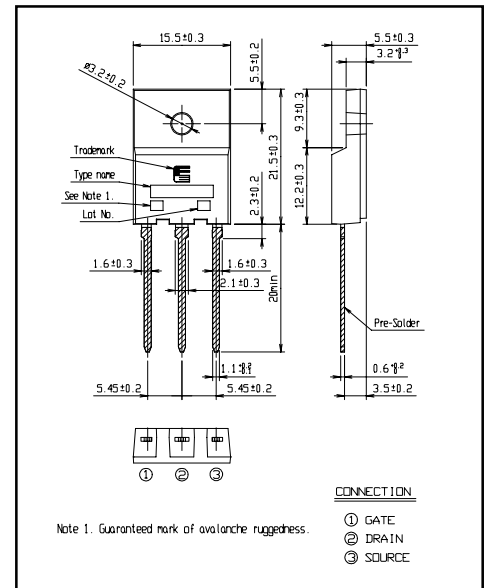
Electrical characteristics (T_c=25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	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 =7A V _{GS} =10V		0.35	0.46	Ω
Forward transconductance	g _{fs}	I _D =7A V _{DS} =25V	7	14		S
Input capacitance	C _{iss}	V _{DS} =25V		1600	2400	pF
Output capacitance	C _{oss}	V _{GS} =0V		160	240	
Reverse transfer capacitance	C _{rss}	f=1MHz		7	10.5	
Turn-on time t _{on}	t _{d(on)}	V _{CC} =300V I _D =7A		18	27	ns
	t _r	V _{GS} =10V		16	24	
Turn-off time t _{off}	t _{d(off)}	R _{GS} =10Ω		35	50	
	t _f			8	15	
Total Gate Charge	Q _G	V _{CC} =250V		33	50	nC
Gate-Source Charge	Q _{GS}	I _D =14A		12.5	19	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		10.5	16	
Avalanche capability	I _{AV}	L=1.52mH T _{ch} =25°C	16			A
Diode forward on-voltage	V _{SD}	I _F =14A V _{GS} =0V T _{ch} =25°C		1.00	1.50	V
Reverse recovery time	t _{rr}	I _F =14A V _{GS} =0V		0.65		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		6.0		μC

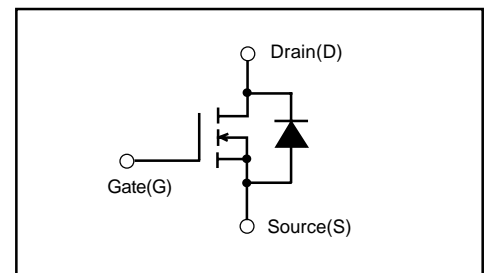
Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.32	°C/W
	R _{th(ch-a)}	channel to ambient			40.0	°C/W

Outline Drawings [mm]



Equivalent circuit schematic



Characteristics

