

2SK3676-01L,S,SJ

FUJI
ELECTRIC

200304

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 _{DSX} *5	900	V
Continuous drain current	I _D	±6	A
Pulsed drain current	I _{D(puls)}	±24	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	I _{AR} *2	6	A
Maximum Avalanche Energy	E _{AS} *1	244	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°C	1.67
		T _c =25°C	195
Operating and storage temperature range	T _{ch}	+150	°C
	T _{stg}	-55 to +150	°C

*1 L=12.4mH, V_{CC}=90V, T_{ch}=25°C, See to Avalanche Energy Graph *2 T_{ch}≤150°C

*3 I_F≤-I_D, -di/dt=50A/μs, V_{CC}≤BV_{DSS}, T_{ch}≤150°C *4 V_{DS}≤900V *5 V_{GS}=-30V

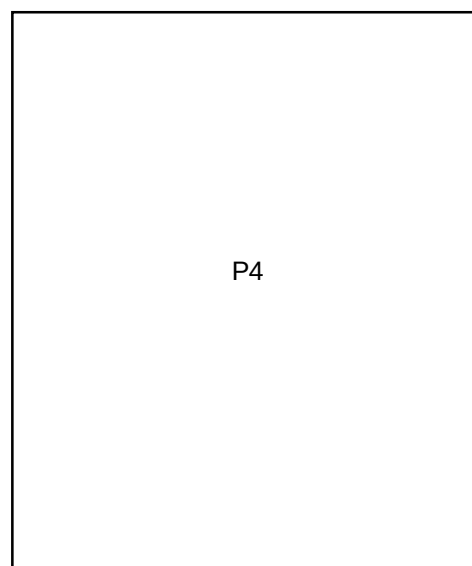
● Electrical characteristics (T_c =25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V _{(BR)DSS}	I _D =250μA V _{GS} =0V	900			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} =900V V _{GS} =0V			25	μA
		V _{DS} =720V V _{GS} =0V			250	
Gate-source leakage current	I _{GSS}	V _{GS} =±30V V _{DS} =0V			100	nA
Drain-source on-state resistance	R _{DS(on)}	I _D =3A V _{GS} =10V		1.92	2.50	Ω
Forward transconductance	g _{fs}	I _D =3A V _{DS} =25V	3.7	7.4		S
Input capacitance	C _{iss}	V _{DS} =25V		750	1125	pF
Output capacitance	C _{oss}	V _{GS} =0V		100	150	
Reverse transfer capacitance	C _{rss}	f=1MHz		7	11	
Turn-on time t _{on}	td(on)	V _{CC} =600V I _D =3A		21	32	ns
	t _r	V _{GS} =10V		8.0	12	
Turn-off time t _{off}	td(off)	R _{GS} =10 Ω		42	63	
	t _f			11	16.5	
Total Gate Charge	Q _G	V _{CC} =450V		25	32	nC
Gate-Source Charge	Q _{GS}	I _D =6A		3	4.5	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		7	10.5	
Avalanche capability	I _{AV}	L=12.4mH T _{ch} =25°C	6			A
Diode forward on-voltage	V _{SD}	I _F =6A V _{GS} =0V T _{ch} =25°C		0.90	1.50	V
Reverse recovery time	t _{rr}	I _F =6A V _{GS} =0V		1.1		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		5.5		μC

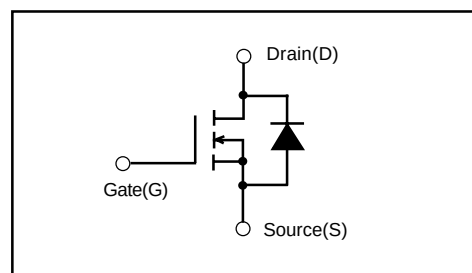
● Thermalcharacteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			0.640	°C/W
	R _{th(ch-a)}	channel to ambient			75.0	°C/W

■ Outline Drawings [mm]



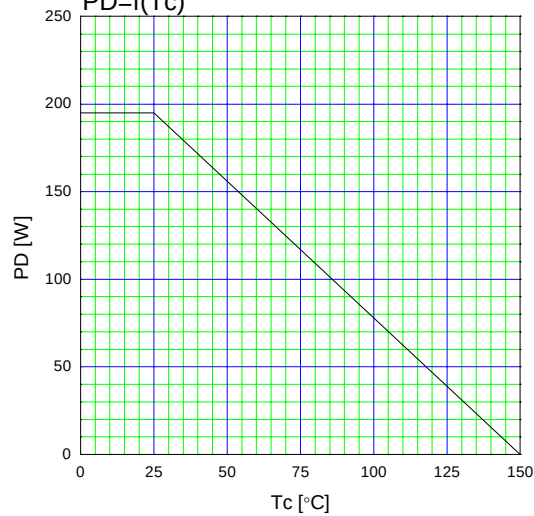
■ Equivalent circuit schematic



Characteristics

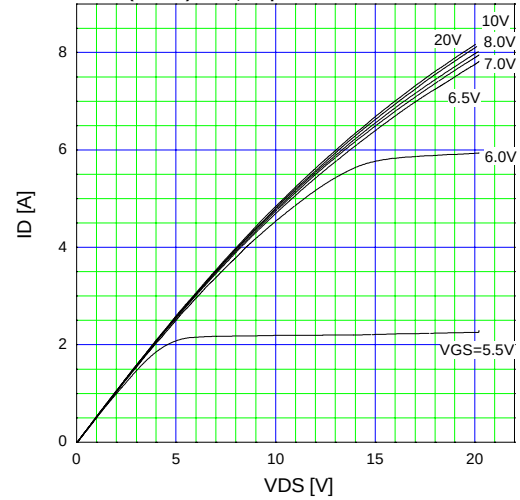
Allowable Power Dissipation

$$PD=f(T_c)$$



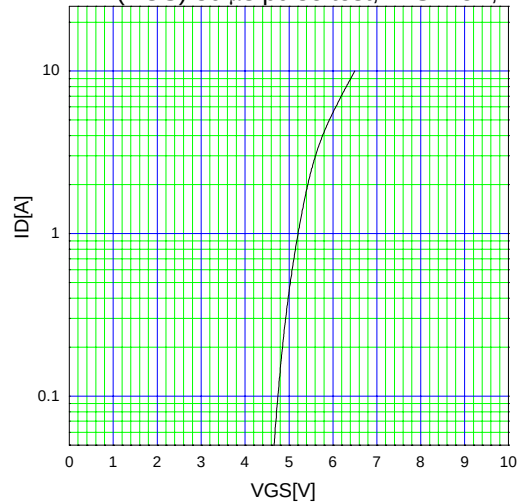
Typical Output Characteristics

$$I_D=f(V_{DS}):80\ \mu\text{s pulse test}, T_{ch}=25^{\circ}\text{C}$$



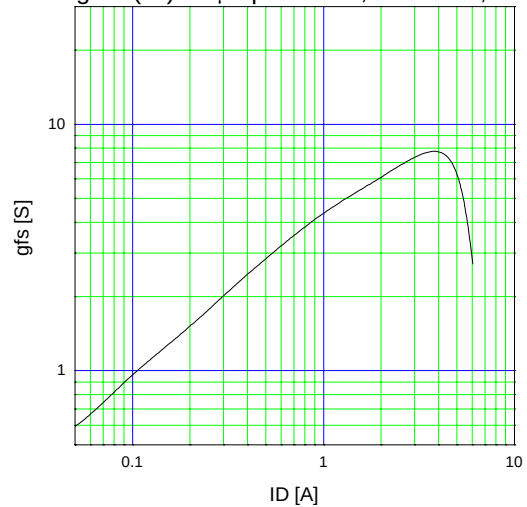
Typical Transfer Characteristic

$$I_D=f(V_{GS}):80\ \mu\text{s pulse test}, V_{DS}=25\text{V}, T_{ch}=25^{\circ}\text{C}$$



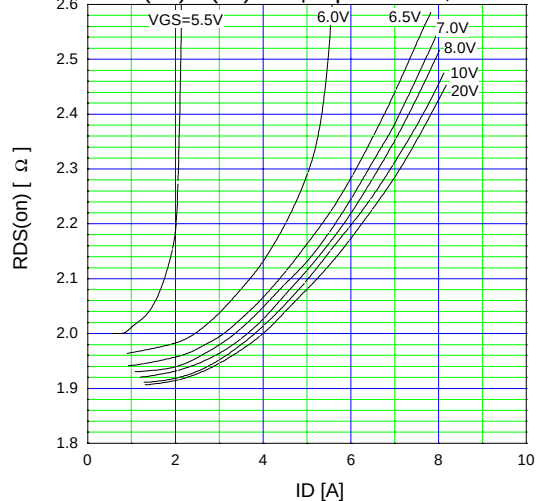
Typical Transconductance

$$g_{fs}=f(I_D):80\ \mu\text{s pulse test}, V_{DS}=25\text{V}, T_{ch}=25^{\circ}\text{C}$$



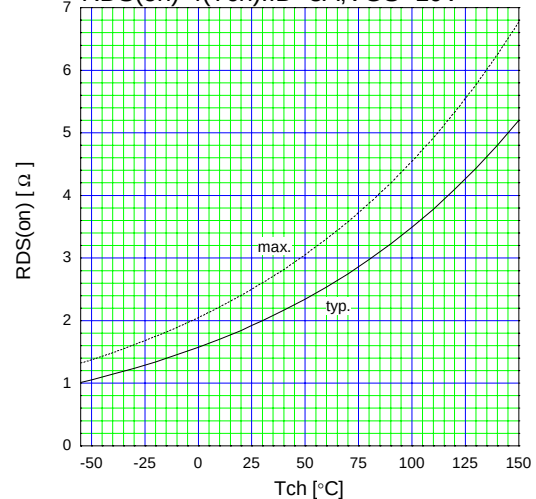
Typical Drain-Source on-state Resistance

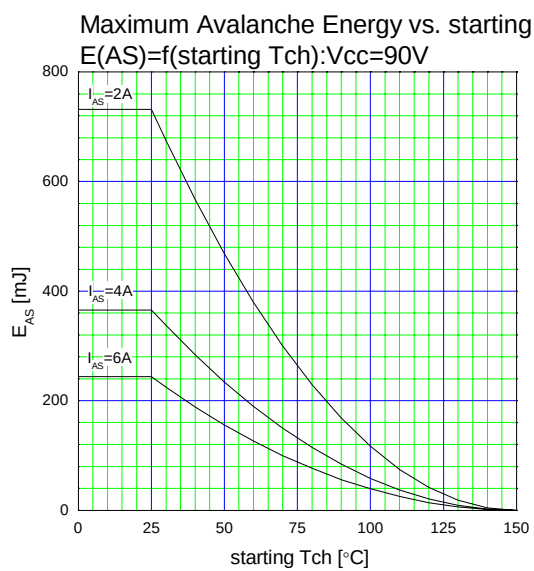
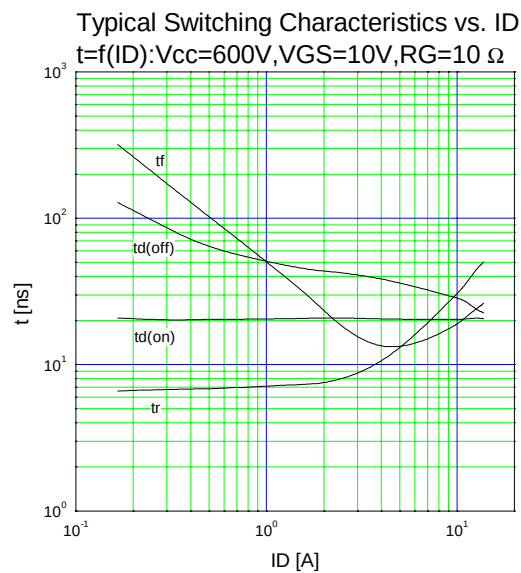
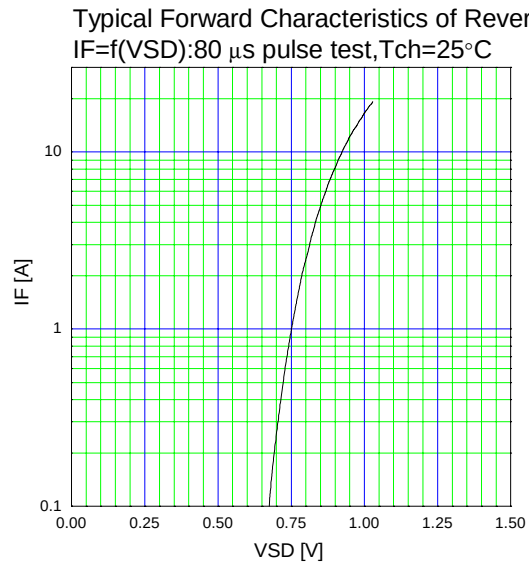
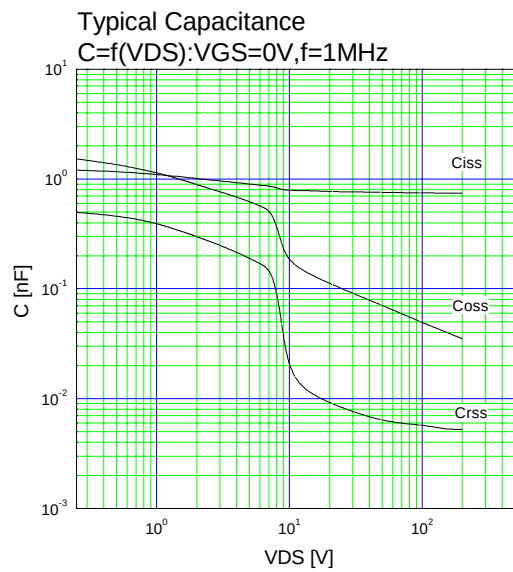
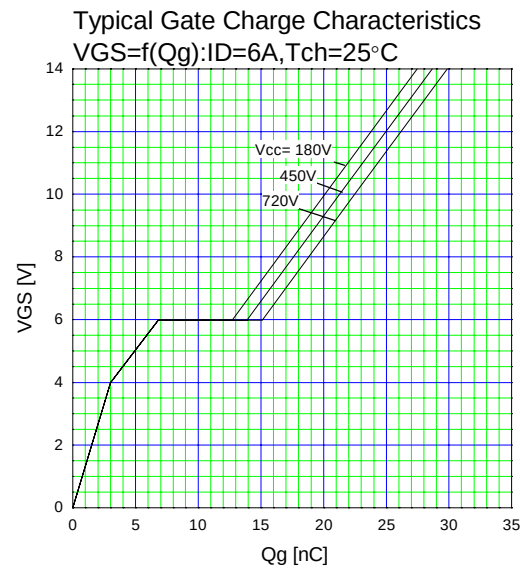
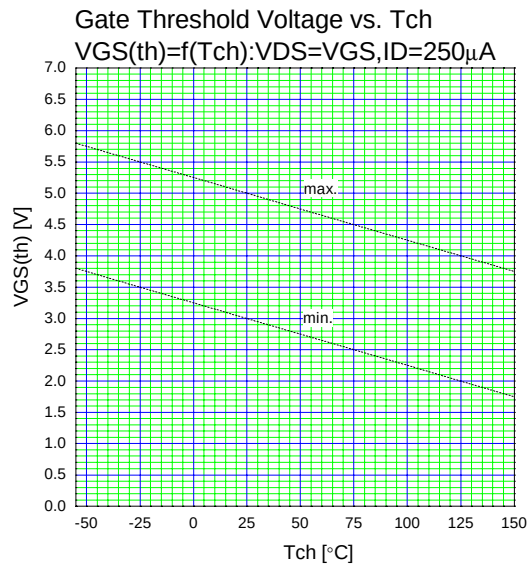
$$R_{DS(on)}=f(I_D):80\ \mu\text{s pulse test}, T_{ch}=25^{\circ}\text{C}$$

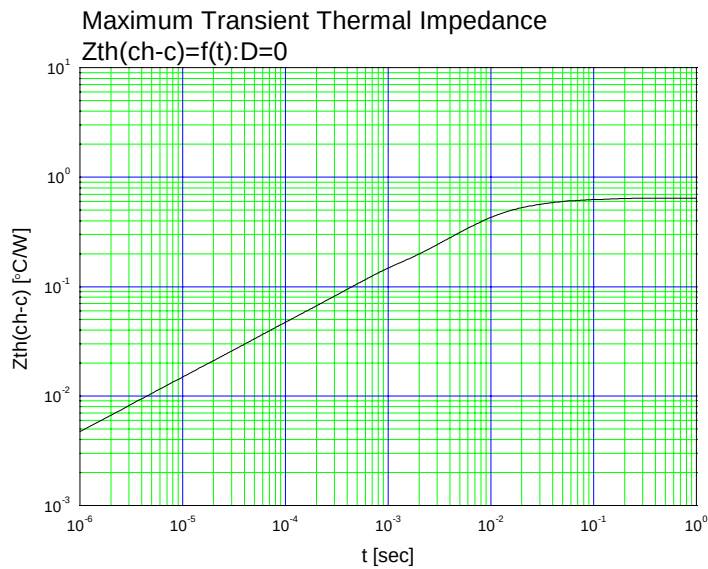
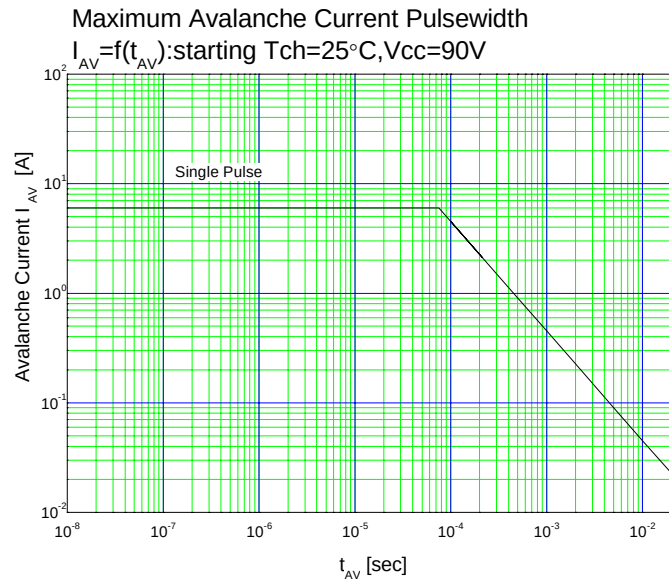


Drain-Source On-state Resistance

$$R_{DS(on)}=f(T_{ch}):I_D=3\text{A}, V_{GS}=10\text{V}$$

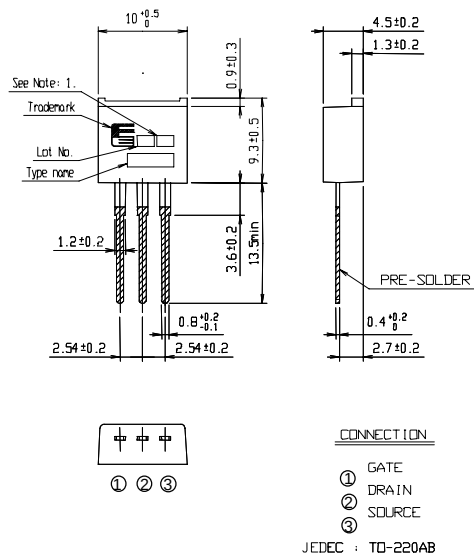




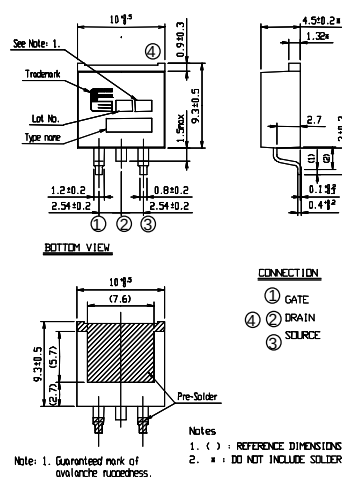


Outline Drawings (mm)

Type(L)



Type(S)



Type(SJ)

