

2SK3677-01MR

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 characteristic Absolute maximum ratings

● (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V _{DS}	700	V
	V _{DSX} *5	700	V
Continuous drain current	I _D	±12	A
Pulsed drain current	I _{D(puls)}	±48	A
Gate-source voltage	V _{GS}	±30	V
Repetitive or non-repetitive	I _{AR} *2	12	A
Maximum Avalanche Energy	E _{AS} *1	276.7	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	2.16
		T _C =25°C	95
Operating and storage temperature range	T _{ch}	+150	°C
	T _{stg}	-55 to +150	°C
Isolation Voltage	V _{iso} *6	2	kVrms

*1 L=3.53mH, V_{CC}=70V, 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}≤700V *5 V_{GS}=-30V *6 t=60sec, f=60Hz

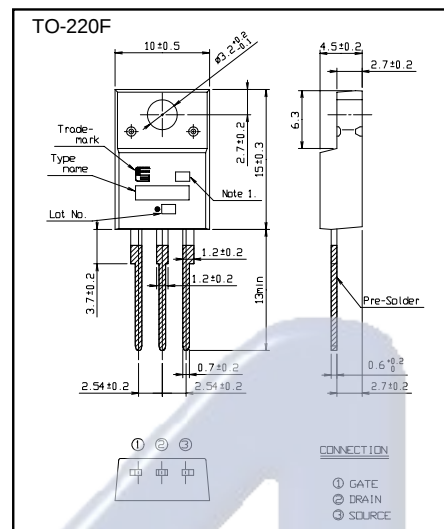
● Electrical characteristics (Tc=25°C unless otherwise specified)

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain-source breakdown voltage	V(BR) _{DSS}	I _D =250μA V _{GS} =0V	700			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} =700V V _{GS} =0V			25	μA
		V _{DS} =560V 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 =6A V _{GS} =10V		0.72	0.93	Ω
Forward transconductance	g _{fs}	I _D =6A V _{DS} =25V	6	12		S
Input capacitance	C _{iss}	V _{DS} =25V		1100	1650	pF
Output capacitance	C _{oss}	V _{GS} =0V		170	255	
Reverse transfer capacitance	C _{rss}	f=1MHz		11	17	
Turn-on time t _{on}	td(on)	V _{CC} =300V I _D =6A		24.5	36	ns
	tr	V _{GS} =10V		7.5	12	
Turn-off time t _{off}	td(off)	R _{GS} =10Ω		47.5	72	
	tr			10	17	
Total Gate Charge	Q _G	V _{CC} =350V		31	46.5	nC
Gate-Source Charge	Q _{GS}	I _D =12A		4.5	8	
Gate-Drain Charge	Q _{GD}	V _{GS} =10V		11	16.5	
Avalanche capability	I _{AV}	L=3.53mH T _{ch} =25°C	12			A
Diode forward on-voltage	V _{SD}	I _F =12A V _{GS} =0V T _{ch} =25°C		0.90	1.50	V
Reverse recovery time	t _{rr}	I _F =12A V _{GS} =0V		2.6		μs
Reverse recovery charge	Q _{rr}	-di/dt=100A/μs T _{ch} =25°C		16.0		μC

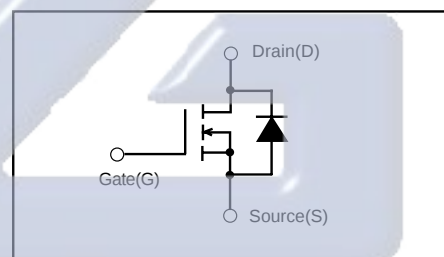
● Thermal characteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	R _{th(ch-c)}	channel to case			1.316	°C/W
	R _{th(ch-a)}	channel to ambient			58.0	°C/W

■ Outline Drawings [mm]



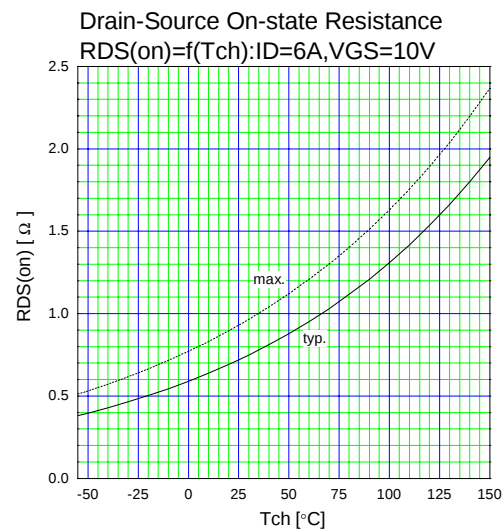
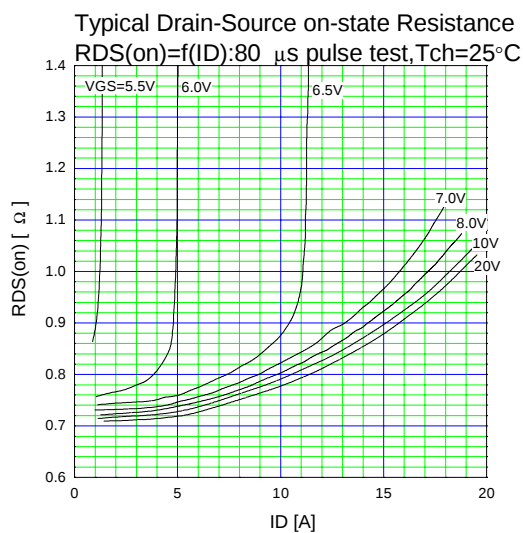
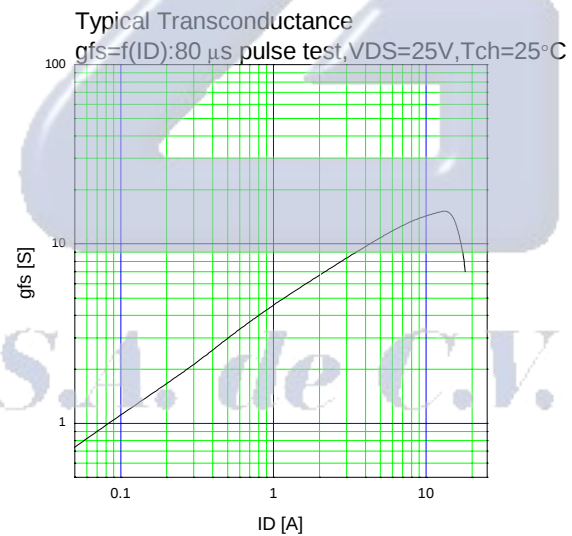
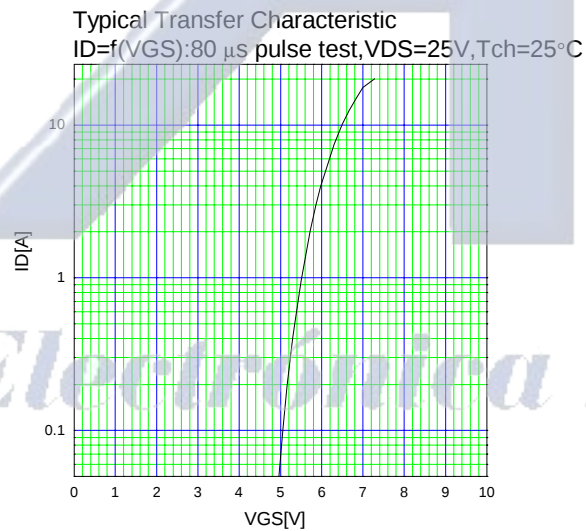
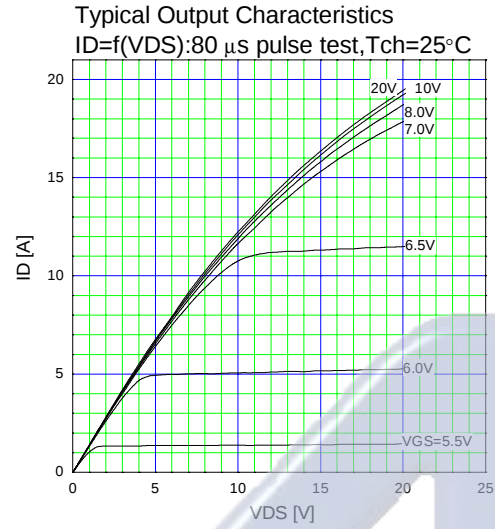
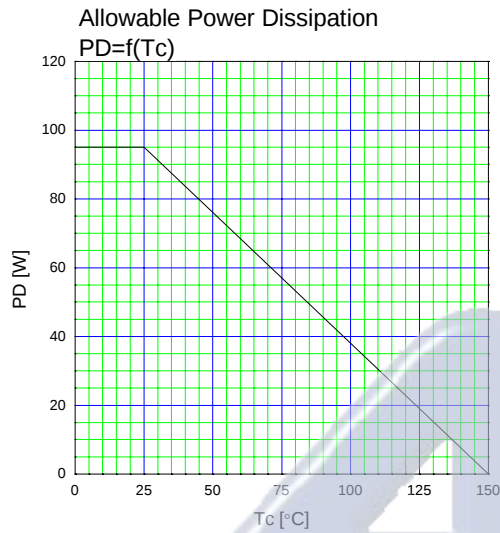
■ Equivalent circuit schematic



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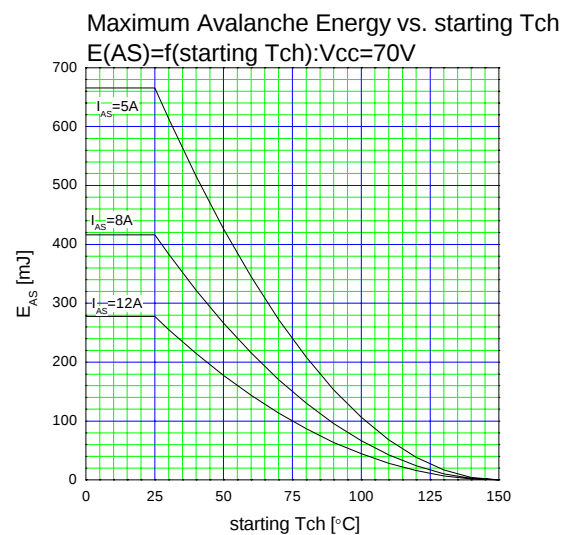
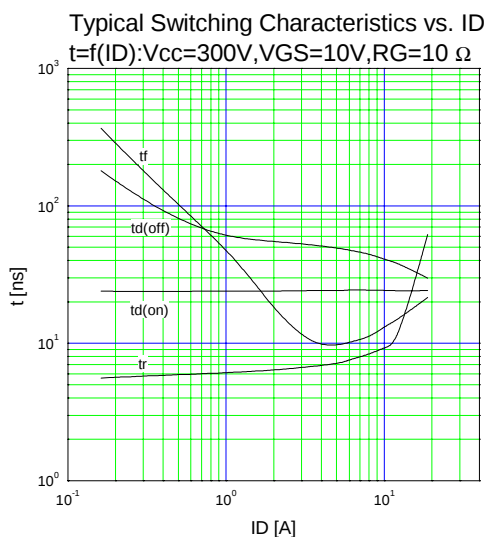
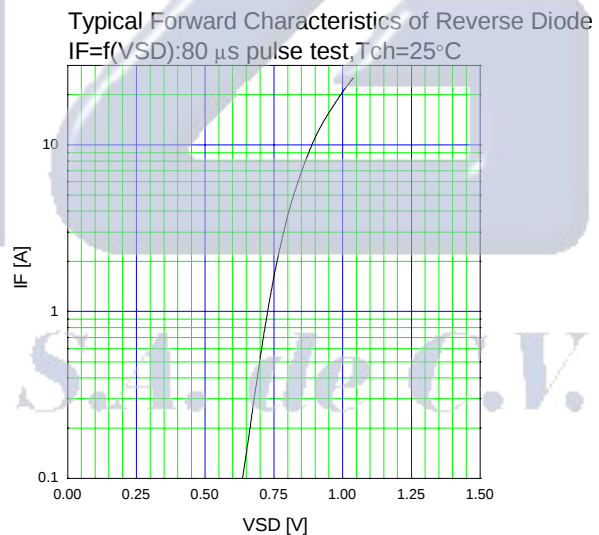
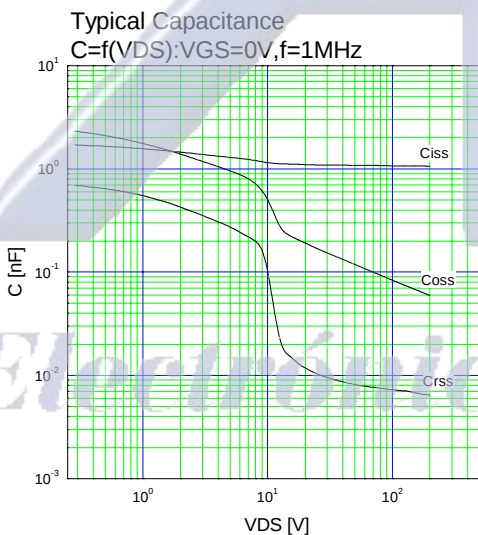
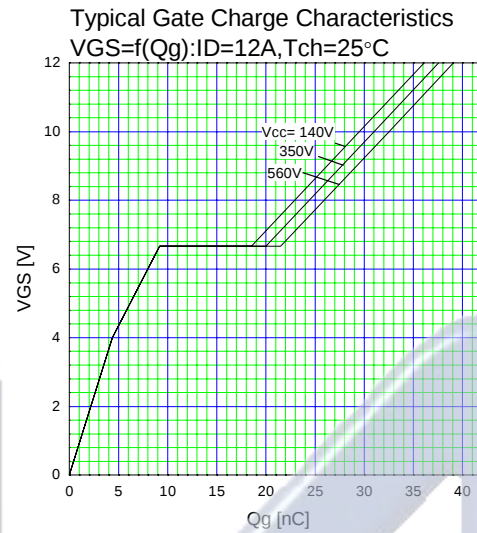
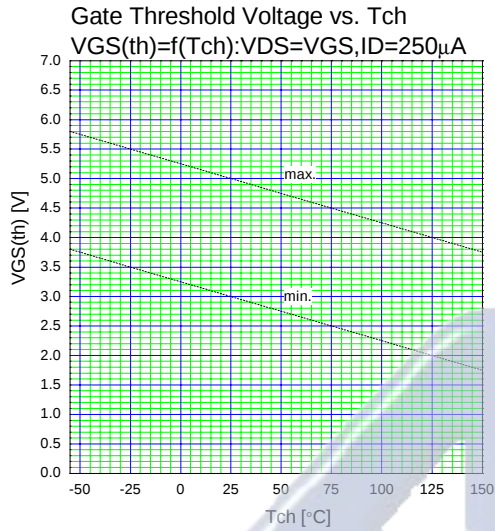
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