2SK3532-01MR

200304

FUJI POWER MOSFET
Super FAP-G Series

N-CHANNEL SILICON POWER MOSFET

■ Features

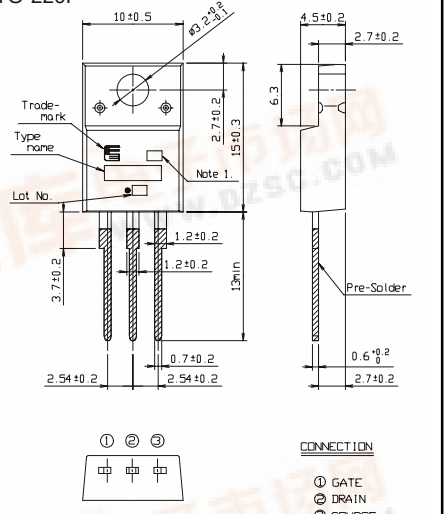
- High speed switching
- Low on-resistance
- No secondary breadown
- Low driving power
- Avalanche-proof

■ Applications

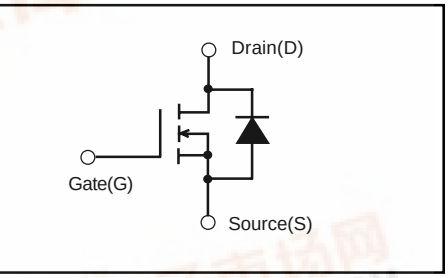
- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

■ Outline Drawings [mm]

TO-220F



■ Equivalent circuit schematic



■ Maximum ratings and characteristicAbsolute maximum ratings

● (Tc=25°C unless otherwise specified)

Item	Symbol		Ratings	Unit
Drain-source voltage	VDS		900	V
	VDSX *5		900	V
Continuous drain current	ID		±6	A
Pulsed drain current	ID(puls]		±24	A
Gate-source voltage	VGS		±30	V
Repetitive or non-repetitive	IAR *2		6	A
Maximum Avalanche Energy	EAS *1		244	mJ
Maximum Drain-Source dV/dt	dVDS/dt *4		40	kV/µs
Peak Diode Recovery dV/dt	dV/dt *3		5	kV/µs
Max. power dissipation	PD	Ta=25°C	2.16	W
		Tc=25°C	70	
Operating and storage temperature range	Tch		+150	°C
	Tstg		-55 to +150	°C
Isolation Voltage	VISO *6		2	kVrms

*1 L=12.4mH, Vcc=90V, Tch=25°C See to Avalanche Energy Graph *2 Tch≦150°C
*3 IF≦-ID, -di/dt=50A/µs, Vcc≦BVDSS, Tch≦150°C *4 VDS≦900V *5 VGS=-30V *6 t=60sec, f=60Hz

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

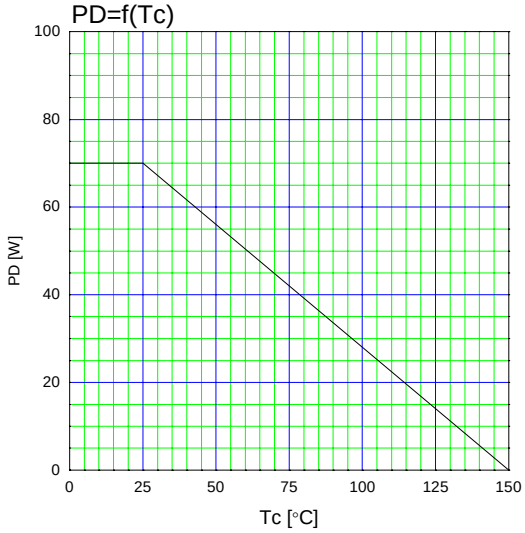
Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltaget	V(BR)DSS	ID= 250µA VGS=0V		900			V
Gate threshold voltage	VGS(th)	ID= 250µA VDS=VGS		3.0		5.0	V
Zero gate voltage drain current	IDSS	VDS=900V VGS=0V	Tch=25°C			25	µA
		VDS=720V VGS=0V	Tch=125°C			250	
Gate-source leakage current	IGSS	VGS=±30V VDS=0V				100	nA
Drain-source on-state resistance	RDS(on)	ID=3A VGS=10V			1.92	2.50	Ω
Forward transcondutance	gfs	ID=3A VDS=25V		3.7	7.4		S
Input capacitance	Ciss	VDS=25V			750	1125	pF
Output capacitance	Coss	VGS=0V			100	150	
Reverse transfer capacitance	Crss	f=1MHz			7	11	
Turn-on time ton	td(on)	Vcc=600V ID=3A			21	32	ns
	tr	VGS=10V			8	12	
Turn-off time toff	td(off)	RGS=10 Ω			42	63	
	tf				11	16.5	
Total Gate Charge	QG	Vcc=450V			21.5	32	nC
Gate-Source Charge	QGS	ID=6A			3	4.5	
Gate-Drain Charge	QGD	VGS=10V			7	10.5	
Avalanche capability	IAV	L=12.4mH Tch=25°C		6			A
Diode forward on-voltage	VSD	IF=6A VGS=0V Tch=25°C			0.90	1.50	V
Reverse recovery time	trr	IF=6A VGS=0V			1.1		µs
Reverse recovery charge	Qrr	-di/dt=100A/µs Tch=25°C			5.5		µC

● Thermalcharacteristics

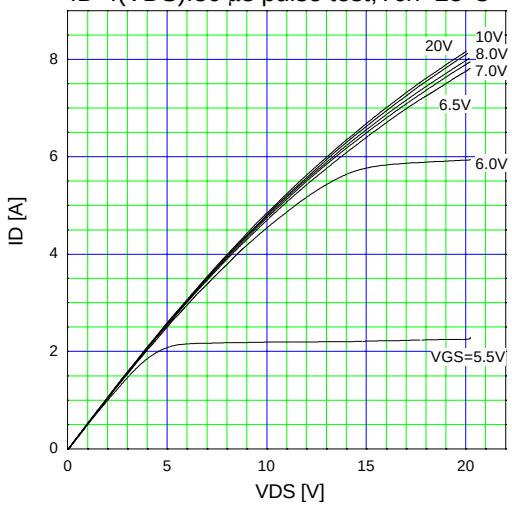
Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	Rth(ch-c)	channel to case			1.560	°C/W

Characteristics

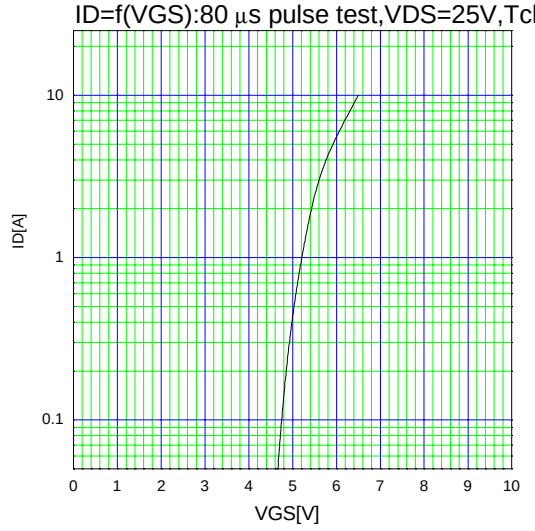
Allowable Power Dissipation
PD=f(Tc)



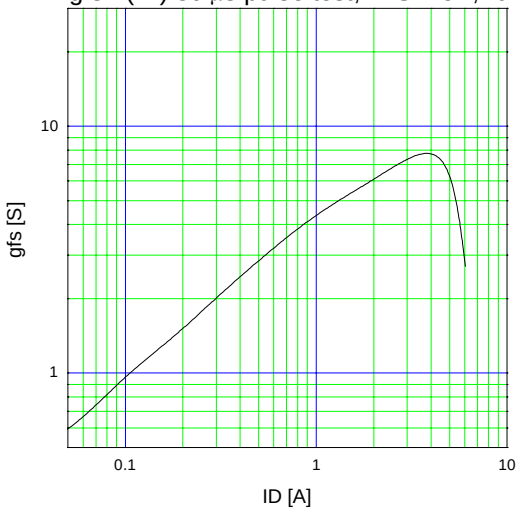
Typical Output Characteristics
ID=f(VDS):80 μs pulse test,Tch=25°C



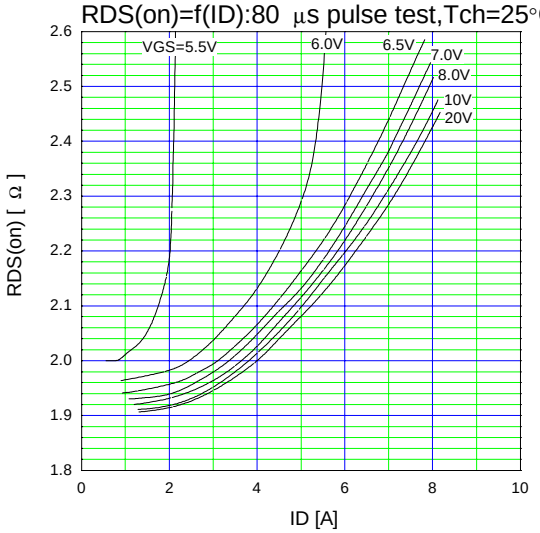
Typical Transfer Characteristic
ID=f(VGS):80 μs pulse test,VDS=25V,Tch=25°C



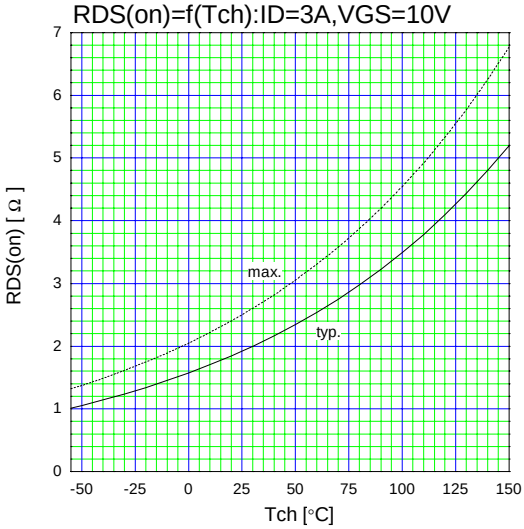
Typical Transconductance
gfs=f(ID):80 μs pulse test,VDS=25V,Tch=25°C



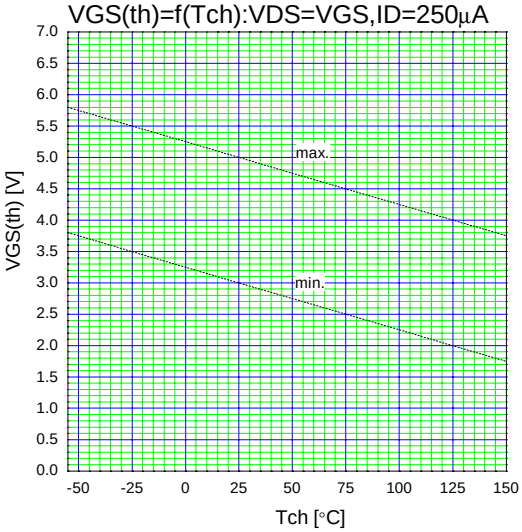
Typical Drain-Source on-state Resistance
RDS(on)=f(ID):80 μs pulse test,Tch=25°C



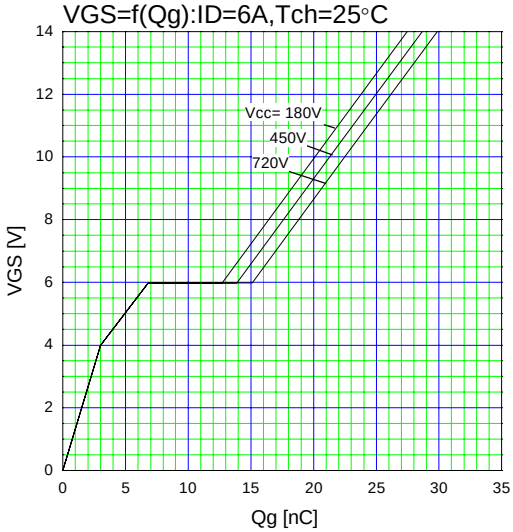
Drain-Source On-state Resistance
RDS(on)=f(Tch):ID=3A,VGS=10V



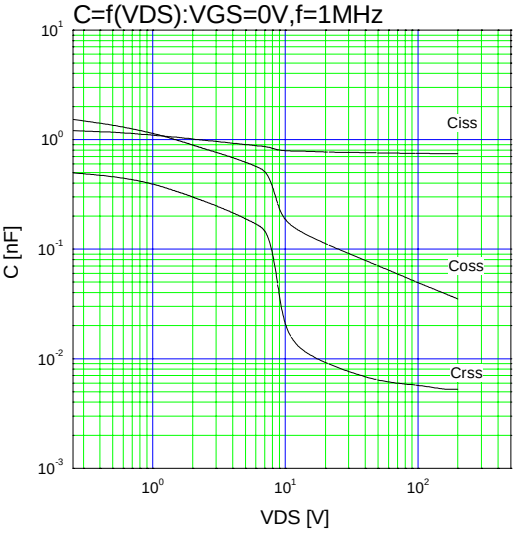
Gate Threshold Voltage vs. Tch
VGS(th)=f(Tch):VDS=VGS,ID=250μA



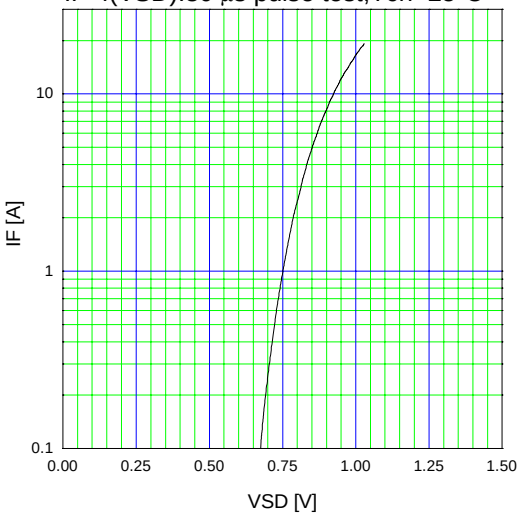
Typical Gate Charge Characteristics
VGS=f(Qg):ID=6A,Tch=25°C



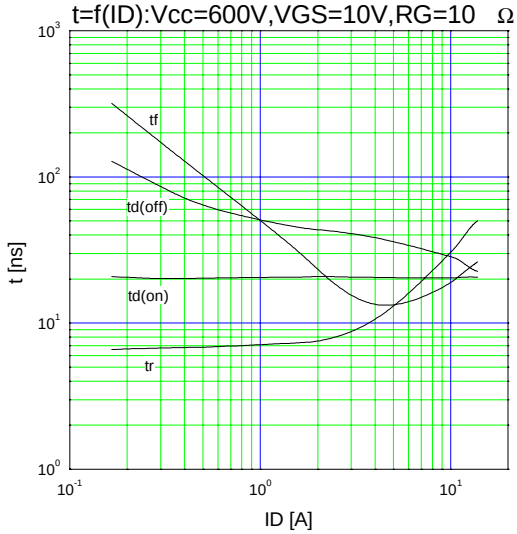
Typical Capacitance
C=f(VDS):VGS=0V,f=1MHz



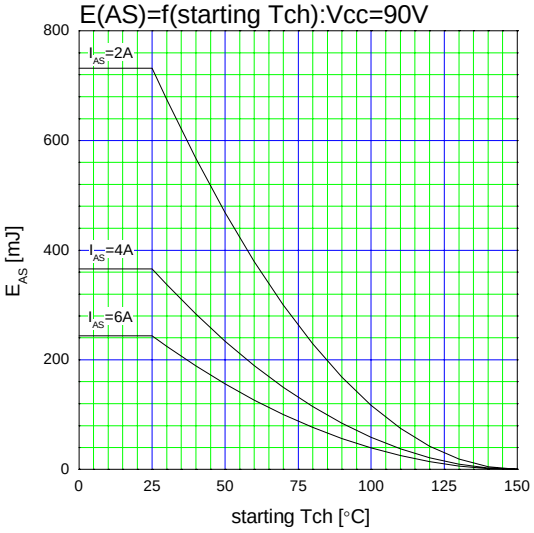
Typical Forward Characteristics of Reverse Diode
IF=f(VSD):80 μs pulse test,Tch=25°C



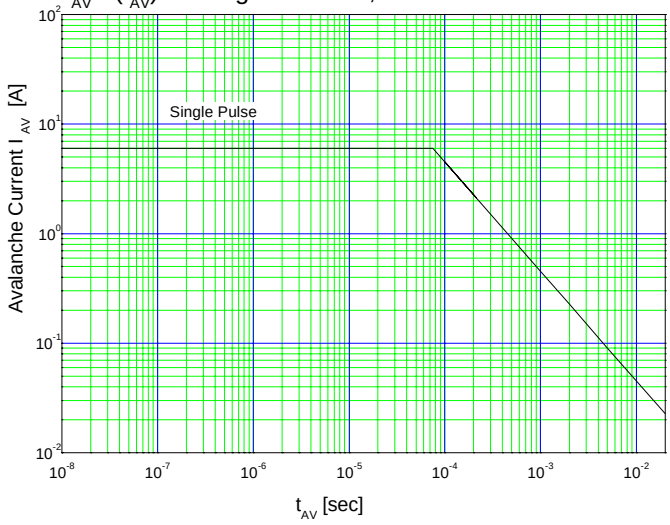
Typical Switching Characteristics vs. ID
t=f(ID):Vcc=600V,VGS=10V,RG=10 Ω



Maximum Avalanche Energy vs. starting Tch
E(AS)=f(starting Tch):Vcc=90V



Maximum Avalanche Current Pulsewidth
$I_{AV}=f(t_{AV})$:starting Tch=25°C,Vcc=90V



Maximum Transient Thermal Impedance
Zth(ch-c)=f(t):D=0