2SJ477-01MR FUJI POWER MOSFET

P-CHANNEL SILICON POWER MOSFET

FAP-III SERIES

■ Features

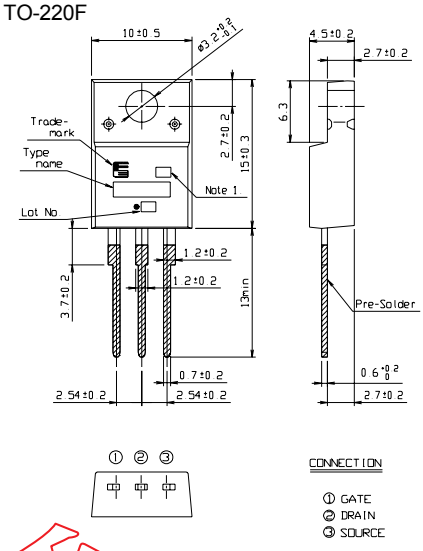
- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High forward Transconductance
- Avalanche-proof

■ Applications

- Switching regulators
- DC-DC converters
- General purpose power amplifier

■ Outline Drawings

TO-220F



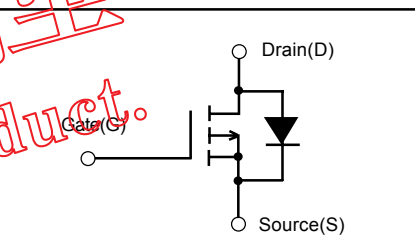
■ Maximum ratings and characteristics

● **Absolute maximum ratings (Tc=25°C unless otherwise specified)**

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	-60	V
Continuous drain current	I_D	±25	A
Pulsed drain current	$I_{D(puls)}$	±100	A
Gate-source voltage	V_{GS}	±20	V
Maximum avalanche energy *1	E_{AV}	519.8	mJ
Maximum power dissipation(Tc=25°C)	P_D	40	W
Operating and storage temperature range	T_{ch}	+150	°C
	T_{stg}	-55 to +150	°C

*1 L=1.11mH, Vcc= -24V

■ Equivalent circuit schematic



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

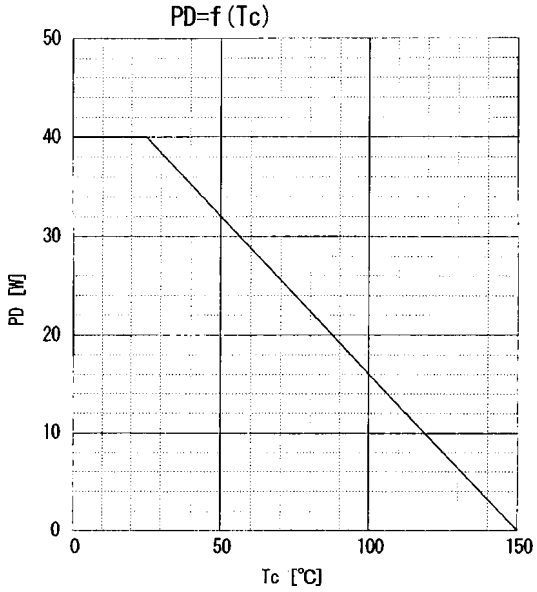
	Symbol	Test Conditions		Min.	Typ.	Max.	Units
	BV_{DSS}	I_D=1mA V_{GS}=0V		-60			V
	$V_{GS(th)}$	I_D=1mA V_{DS}=V_{GS}		-1.0	-1.5	-2.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}= -60V	T_{ch}=25°C		-10	-500	μA
		V_{GS}=0V	T_{ch}=125°C		-0.2	-1.0	mA
	I_{GSS}	V_{GS}=±20V V_{DS}=0V			10	100	nA
	$R_{DS(on)}$	I_D= -12.5A	V_{GS}= -4V		80	110	mΩ
			V_{GS}= -10V		45	60	mΩ
	g_{fs}	I_D=12.5A V_{DS}= -25V		7.5	15.0		S
	C_{iss}	V_{DS}= -25V			2000	3000	pF
	C_{oss}	V_{GS}=0V			700	1050	
	C_{rss}	f=1MHz			450	680	
	$t_{d(on)}$	V_{CC}= -30V R_G=10 Ω			15	25	ns
	t_r	I_D= -25A			80	120	
	$t_{d(off)}$	V_{GS}= -10V			190	290	
	t_f				90	140	
	I_{AV}	L=100μH T_{ch}=25°C		-25			A
	V_{SD}	I_F=2xI_{DR} V_{GS}=0V T_{ch}=25°C			-2	-3	V
	t_{rr}	I_F=I_{DR} V_{GS}=0V			160		ns
	Q_{rr}	-di/dt=100A/μs T_{ch}=25°C			0.9		μC

● **Thermal characteristics**

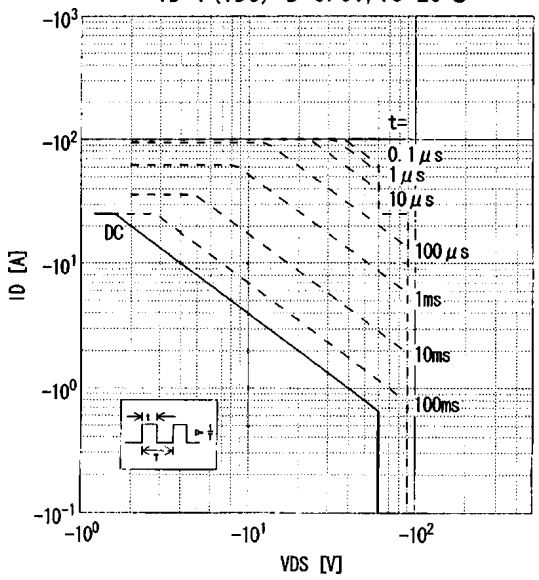
Item	Symbol	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$			3.125	°C/W
	$R_{th(ch-a)}$			62.5	°C/W

Characteristics

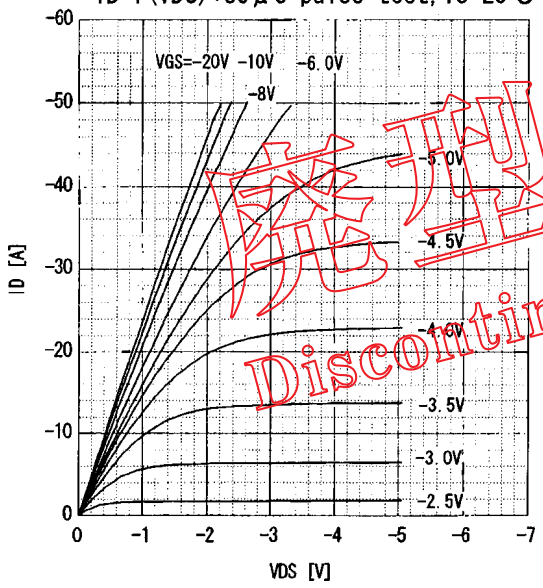
Power Dissipation
PD=f(Tc)



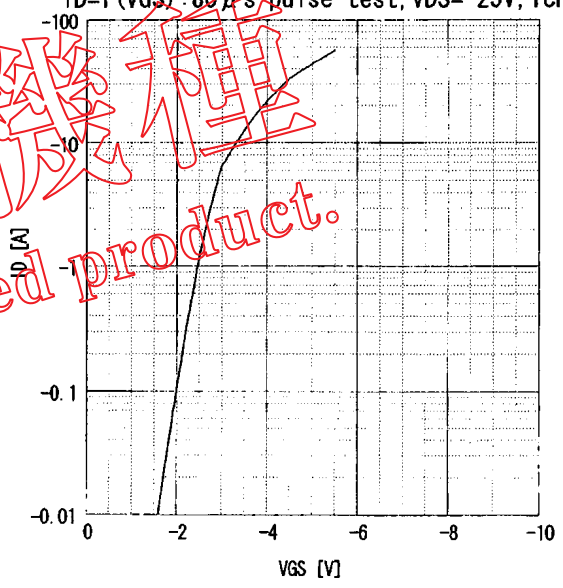
Safe operating area
ID=f(VDS) :D=0.01, Tc=25°C



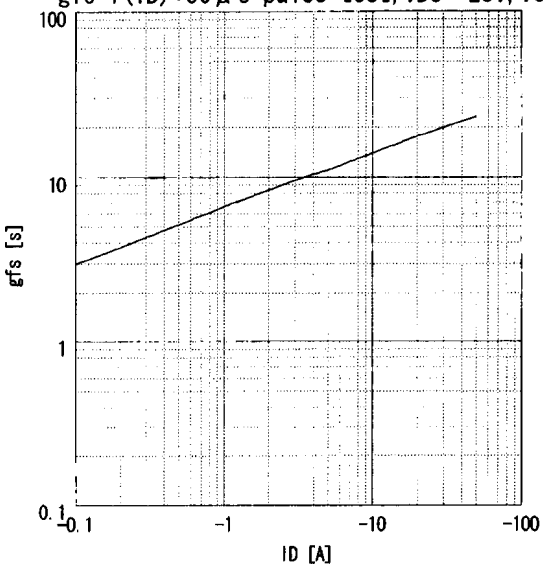
Typical output characteristics
ID=f(VDS) :80μs pulse test, Tc=25°C



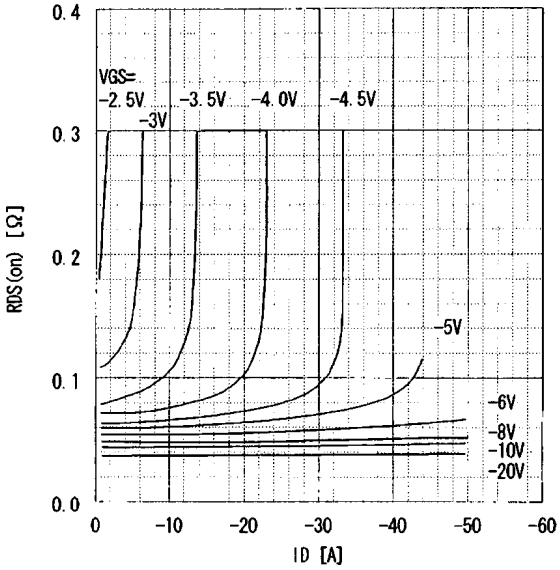
Typical transfer characteristic
ID=f(VGS) :80μs pulse test, VDS=-25V, Tch=25°C



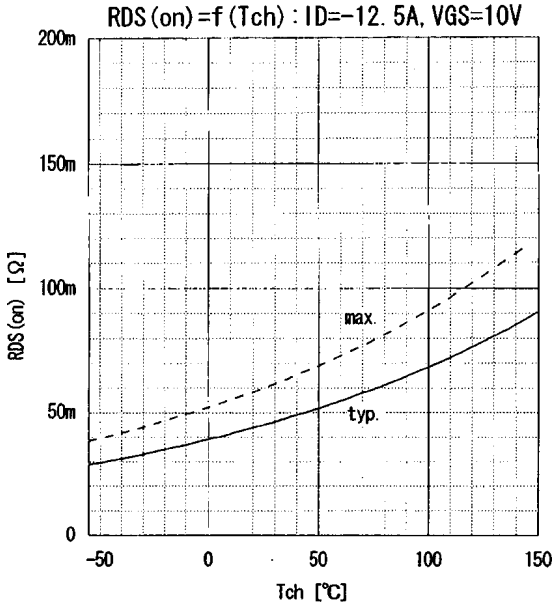
Typical forward transconductance
gfs=f(ID) :80μs pulse test, VDS=-25V, Tch=25°C



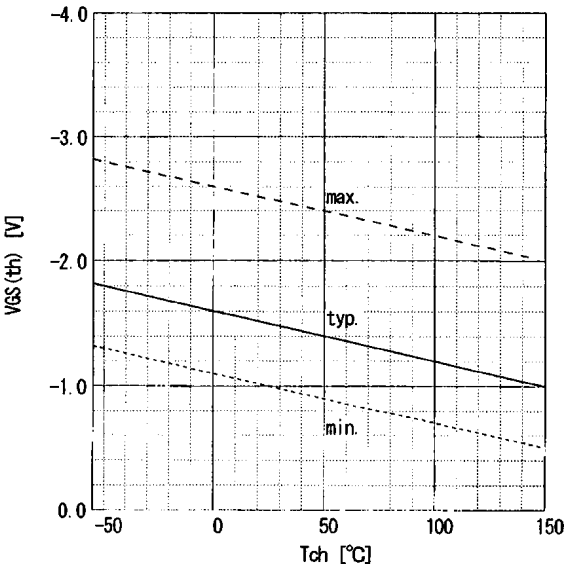
Typical drain-source on-state resistance
RDS(on)=f(ID) :80μs pulse test, Tc=25°C



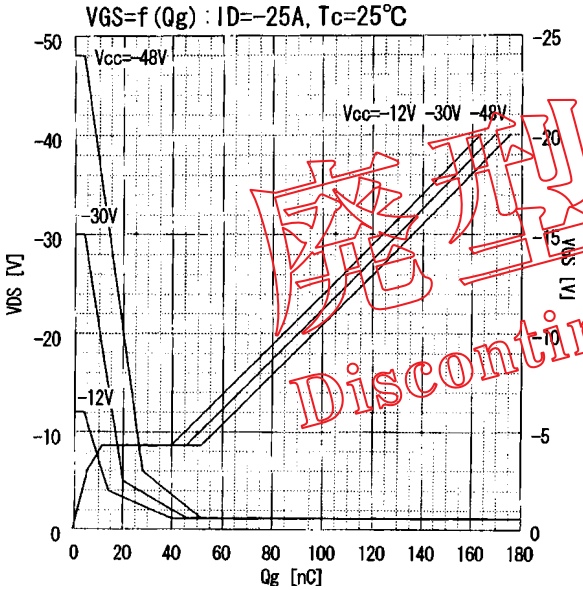
Drain-source on-state resistance
RDS(on)=f(Tch) : ID=-12.5A, VGS=10V



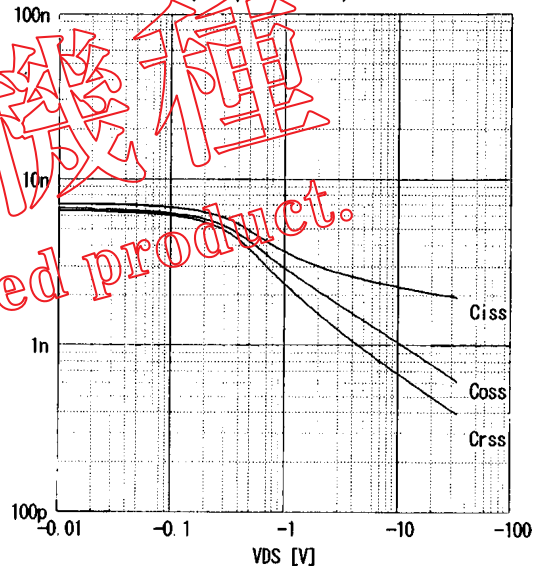
Gate threshold voltage
VGS(th)=f(Tch) : ID=-1mA, VDS=VGS



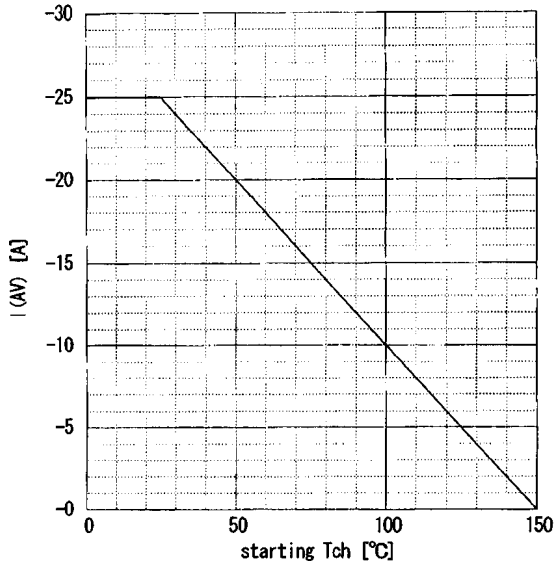
Typical gate charge characteristic
VGS=f(Qg) : ID=-25A, Tc=25℃



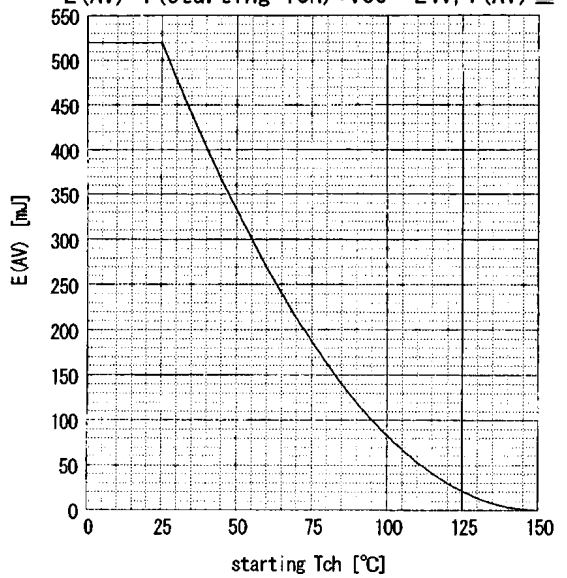
Typical capacitances
C=f(VDS) : VGS=0V, f=1MHz



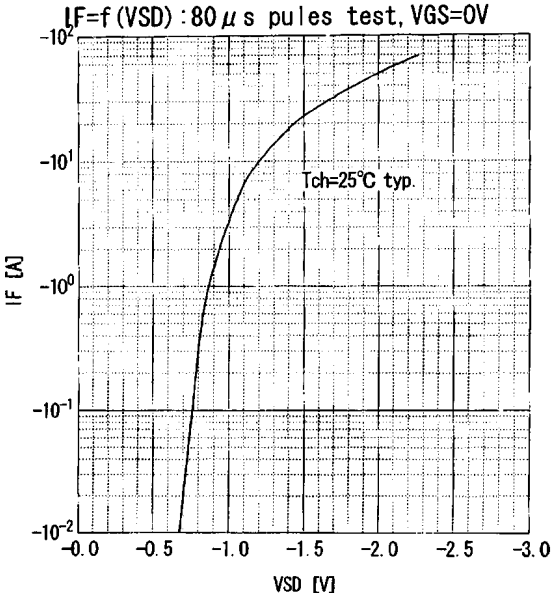
Maximum Avalanche Current vs. starting Tch
I(AV)=f(starting Tch)



Maximum Avalanche Energy vs. starting Tch
E(AV)=f(starting Tch) : Vcc=-24V, I(AV)≧-25A



Forward characteristic of reverse of diode
tF=f(VSD):80μs pules test, VGS=0V



Transient thermal impedande
Zthch=f(t) parameter:D=t/T