2SJ314-01L,S

FUJI POWER MOSFET

P-CHANNEL SILICON POWER MOSFET

FAP-III SERIES

■ Features

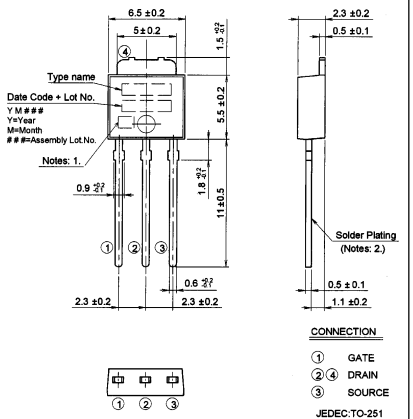
- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High forward Transconductance
- Avalanche-proof

■ Applications

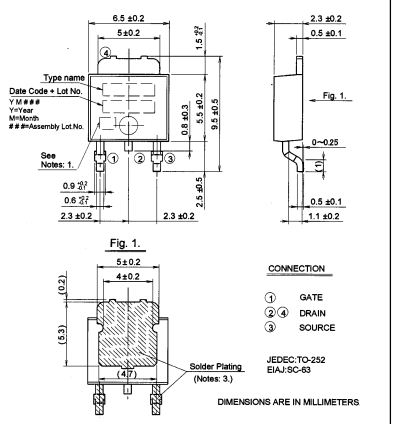
- Switching regulators
- DC-DC converters
- General purpose power amplifier

■ Outline Drawings

K-Pack(L)



K-Pack(S)



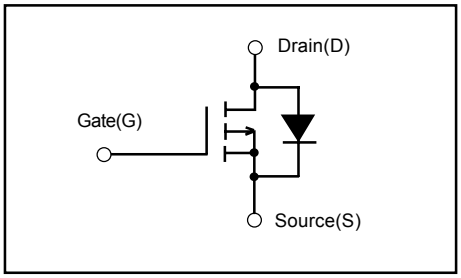
L-type	
EIAJ	———

■ Maximum ratings and characteristics

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

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	-60	V
Drain-gate voltage (R_{GS}=20kΩ)	V_{DGR}	-60	A
Continuous drain current	I_D	-5	A
Pulsed drain current	$I_{D(puls)}$	-20	A
Gate-source voltage	V_{GS}	±20	V
Max. power dissipation	P_D	20	W
Operating and storage temperature range	T_{ch}	+150	℃
	T_{stg}	-55 to +150	℃

■ Equivalent circuit schematic



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

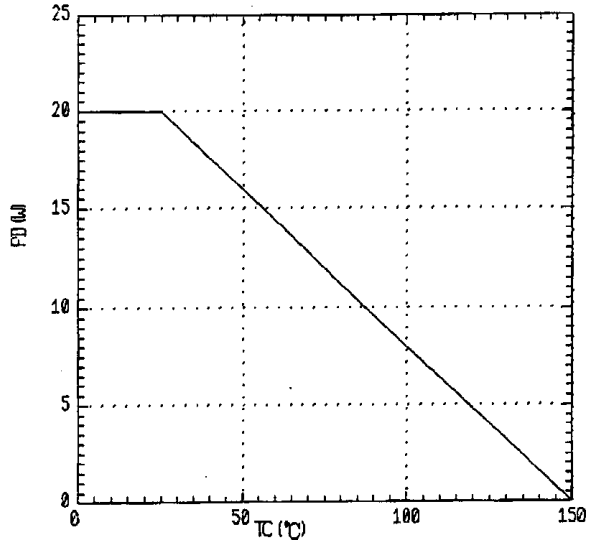
Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V		-60			V
Gate threshold voltage	$V_{GS(th)}$	I_D=1mA V_{DS}=V_{GS}		-1.0	-1.5	-2.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}= -60V	T_{ch}=25°C		-10	-500	μA
		V_{GS}=0V	T_{ch}=125°C		-0.2	-1.0	mA
Gate-source leakage current	I_{GSS}	V_{GS}=±20V V_{DS}=0V			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D= -2.5A	V_{GS}= -4V		280	480	mΩ
			V_{GS}= -10V		200	300	mΩ
Forward transconductance	g_{fs}	I_D=2.5A V_{DS}= -25V		2.0	4.5		S
Input capacitance	C_{iss}	V_{DS}= -25V			500	750	pF
Output capacitance	C_{oss}	V_{GS}=0V			200	300	
Reverse transfer capacitance	C_{rss}	f=1MHz			120	180	
Turn-on time t_{on}	$t_{d(on)}$	V_{CC}= -30V R_G=25 Ω			15	23	ns
(t_{on}=$t_{d(on)}$+t_r)	t_r	I_D= -3A			20	30	
Turn-off time t_{off}	$t_{d(off)}$	V_{GS}= -10V			100	150	
(t_{off}=$t_{d(off)}$+t_f)	t_f				80	120	
Avalanche capability	I_{AV}	L=100μH T_{ch}=25°C		-5			A
Continuous reverse drain current	I_{DR}	T_c=25°C				-5	A
Pulsed reverse drain current	I_{DRM}	T_c=25°C				-20	A
Diode forward on-voltage	V_{SD}	I_F=2xI_{DR} V_{GS}=0V T_{ch}=25°C			-4.0		V
Reverse recovery time	t_{rr}	I_F=I_{DR} V_{GS}=0V			80		ns
Reverse recovery charge	Q_{rr}	-di/dt=100A/μs T_{ch}=25°C			0.18		μC

● **Thermal characteristics**

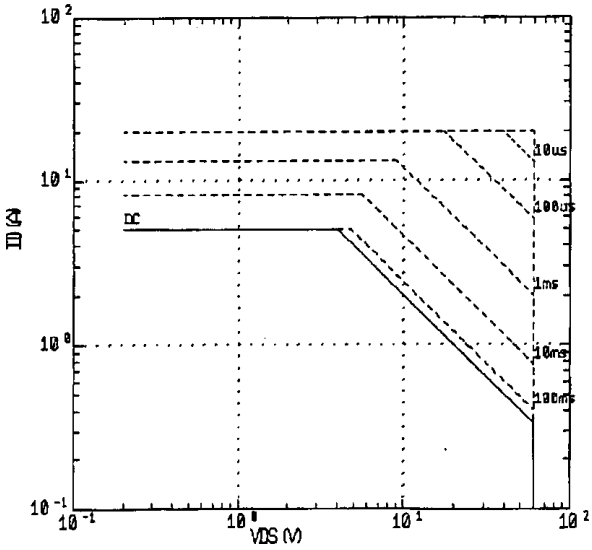
Item	Symbol	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$			6.25	°C/W
	$R_{th(ch-a)}$			125.0	°C/W

Characteristics

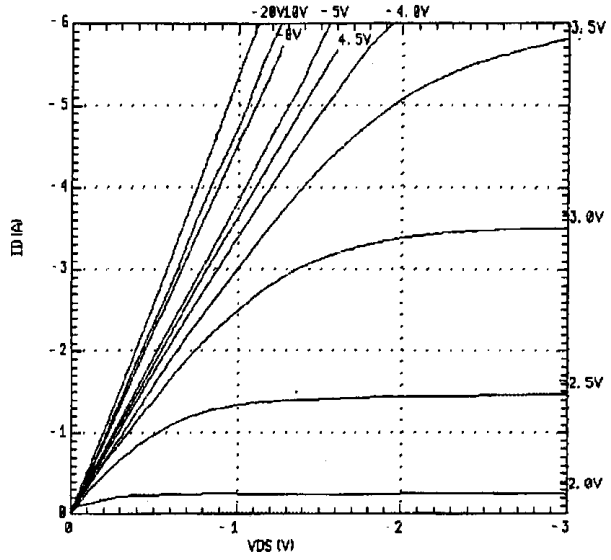
Power Dissipation
PD=f(TC)



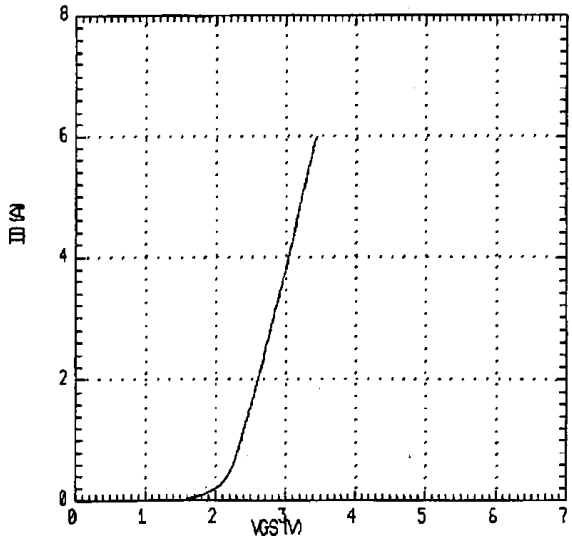
Safe oprating area
ID=f(VDS):D=0.01,Tc=25°C



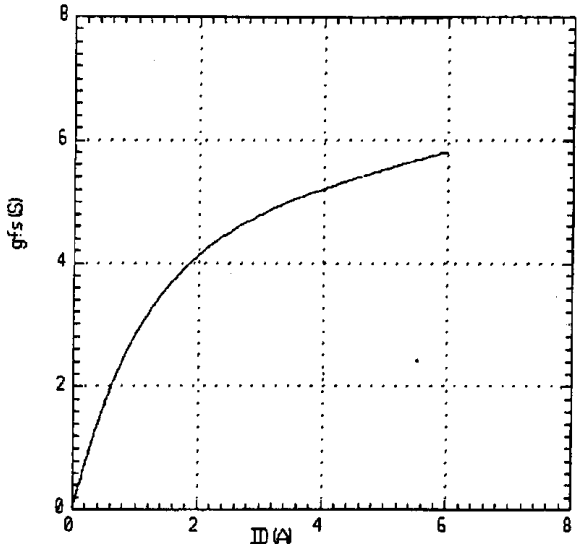
Typical output characteristics
ID=f(VDS):80μs pulse test,Tch=25°C



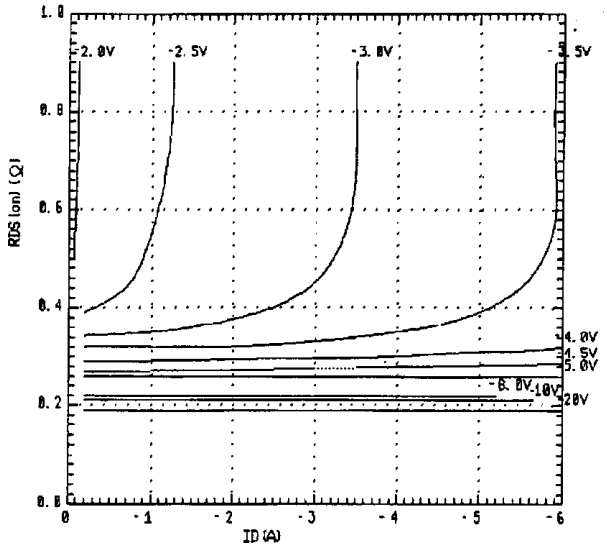
Typical Transfer Characterisic
ID=f(VGS):80μs pulse test,VDS=25V



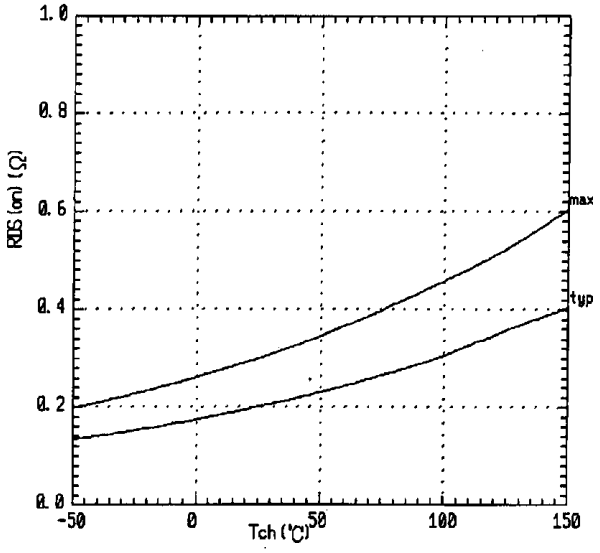
Typical Transconductance
gfs=f(ID):80μs pulse test,VDS=25V,TJ=25°C



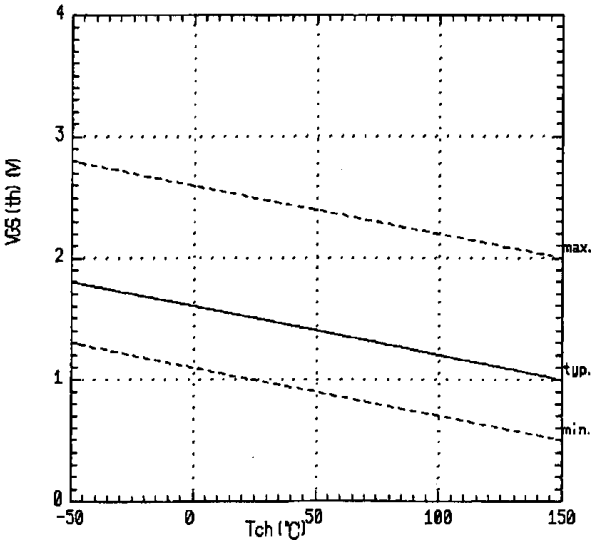
Typical Drain-source on-state resistance
RDS(on)=f(ID):80μs pulse test,Tch=25°C



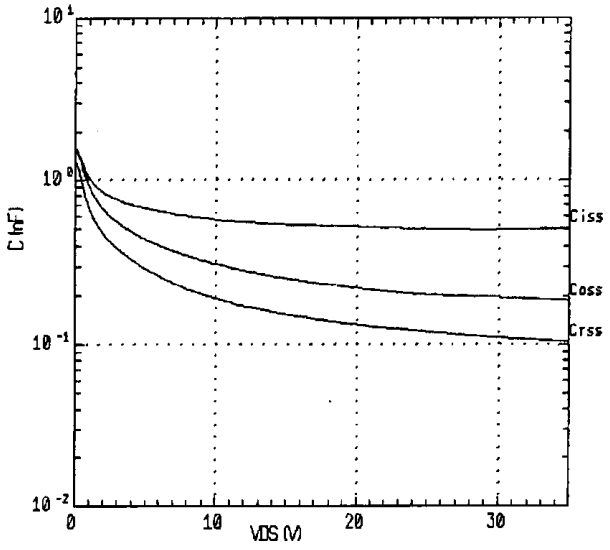
Drain-source on-state resistanse
RDS(on)=f(Tch):ID=2.5A,VGS=10V



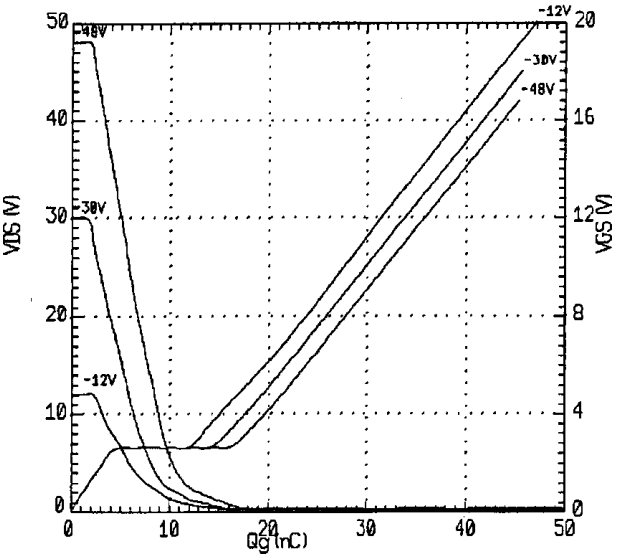
Gate threshold voltage
VGS(th)=f(Tch):VDS=VGS,ID=1mA



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



Typical gate charge characteristics
VGS=f(Qg):ID=3A



Transient thermal
impedance Zthch-c=f(t) parameter:D=t/T