2SK3102-01R

FUJI POWER MOSFET

Fuji Electric

200509

N-CHANNEL SILICON POWER MOSFET

FAP-IIS SERIES

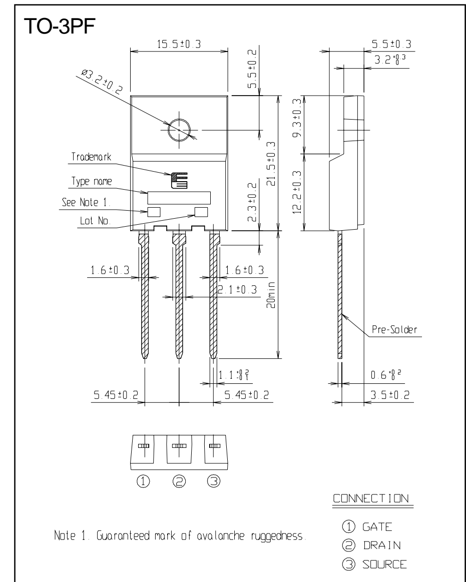
Features

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

Applications

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

Outline Drawings



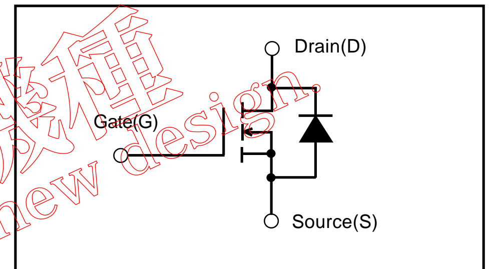
Maximum ratings and characteristics

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

Item	Symbol	Rating	Unit	Remarks
Drain-source voltage	V_{DS}	600	V	
Continuous drain current	I_D	±10	A	
Pulsed drain current	$I_{D[puls]}$	±36	A	
Gate-source peak voltage	V_{GS}	±35	V	
Repetitive or non-repetitive	I_{AR}	10	A	Tch≦150°C
Maximum avalanche energy	E_{AV}	433.7	mJ	*1
Maximum power dissipation	P_D	80	W	
Operating and storage temperature range	T_{ch}	+150	°C	
	T_{stg}	-55 to +150	°C	

*1 L=7.95mH, Vcc=60V

Equivalent circuit schematic



保守移行機種
Not recommend for new design.

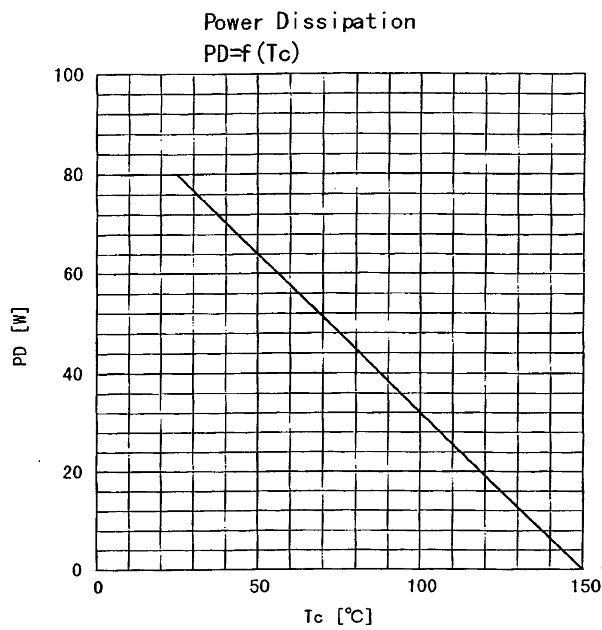
Electrical characteristics (Tc =25°C unless otherwise specified)

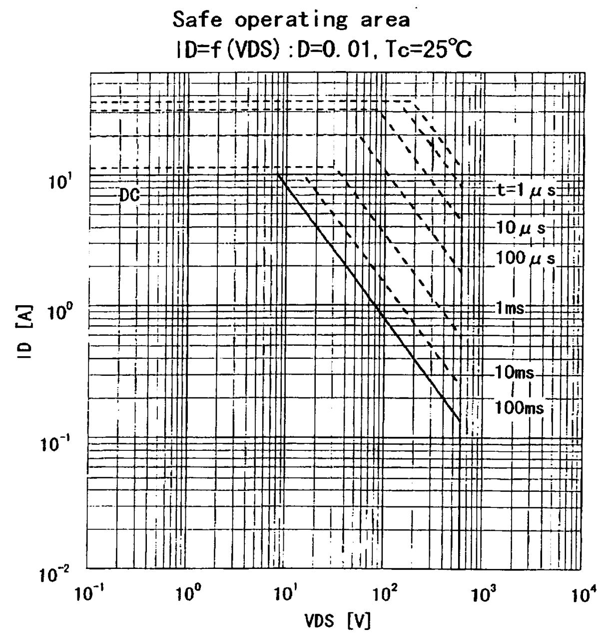
Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V		600			V
Gate threshold voltage	$V_{GS(th)}$	I_D=1mA V_{DS}=V_{GS}		3.5	4.0	4.5	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=600V V_{GS}=0V	T_{ch}=25°C		10	500	µA
			T_{ch}=125°C		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	V_{GS}=±30V V_{DS}=0V			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=5A V_{GS}=10V			0.85	1.0	Ω
Forward transconductance	g_{fs}	I_D=5A V_{DS}=25V		3.0	6.0		S
Input capacitance	C_{iss}	V_{DS}=25V			1100	1700	pF
Output capacitance	C_{oss}	V_{GS}=0V			170	260	pF
Reverse transfer capacitance	C_{rss}	f=1MHz			75	120	pF
Turn-on time	$t_{d(on)}$	V_{CC}=300V R_G=10 Ω			25	40	ns
	t_r	I_D=10A			70	110	ns
Turn-off time	$t_{d(off)}$	V_{GS}=10V			75	120	ns
	t_f				40	60	ns
Avalanche capability	I_{AV}	L=1.19mH T_{ch}=25°C		10			A
Diode forward on-voltage	V_{SD}	I_F=2xI_{DR} V_{GS}=0V T_{ch}=25°C			1.0	1.5	V
Reverse recovery time	t_{rr}	I_F=I_{DR} V_{GS}=0V			500		ns
Reverse recovery charge	Q_{rr}	-di/dt=100A/µs T_{ch}=25°C			6.5		µC

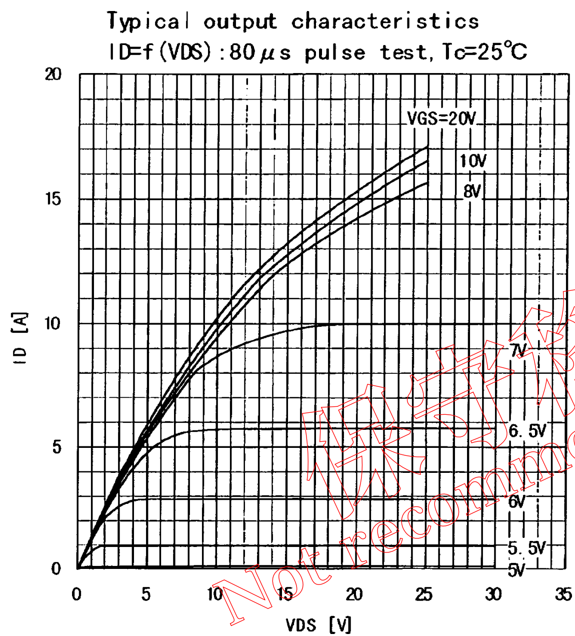
Thermal characteristics

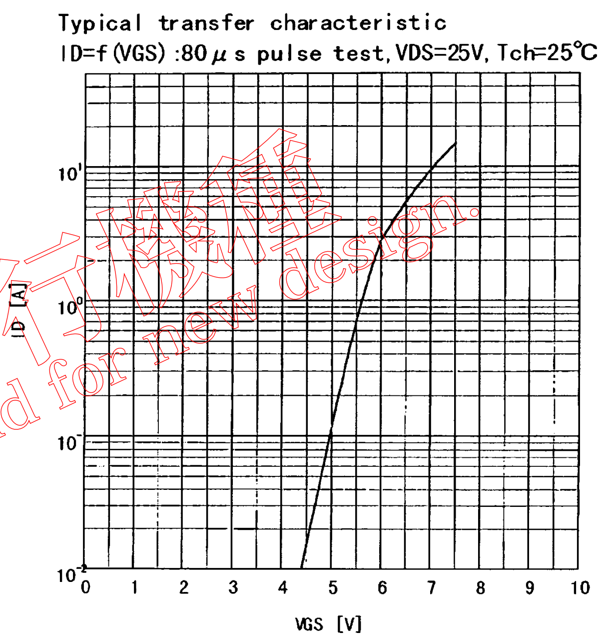
Item	Symbol	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$			1.56	°C/W
	$R_{th(ch-a)}$			30.0	°C/W

Characteristics

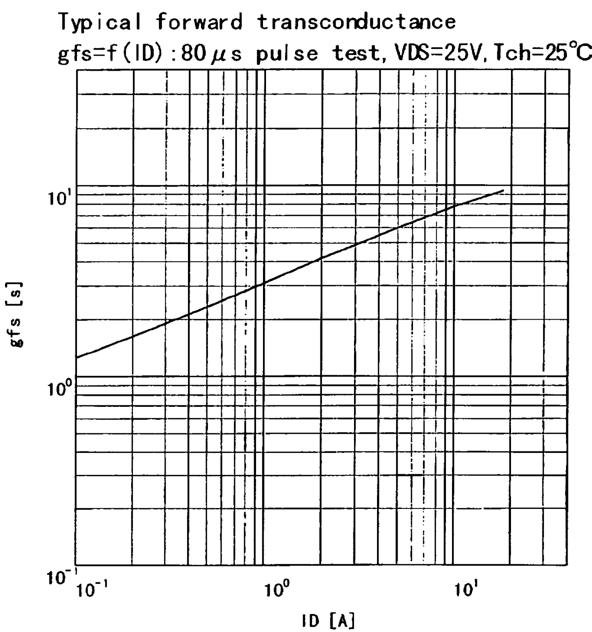


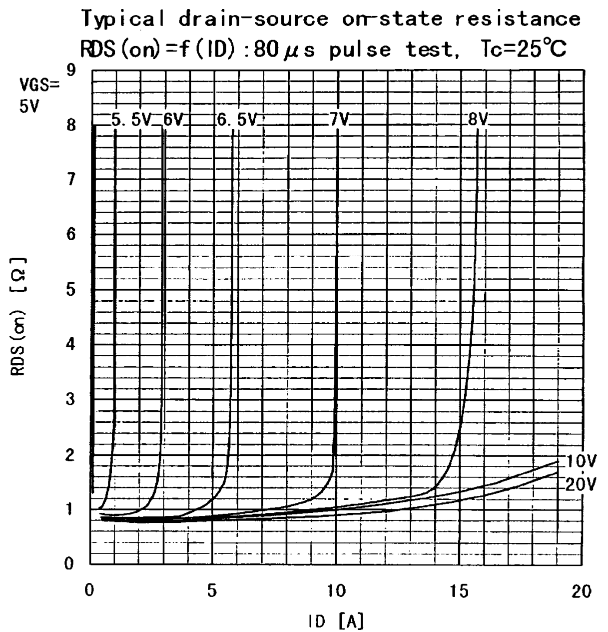


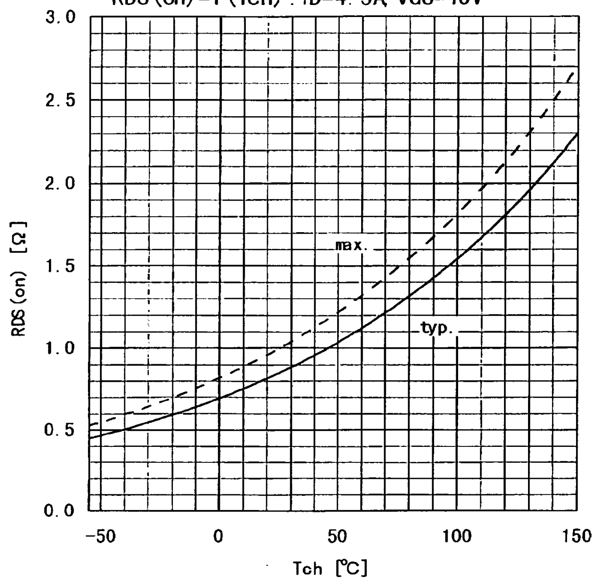


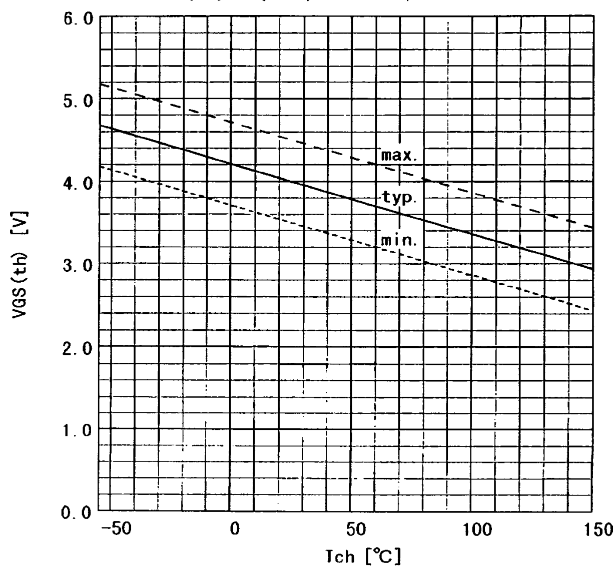


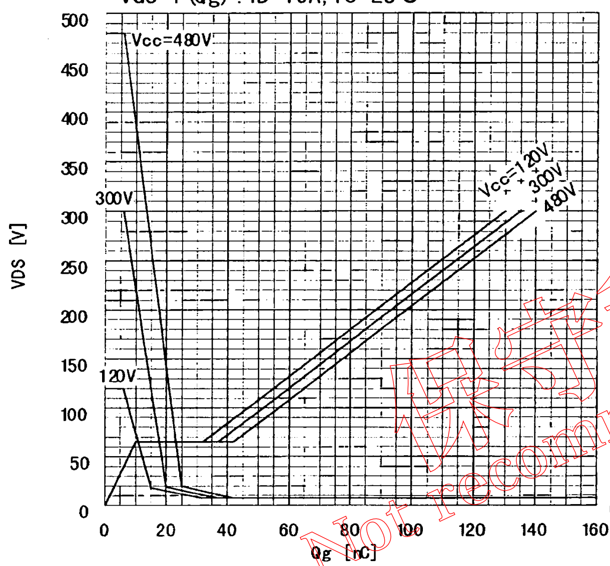
Not recommend for new design.

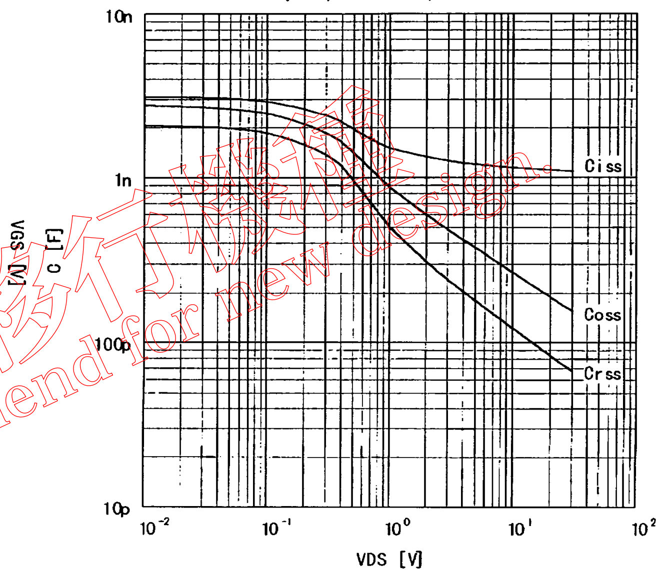


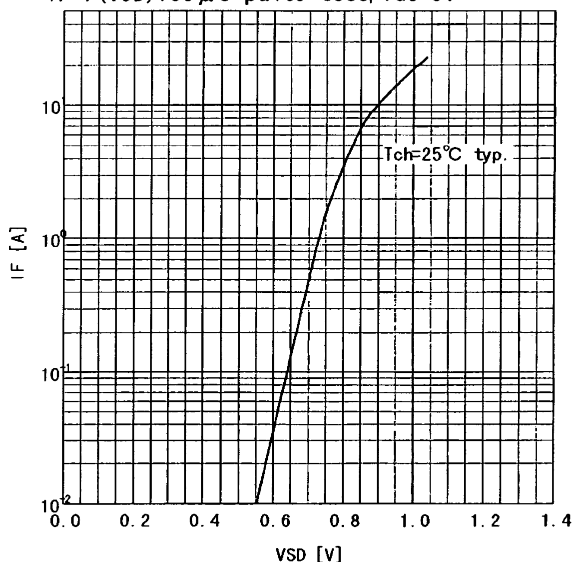


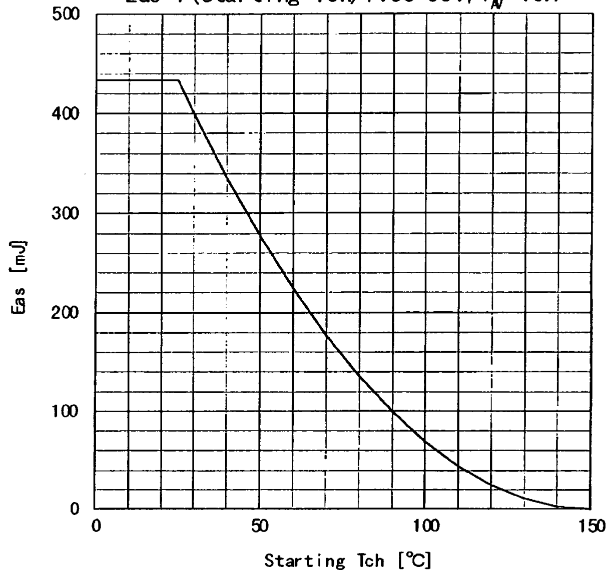

Drain-source on-state resistance
RDS(on)=f(Tch):ID=4.5A,VGS=10V
RDS(on) [Ω]
Tch [℃]
max.
typ.

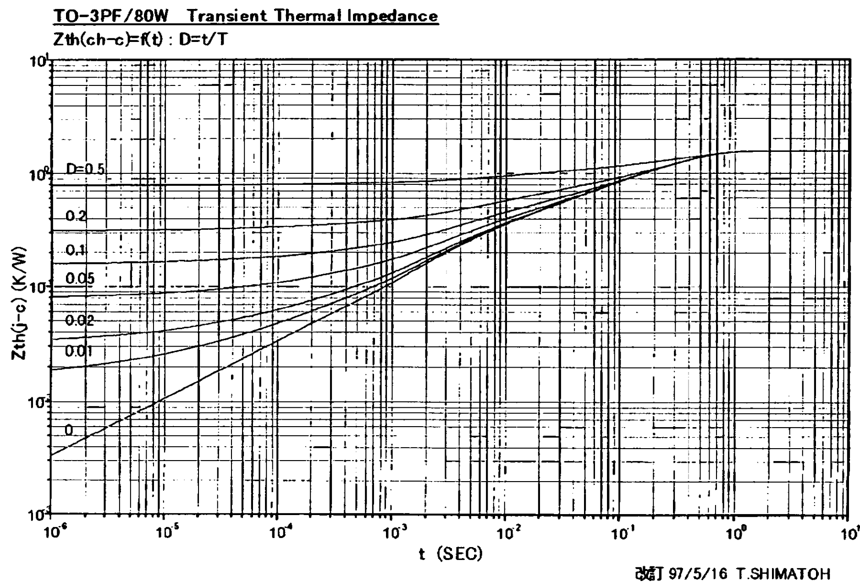

Gate threshold voltage
VGS(th)=f(Tch):ID=1mA,VDS=VGS
VGS(th) [V]
Tch [℃]
max.
typ.
min.


Typical gate charge characteristic
VGS=f(Qg):ID=10A,Tc=25℃
VDS [V]
VGS [V]
Qg [nC]
Vcc=480V
300V
120V
Vcc=120V
300V
480V


Typical capacitances
C=f(VDS):VGS=0V,f=1MHz
C [F]
VDS [V]
Ciss
Coss
Crss


Forward characteristic of reverse of diode
IF=f(VSD):80μs pules test,VGS=0V
IF [A]
VSD [V]
Tch=25℃ typ.


Avalanche energy derating
Eas=f(starting Tch):Vcc=60V,IAV=10A
Eas [mJ]
Starting Tch [℃]



保守移行機種
Not recommend for new design.