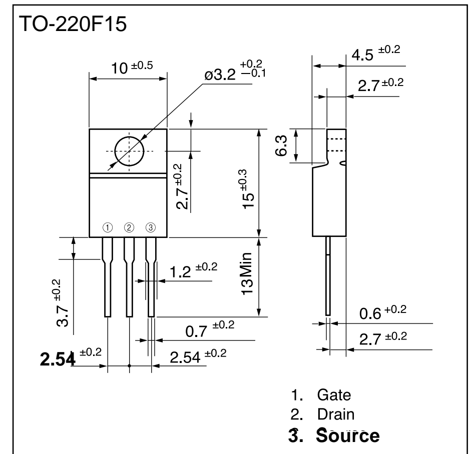
2SK3264-01MR

FUJI POWER MOS-FET

N-CHANNEL SILICON POWER MOS-FET

■ Features

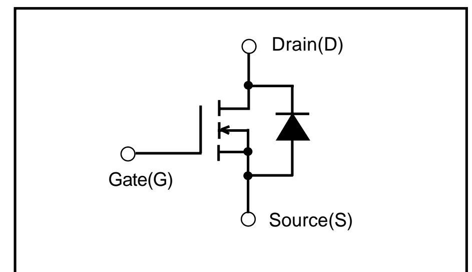
- High speed switching
- Low on-resistance
- No secondary breakdown
- Low driving power
- High voltage
- V_{GS}=±30V Guarantee
- Avalanche-proof



■ Applications

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

■ Equivalent circuit schematic



■ Maximum ratings and characteristic Absolute maximum ratings

● (T_c=25°C unless otherwise specified)

Item	Symbol	Rating	Unit
Drain-source voltage	V_{DS}	800	V
Continuous drain current	I_D	±7	A
Pulsed drain current	$I_{D(puls)}$	±28	A
Gate-source voltage	V_{GS}	±35	V
Maximum Avalanche Energy	E_{AV} *1	378.3	mJ
Max. power dissipation	P_D	60	W
Operating and storage	T_{ch}	+150	℃
temperature range	T_{stg}	-55 to +150	℃

*1 L=14.2mH, Vcc=80V

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

Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltaget	$V_{(BR)DSS}$	I_D=1mA V_{GS}=0V		800			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}=800V	Tch=25°C		10	500	µA
		V_{GS}=0V	Tch=125°C		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	V_{GS}=±35V V_{DS}=0V			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=3.5A V_{GS}=10V			1.62	2.0	Ω
Forward transcondutance	g_{fs}	I_D=3.5A V_{DS}=25V		2.0	4.0		S
Input capacitance	C_{iss}	V_{DS}=25V			900	1350	pF
Output capacitance	C_{oss}	V_{GS}=0V			130	200	
Reverse transfer capacitance	C_{rss}	f=1MHz			70	110	
Turn-on time t_{on}	$t_{d(on)}$	V_{CC}=600V I_D=7A			25	40	ns
	t_r	V_{GS}=10V			90	140	
Turn-off time t_{off}	$t_{d(off)}$	R_{GS}=10 Ω			80	120	
	t_f				50	80	
Avalanche capability	I_{AV}	L=14.2mH T_{ch}=25°C		7			A
Diode forward on-voltage	V_{SD}	I_F=2xID V_{GS}=0V T_{ch}=25°C			1.0	1.5	V
Reverse recovery time	t_{rr}	I_F=ID V_{GS}=0V			900		ns
Reverse recovery charge	Q_{rr}	-di/dt=100A/µs T_{ch}=25°C			10		µC

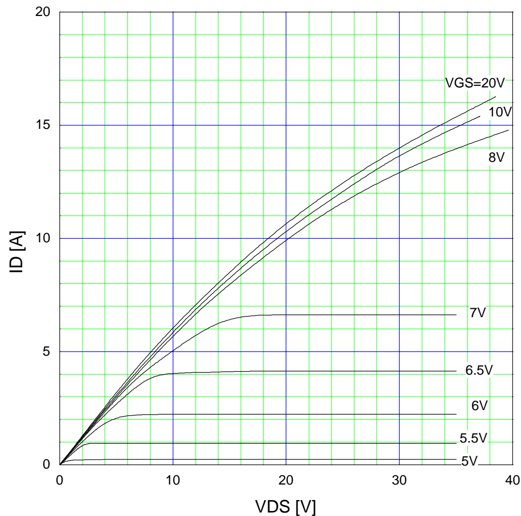
● Thermalcharacteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$	channel to case			2.083	°C/W
	$R_{th(ch-a)}$	channel to ambient			62.5	°C/W

Characteristics

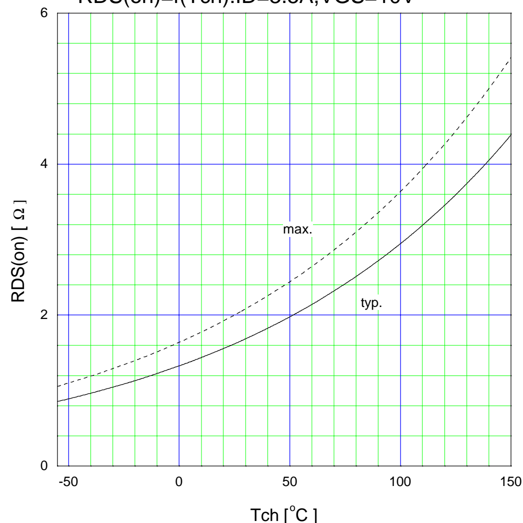
Typical output characteristics

ID=f(VDS):80μs pulse test,Tc=25°C



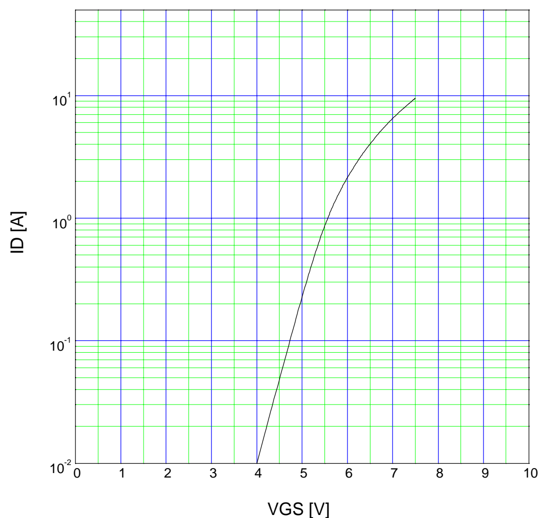
Drain-source on-state resistance

RDS(on)=f(Tch):ID=3.5A,VGS=10V



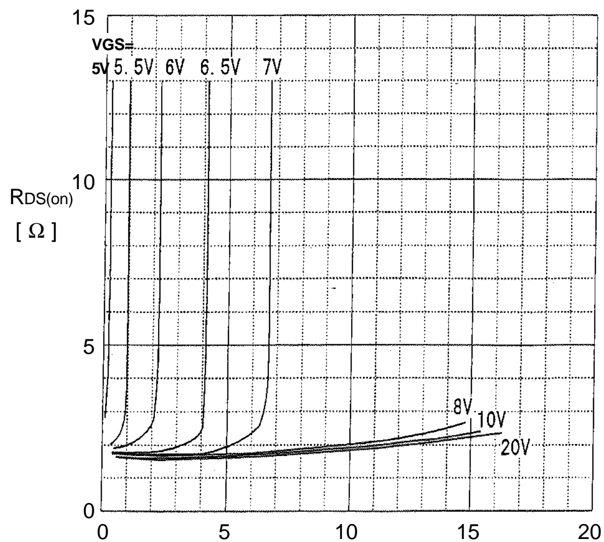
Typical transfer characteristic

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



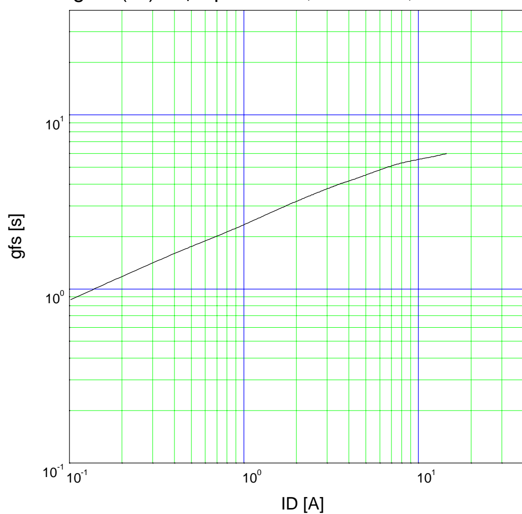
Typical Drain-Source on state resistance vs. ID

RDS(on)=f(ID):80μs pulse test, Tch=25°C



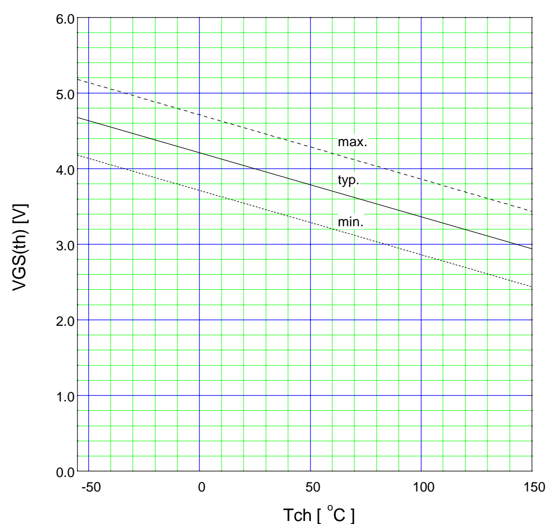
Typical forward transconductance

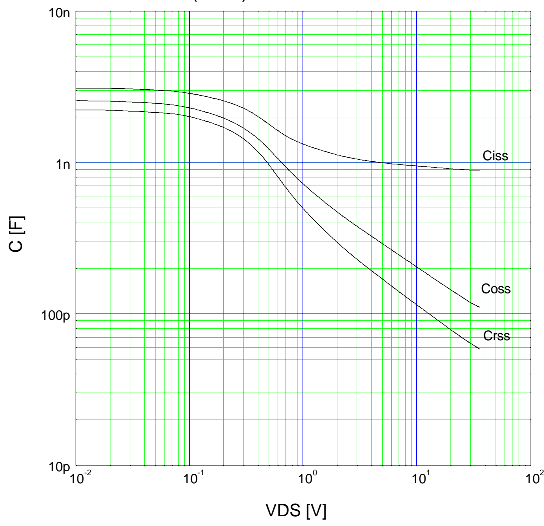
gfs=f(ID):80μs pulse test,VDS=25V,Tch=25°C

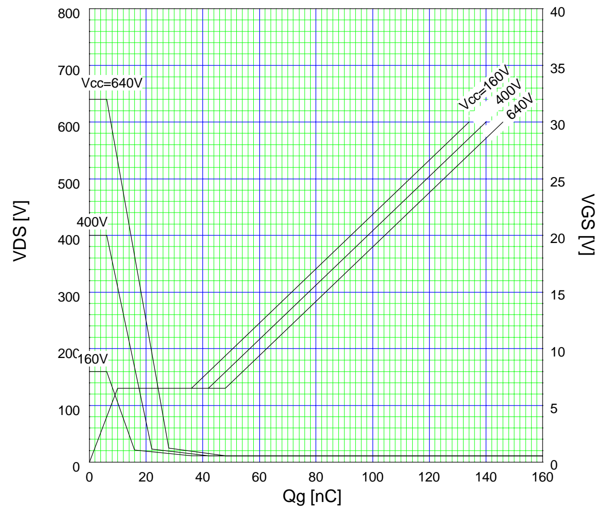


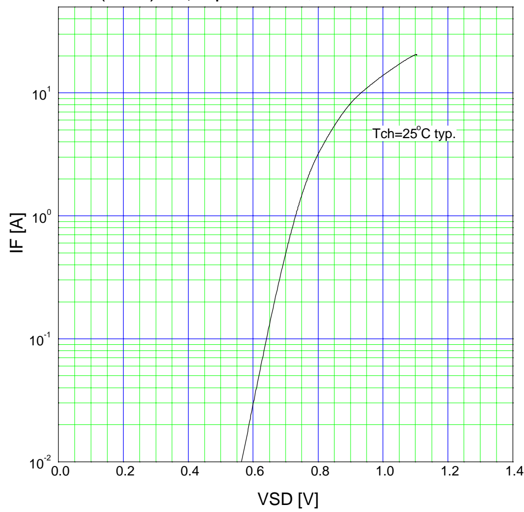
Gate threshold voltage

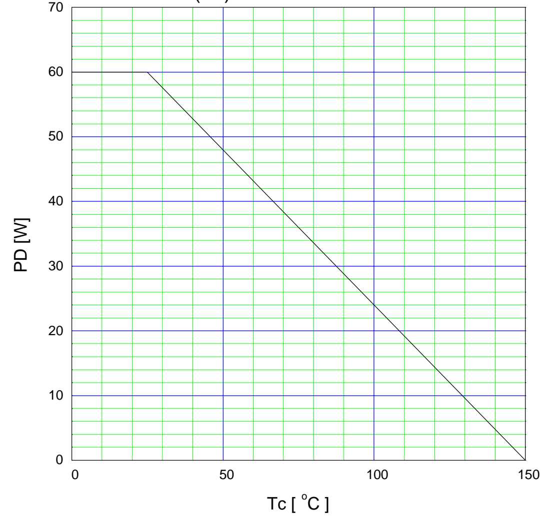
VGS(th)=f(Tch):ID=1mA,VDS=VGS

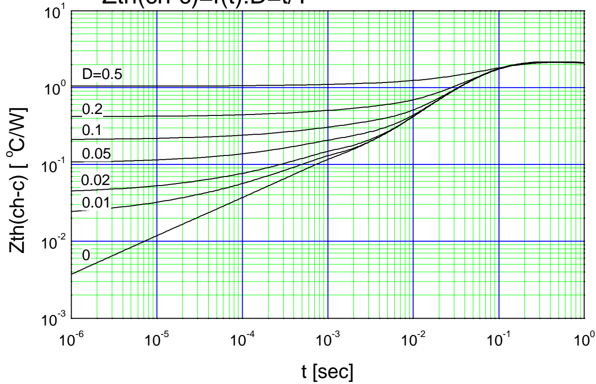


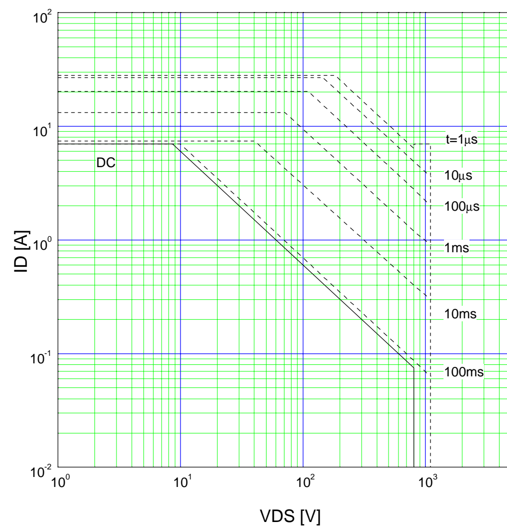

Typical capacitances
C=f(VDS):VGS=0V,f=1MHz
C [F]
VDS [V]
Ciss
Coss
Crss

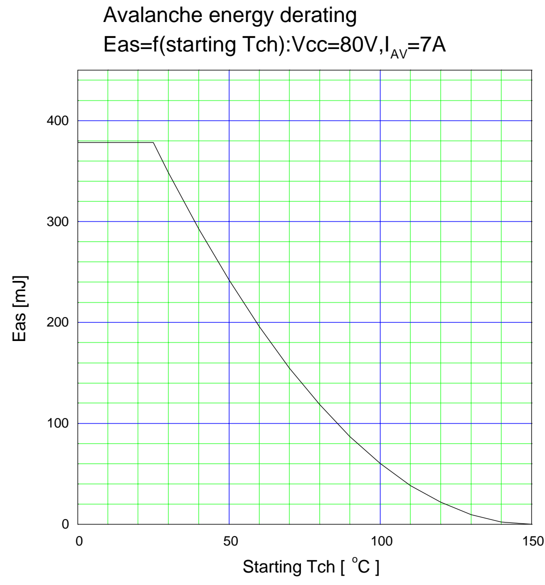

Typical gate charge characteristic
VGS=f(Qg):ID=7A,Tc=25°C
VDS [V]
VGS [V]
Qg [nC]
Vcc=640V
400V
160V
Vcc=160V
400V
640V


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


Power Dissipation
PD=f(Tc)
PD [W]
Tc [°C]


Transient Thermal Impedance
Zth(ch-c)=f(t):D=t/T
Zth(ch-c) [°C/W]
t [sec]
D=0.5
0.2
0.1
0.05
0.02
0.01
0


Safe operating area
ID=f(VDS):D=0.01,Tc=25°C
ID [A]
VDS [V]
DC
t=1μs
10μs
100μs
1ms
10ms
100ms


Avalanche energy derating
Eas=f(starting Tch):Vcc=80V,IAV=7A
Eas [mJ]
400
300
200
100
0
0
50
100
150
Starting Tch [°C]