2SK2895-01 FUJI POWER MOSFET

Fuji Electric

200511

FAP-IIIB Series

N-CHANNEL SILICON POWER MOSFET

■ Features

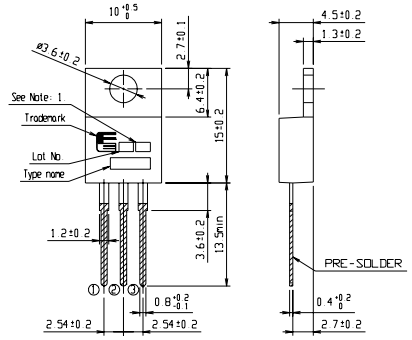
- High speed switching
- Low on-resistance
- No secondary breadown
- Low driving power

■ Applications

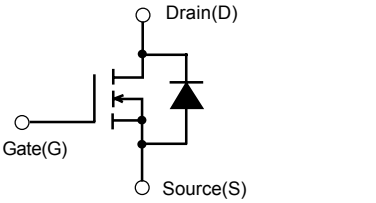
- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

■ Outline Drawings [mm]

TO-220AB



■ Equivalent circuit schematic



■ Maximum ratings and characteristic Absolute maximum ratings

● (Tc=25°C unless otherwise specified)

Item	Symbol	Ratings	Unit
Drain-source voltage	V_{DS}	60	V
Continuous drain current	I_D	±45	A
Pulsed drain current	I_{Dp}	±180	A
Gate-source voltage	V_{GS}	±20	V
Maximum avalanche energy	E_{AV} *1	461.9	mJ
Maximum power dissipation	P_D	60	W
Operating and storage	T_{ch}	+150	℃
Temperature range	T_{stg}	-55 to +150	℃

*1 L=0.304mH, Vcc=24V

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

Item	Symbol	Test Conditions		Min.	Typ.	Max.	Units
Drain-source breakdown voltage	BV_{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	2.0	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=60V 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}=±20V V_{DS}=0V			10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	I_D=22.5A	V_{GS}=4V		15	20	mΩ
			V_{GS}=10V		10	12	
Forward transcondutance	g_{fs}	I_D=22.5A V_{DS}=25V		15.0	35.0		S
Input capacitance	C_{iss}	V_{DS}=25V			2900	4350	pF
Output capacitance	C_{oss}	V_{GS}=0V			930	1400	
Reverse transfer capacitance	C_{rss}	f=1MHz			260	390	
Turn-on time t_{on}	$t_{d(on)}$	V_{CC}=30V I_D=45A V_{GS}=10V R_{GS}=10Ω			13	30	ns
	t_r				35	50	
Turn-off time t_{off}	$t_{d(off)}$				190	290	
	t_f				75	140	
Avalanche capability	I_{AV}	L=100μH T_{ch}=25°C		45			A
Diode forward on-voltage	V_{SD}	I_F=45A V_{GS}=0V T_{ch}=25°C			0.95	1.43	V
Reverse recovery time	t_{rr}	I_F=45A V_{GS}=0V -di/dt=100A/μs T_{ch}=25°C			55		ns
Reverse recovery charge	Q_{rr}				0.10		μC

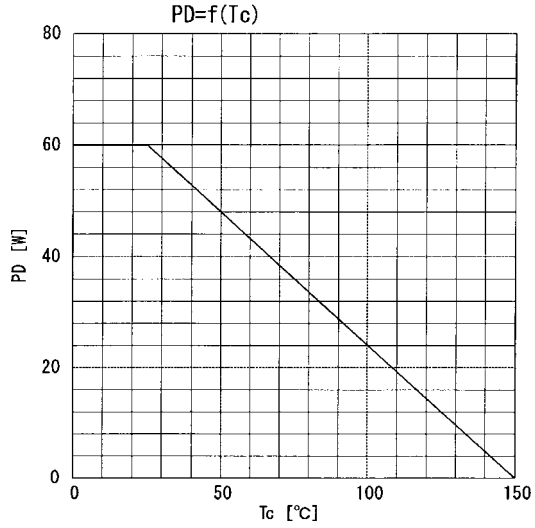
● Thermalcharacteristics

Item	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Thermal resistance	$R_{th(ch-c)}$	channel to case			2.08	°C/W
	$R_{th(ch-a)}$	channel to ambient			75.0	°C/W

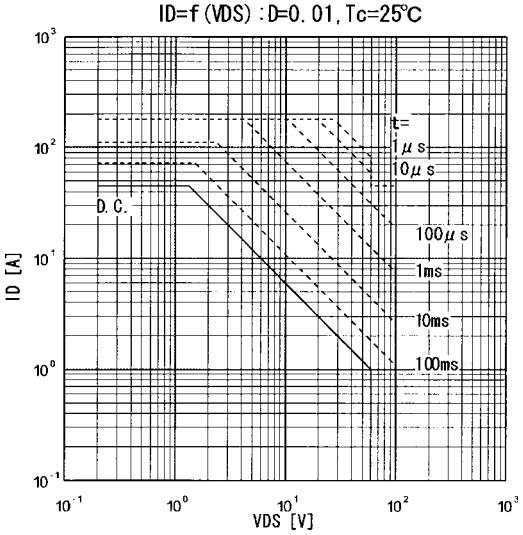
http://www.fujielectric.co.jp/fdt/scd/

Characteristics

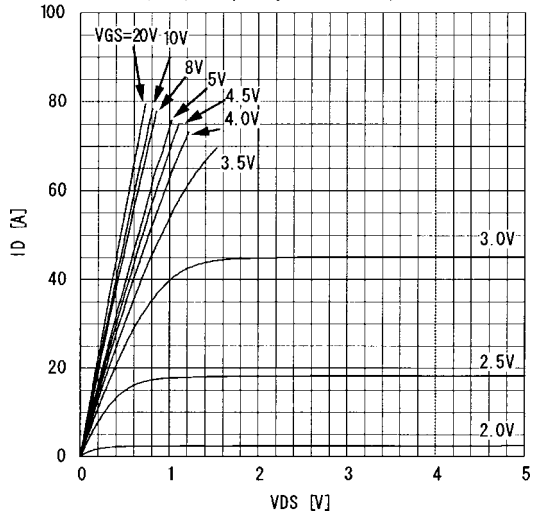
Power Dissipation
PD=f(Tc)



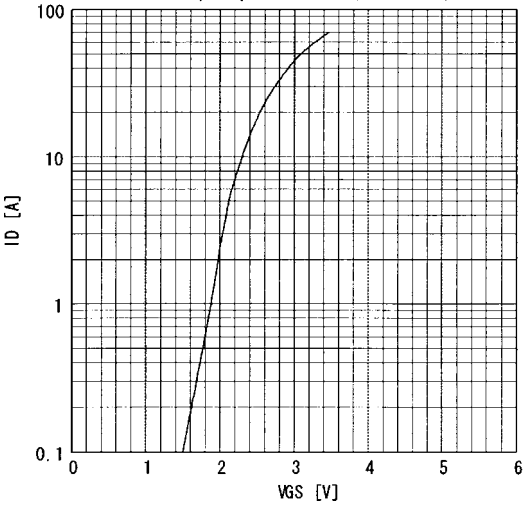
Safe operating area
ID=f(VDS):D=0.01,Tc=25°C



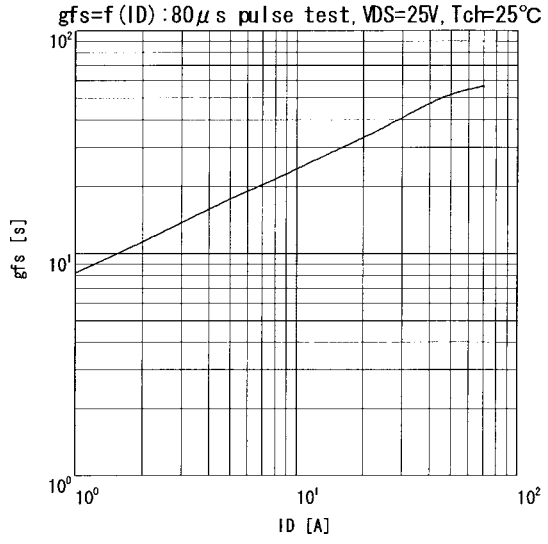
Typical output characteristics
ID=f(VDS):80μs pulse test,Tc=25°C



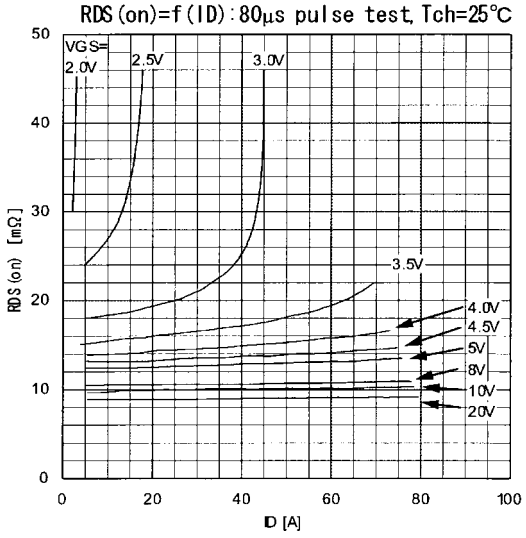
Typical transfer characteristics
ID=f(VGS):80μs pulse test,VDS=25V,Tch=25°C



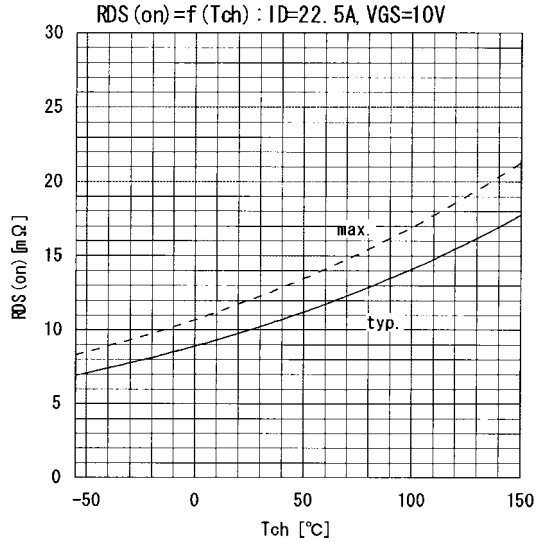
Typical forward transconductance
gfs=f(ID):80μs pulse test,VDS=25V,Tch=25°C



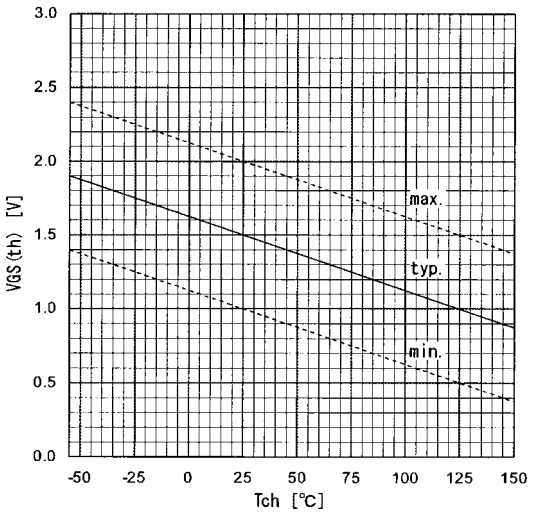
Typical Drain-Source on-State Resistance
RDS(on)=f(ID):80μs pulse test,Tch=25°C



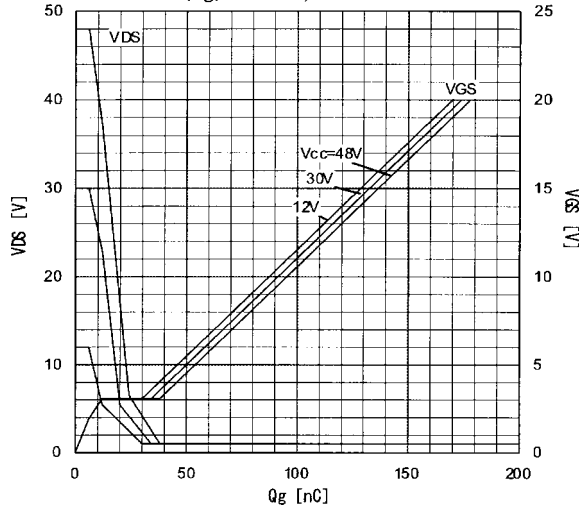
Drain-source on-state resistance
RDS(on)=f(Tch) : ID=22.5A, VGS=10V



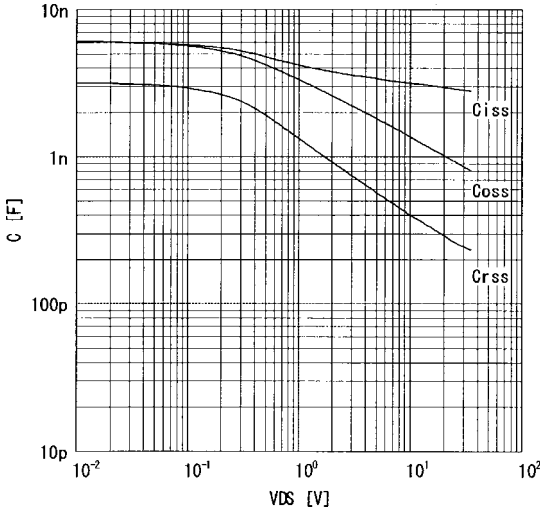
Gate Threshold Voltage vs. Tch
VGS(th)=f(Tch) : VDS=VGS, ID=1mA



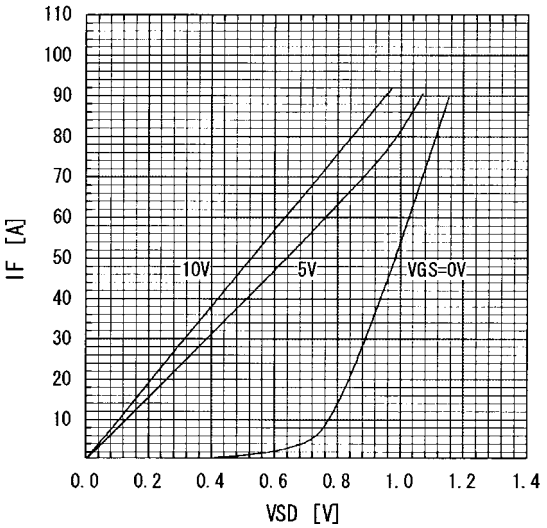
Typical Gate Charge Characteristics
VGS=f(Qg) : ID=45A, Tch=25℃



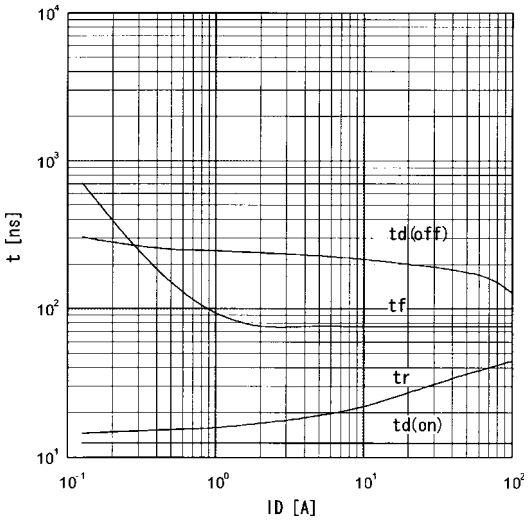
Typical capacitances
C=f(VDS) : VGS=0V, f=1MHz



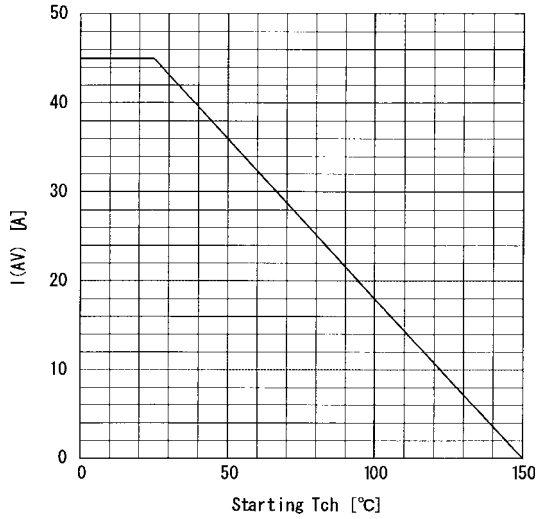
Typical Forward Characteristics of Reverse Diode
IF=f(VSD) : 80μs pulse test, Tch=25℃



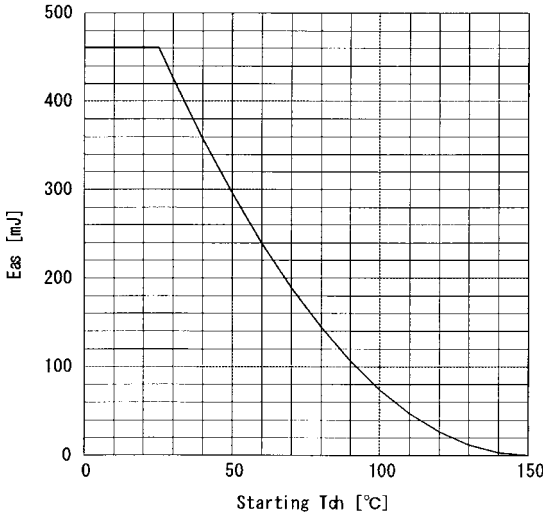
Typical Switching Characteristics vs. ID
t=f(ID) : Vcc=30V, VGS=10V, RG=10Ω



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



Maximum Avalanche energy vs. starting Tch
Eas=f(starting Tch):Vcc=24V, I_{AV}≦45A



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