SPECIFICATION

Device Name	:	POWER MOSFET
Type Name	:	2SK2870-01L,S
Spec. No.	:	[illegible]

Fuji Electric Co.,Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED		Fuji Electric Co.,Ltd.
DRAWN					
CHECKED				DWG.NO.	1/13

1.Scope This specifies Fuji Power MOSFET 2SK2870-01L,S

2.Construction N-Channel enhancement mode power MOSFET

3.Applications for Switching

4.Outview T-PACK L-type Outview See to 5/13 page
S-type Outview See to 6/13 page

5.Absolute Maximum Ratings at Tc=25℃ (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-Source Voltage	V_{DS}	450	V	
Continuous Drain Current	I_D	±8	A	
Pulsed Drain Current	I_{DP}	±32	A	
Gate-Source Voltage	V_{GS}	±35	V	
Repetitive or non-repetitive	I_{AV}	8	A	T_{ch}≦150℃
Maximum Avalanche Energy	E_{AV}	215.9	mJ	*1
Maximum Power Dissipation	P_D	50	W	
Operating and Storage	T_{ch}	150	℃	
Temperature range	T_{stg}	-55 to +150	℃	

*1 L=6.19mH,Vcc=45V

6.Electrical Characteristics at Tc=25℃ (unless otherwise specified)

Static Ratings

Description	Symbol	Conditions		min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=1mA V_{GS}=0V		450	-	-	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}=450V V_{GS}=0V	T_{ch}=25℃	-	10	500	μA
			T_{ch}=125℃	-	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	$R_{DS}(on)$	ID=4A VGS=10V		-	1.0	1.2	Ω

Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	I_D=4A V_{DS}=25V	2	4	-	S
Input Capacitance	Ciss	V_{DS}=25V	-	540	810	pF
Output Capacitance	Coss	V_{GS}=0V	-	100	150	
Reverse Transfer Capacitance	Crss	f=1MHz	-	45	70	
Turn-On Time	td(on)	V_{cc}=300V	-	13	20	ns
	tr	V_{GS}=10V	-	45	70	
Turn-Off Time	td(off)	I_D=8A	-	40	60	
	tf	R_{GS}=10Ω	-	25	40	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	L=6.19mH Tch=25℃ See Fig.1 and Fig.2	8	-	-	A
Diode Forward On-Voltage	V_{SD}	I_F=2×I_{DR} V_{GS}=0V, T_{ch}=25℃	-	1.1	1.65	V
Reverse Recovery Time	trr	I_F=I_{DR}	-	450	-	ns
Reverse Recovery Charge	Qrr	-di/dt=100A/μs T_{ch}=25℃	-	3.7	-	μc

7.Thermal Resistance

Description	Symbol	min.	typ.	max.	Unit
Channel to Case	Rth(ch-c)			2.50	℃/W
Channel to Ambient	Rth(ch-a)			125	℃/W

Fig.1 Test circuit

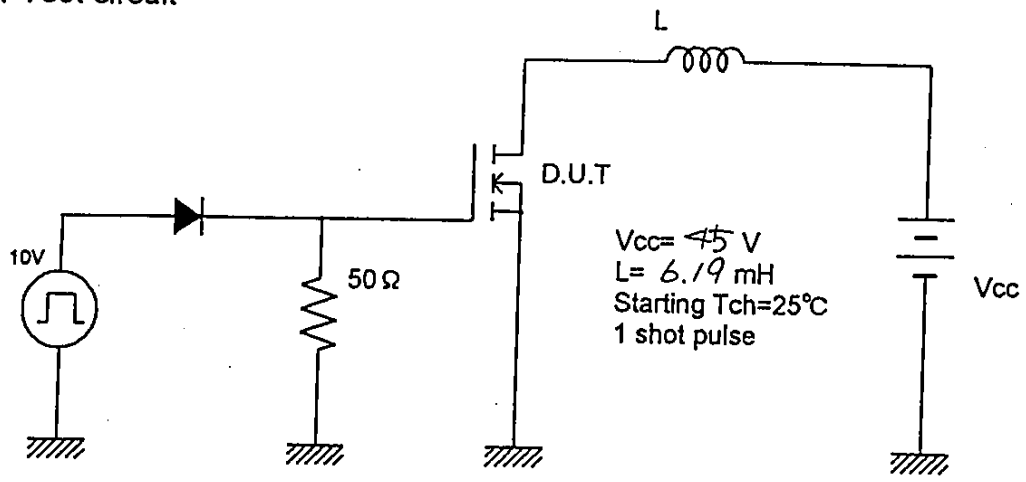
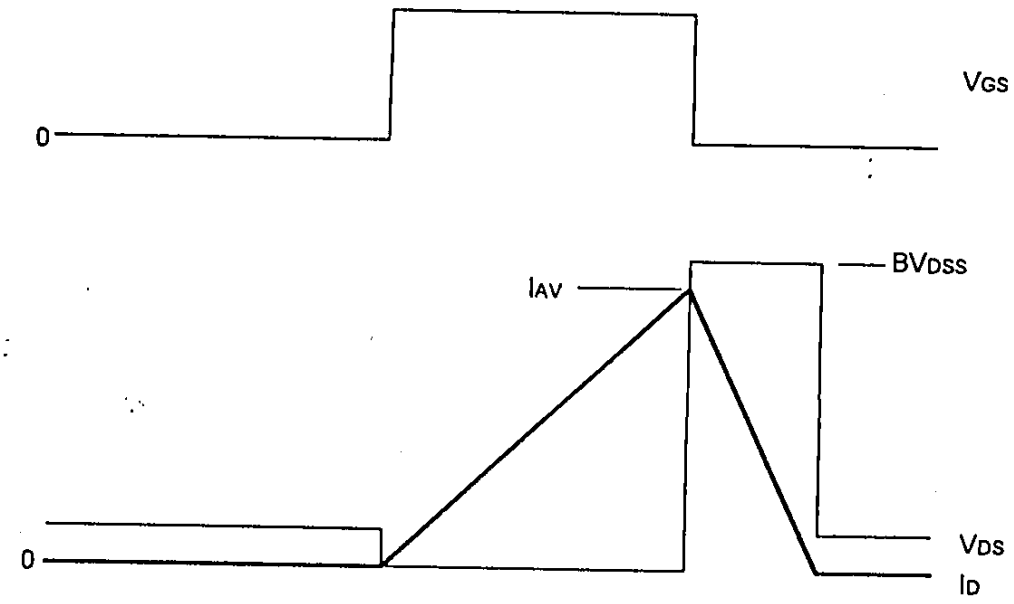
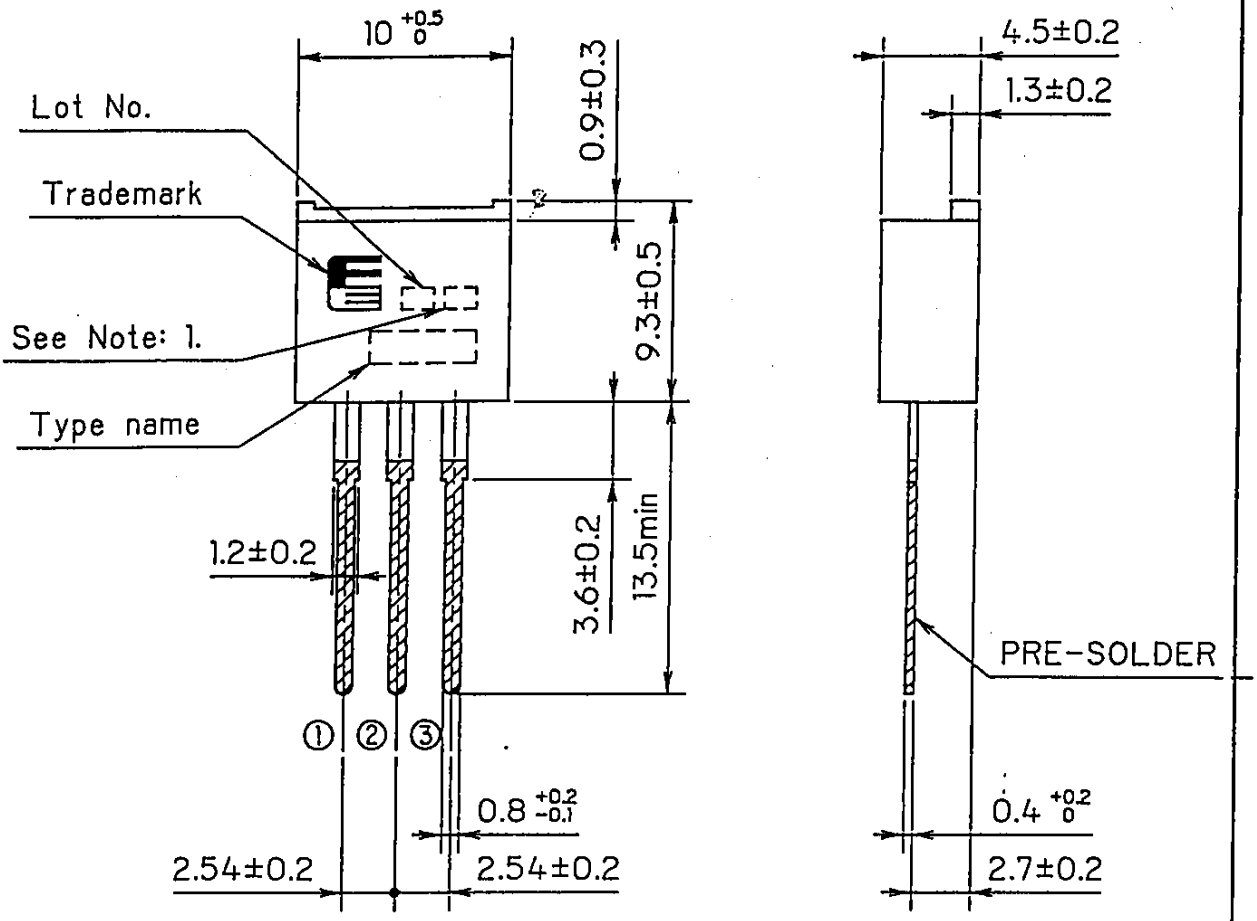


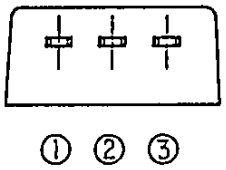
Fig.2 Operating waveforms



FUJI POWER MOS FET

TYPE :





CONNECTION

① GATE
② DRAIN
③ SOURCE

Note: 1. Guaranteed mark of avalanche ruggedness.

DIMENSIONS ARE IN MILLIMETERS.

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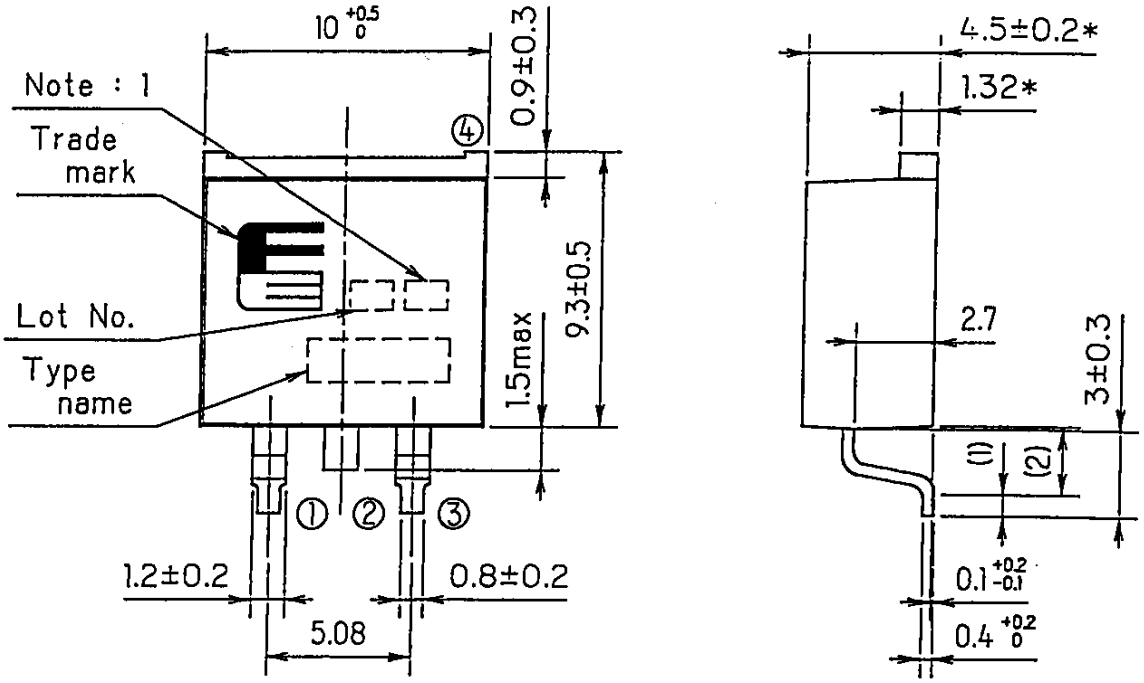
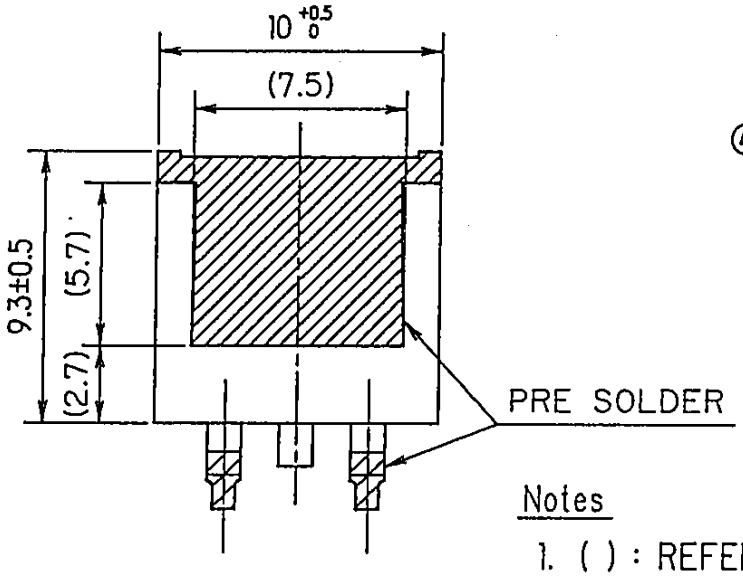
TYPE :



BOTTOM VIEW



CONNECTION

① GATE

④② DRAIN

③ SOURCE

Note 1. Guaranteed mark of avalanche ruggedness.

Notes

1. ( ) : REFERENCE DIMENSIONS.
2. * : DO NOT INCLUDE SOLDER.

DIMENSIONS ARE IN MILLIMETERS.

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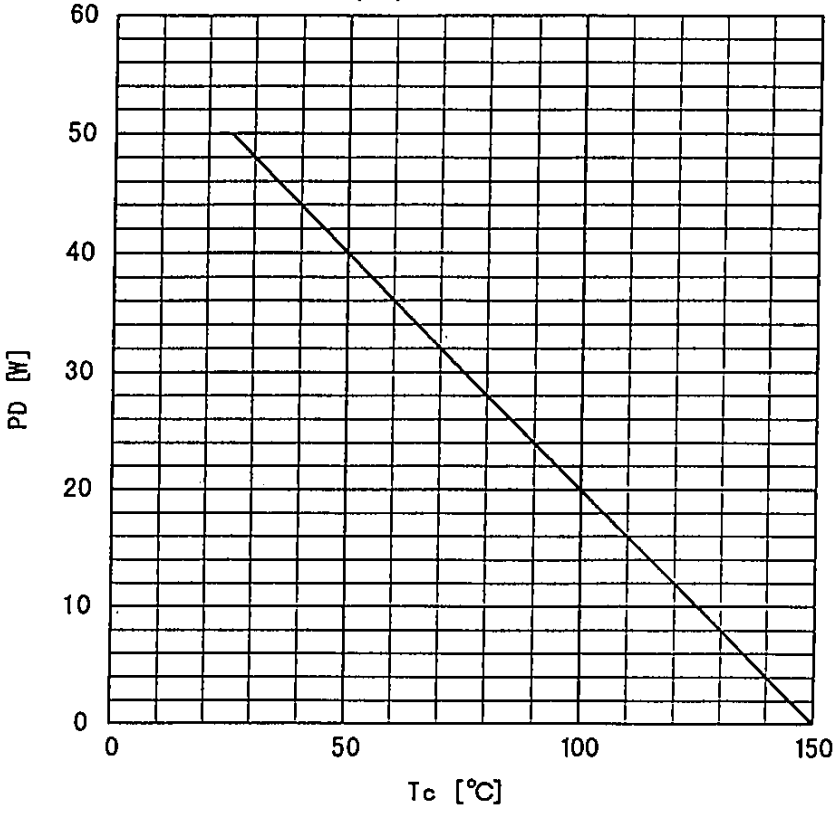
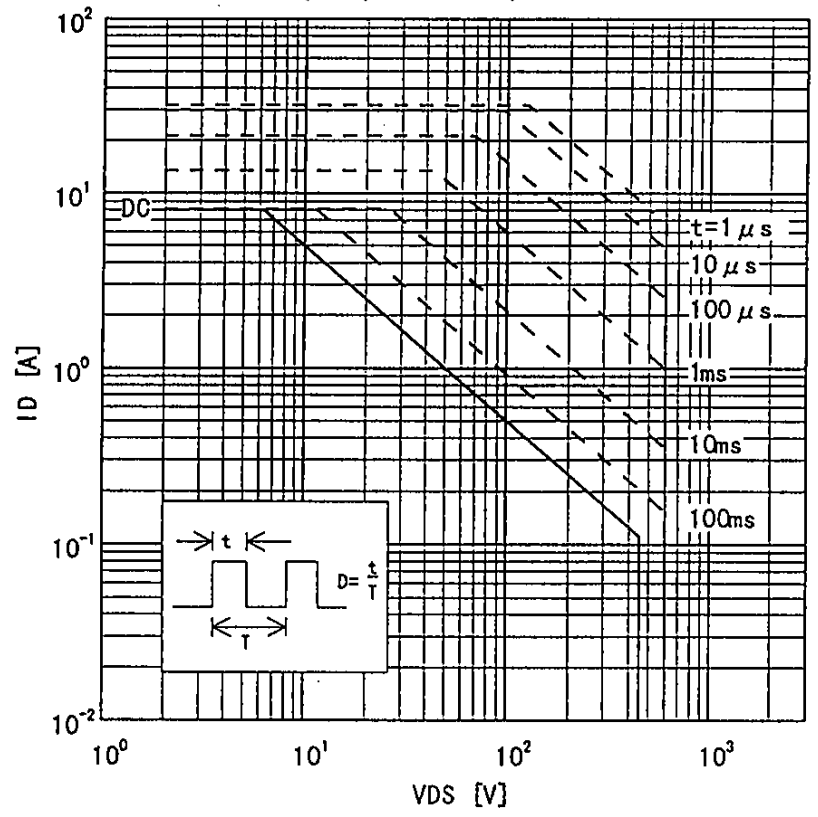
Power Dissipation

PD=f (Tc)



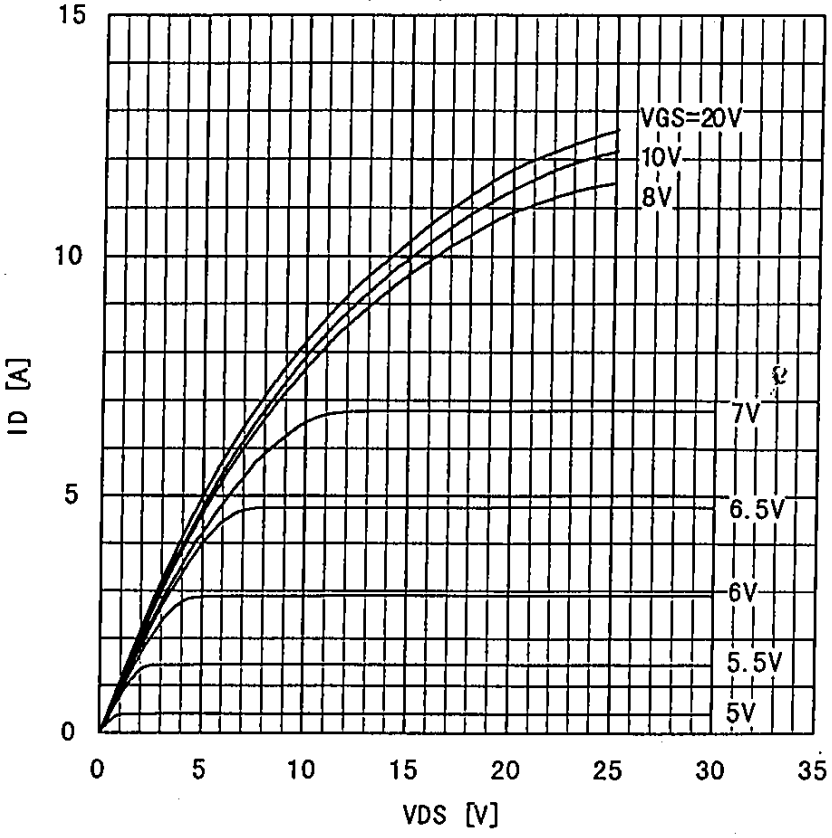
Safe operating area

ID=f (VDS) : D=0.01, Tc=25°C



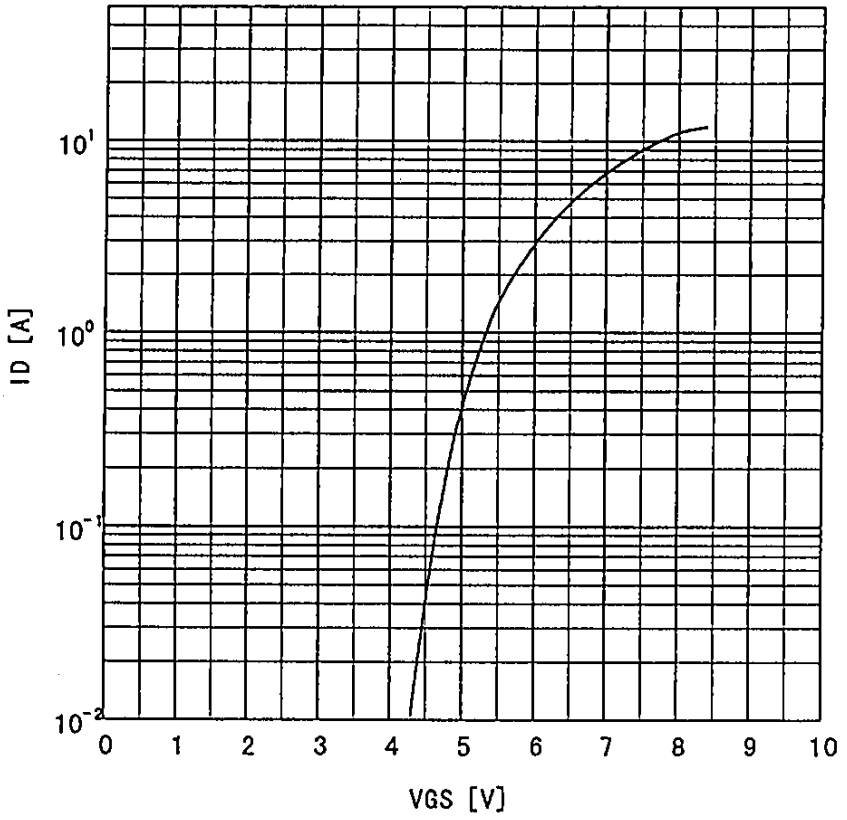
Typical output characteristics

ID=f(VDS) : 80μs pulse test, Tc=25°C

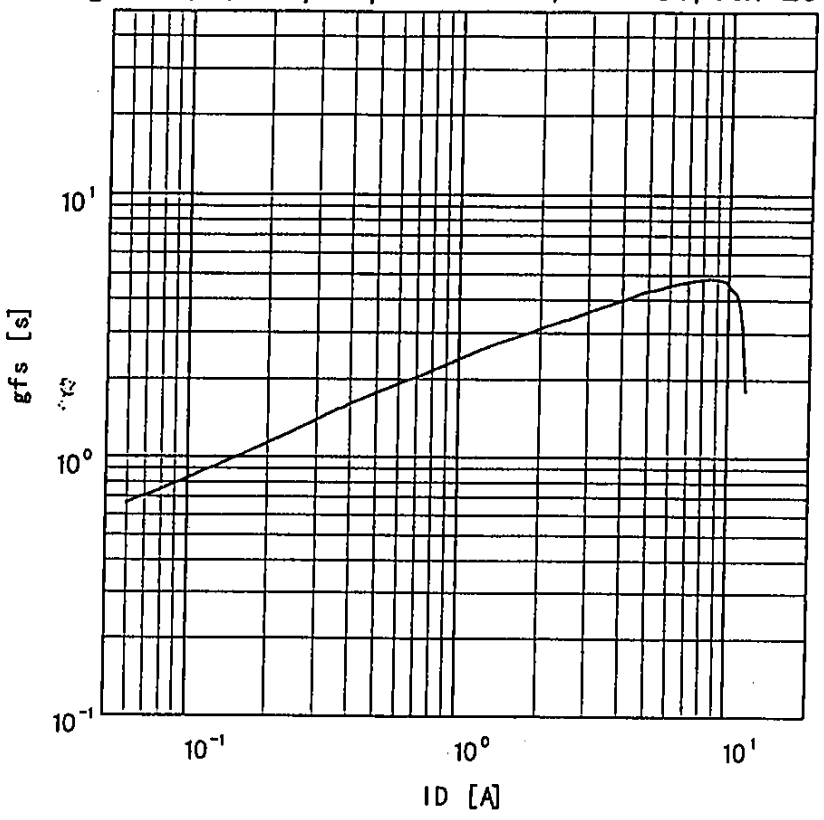


Typical transfer characteristic

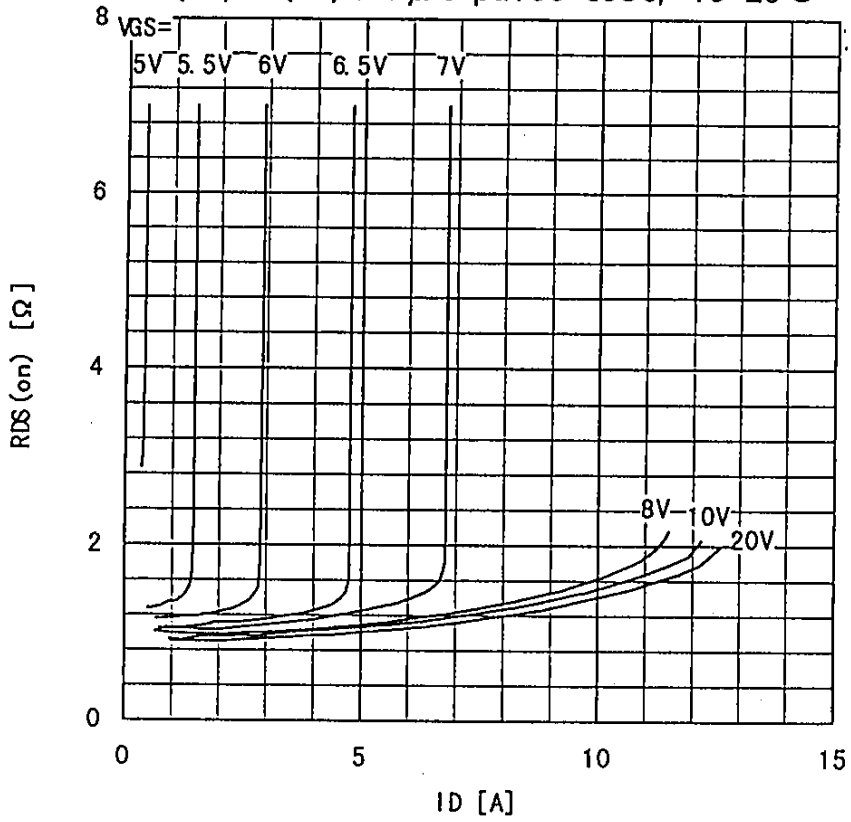
ID=f(VGS) : 80μs pulse test, VDS=25V, Tch=25°C



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

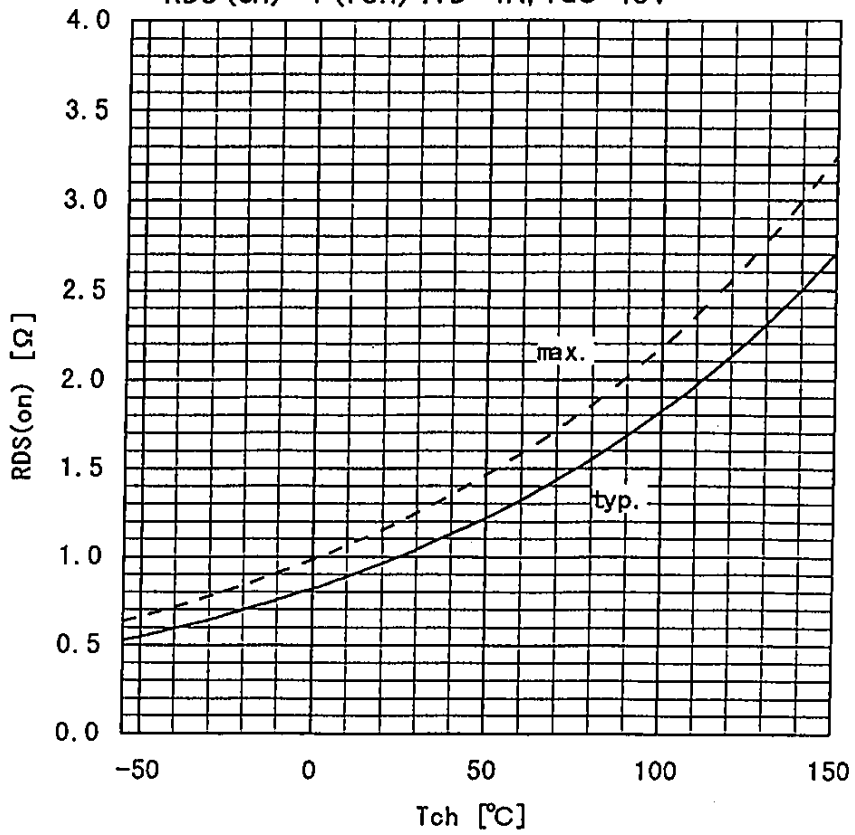


Typical drain-source on-state resistance
RDS(on)=f(ID) : 80 μ s pulse test, Tc=25°C



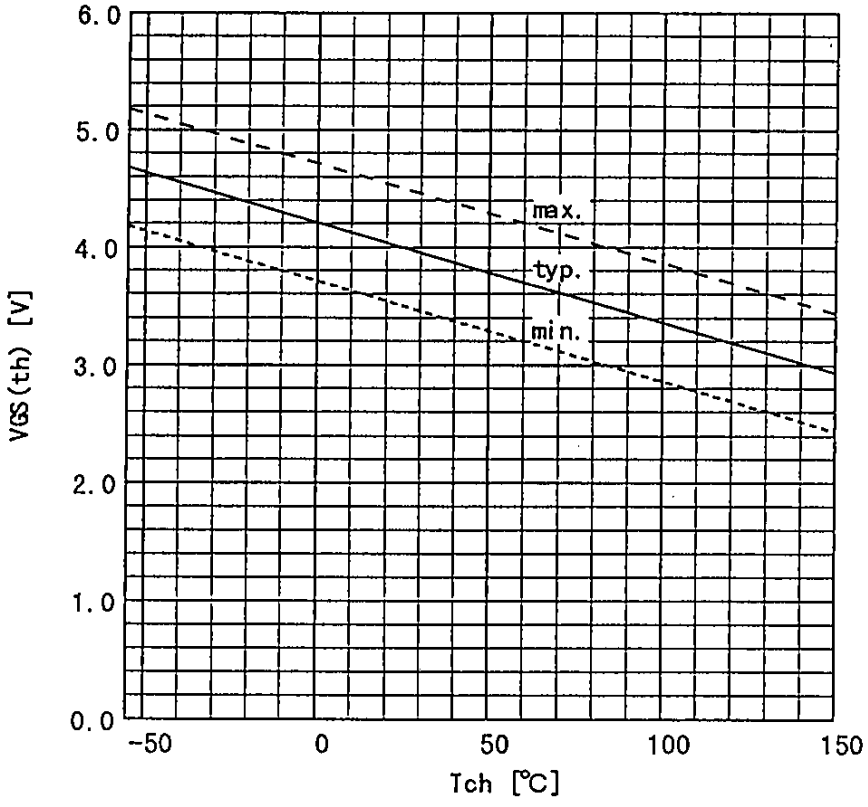
Drain-source on-state resistance

RDS(on)=f(Tch) : ID=4A, VGS=10V

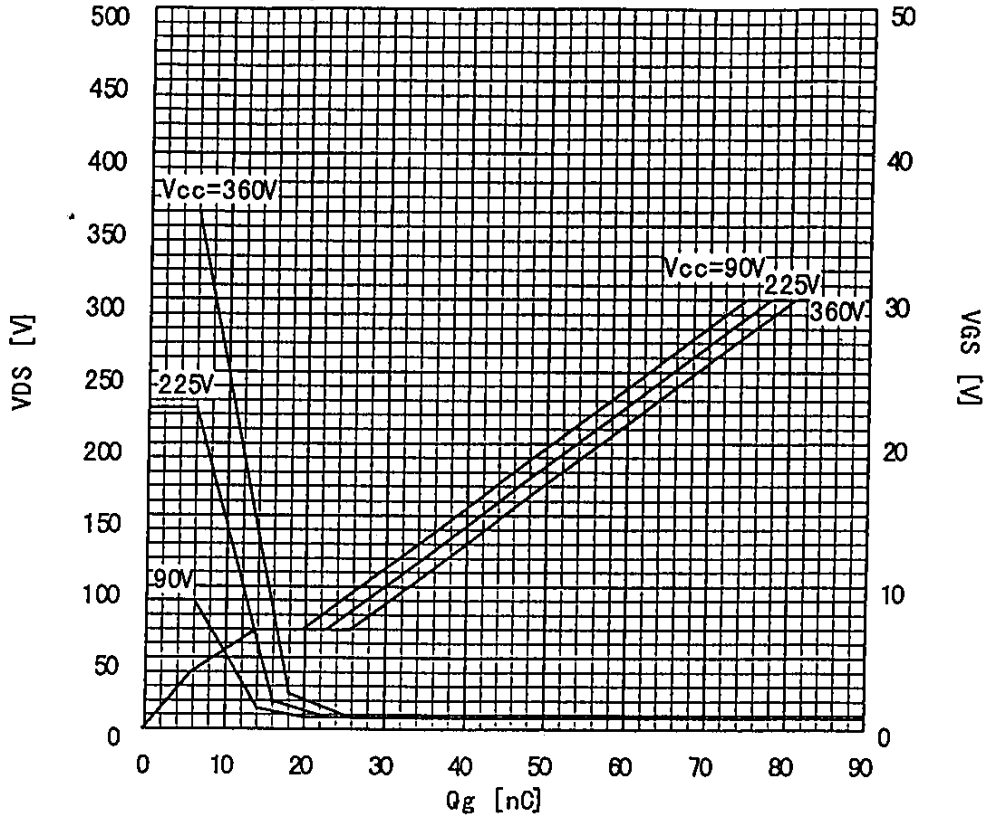


Gate threshold voltage

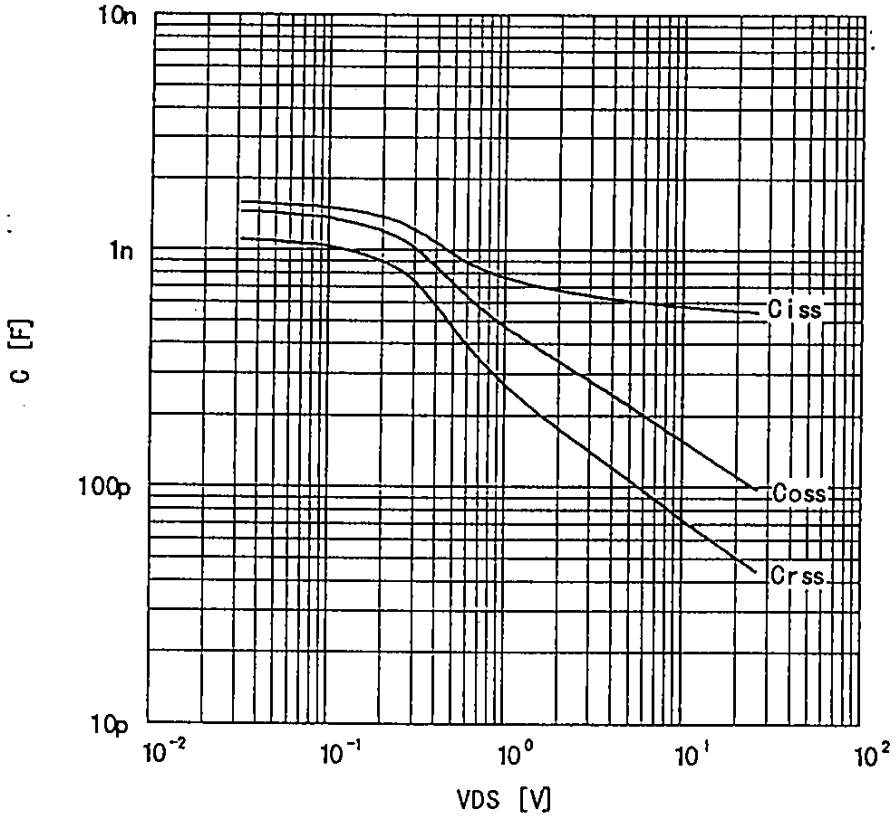
VGS(th)=f(Tch) : ID=1mA, VDS=VGS



Typical gate charge characteristic
VGS=f(Qg) : ID=8A, Tc=25°C

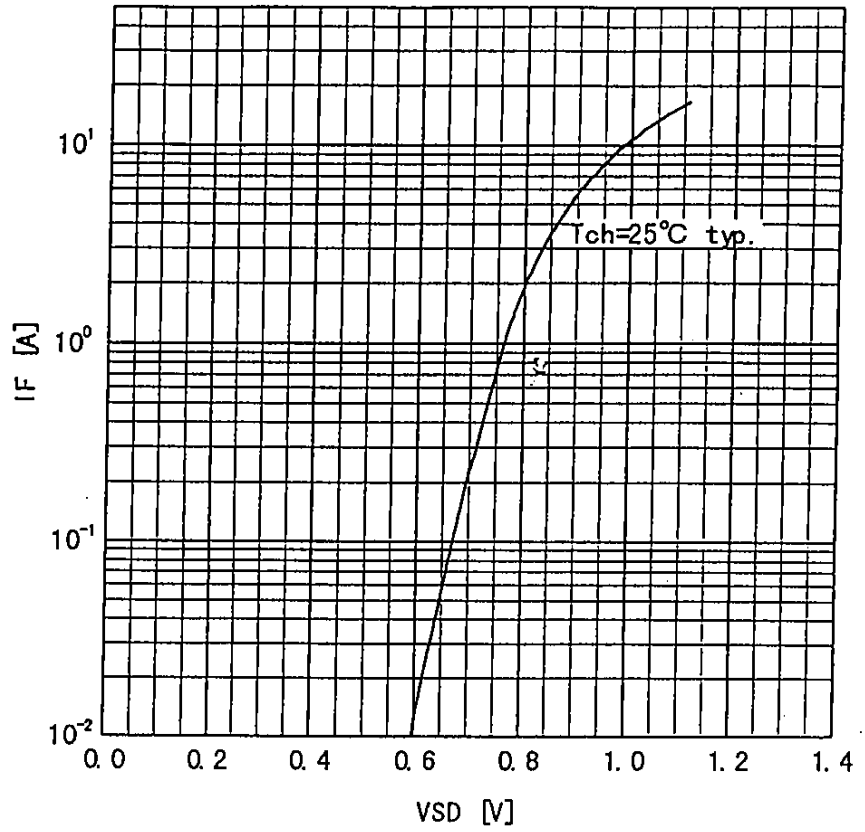


Typical capacitances
C=f(VDS) : VGS=0V, f=1MHz



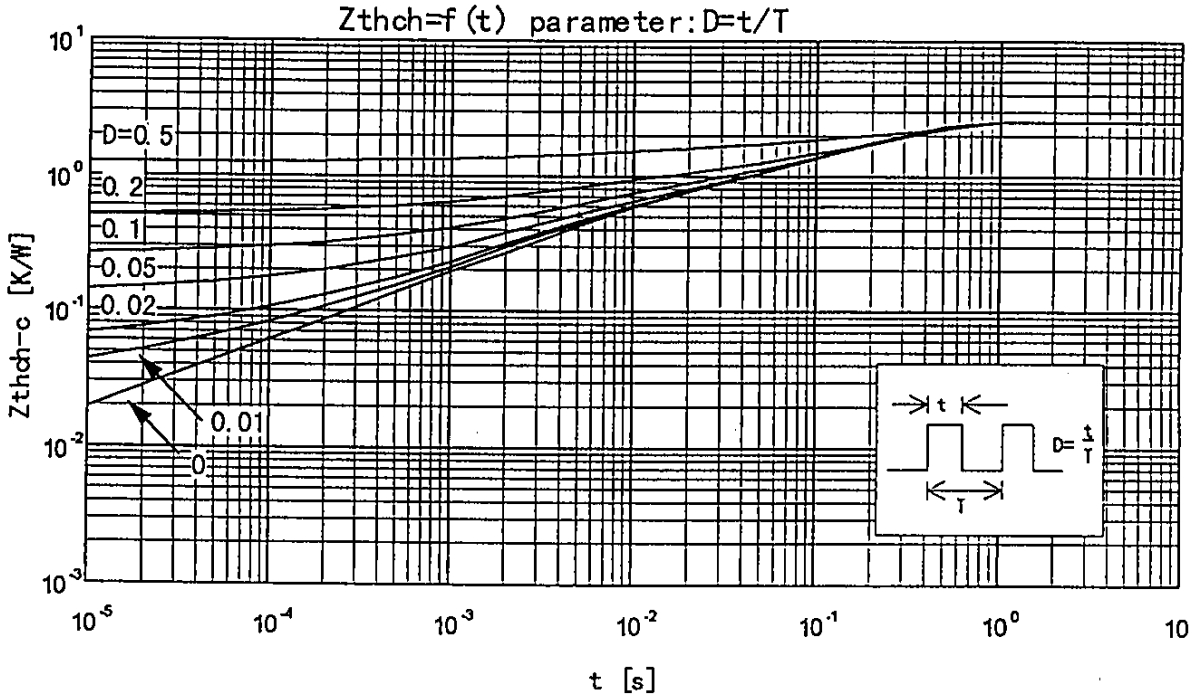
Forward characteristic of reverse of diode

IF=f(VSD) :80 μ s pules test, VGS=0V



Transient thermal impedance

Zthch=f(t) parameter: D=t/T



Avalanche energy derating

Eas=f(starting Tch):Vcc=45V, I_{AV}=8A