SPECIFICATION

(TENTATIVE)

DEVICE NAME : Power MOSFET

TYPE NAME : 2SK2641—01

SPEC. No. :

Fuji Electric Co.,Ltd.

This Specification is subject to change without notice.

	DATE	NAME	APPROVED
DRAWN			
CHECKED			

Fuji Electric Co.,Ltd.

DWG.NO.

1. Scope
   This specifies Fuji power MOSFET 2SK2641-01

2. Construction N-channel enhancement mode power MOSFET

3. Application for switching

4. Outview TO-3P Outview See to 5/12 page

5. Absolute maximum ratings at Tc=25℃ (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-source voltage	V_{DS}	500	V	
Continuous Drain current	I_D	± 10	A	
Pulsed drain current	I_{Dpulse}	± 40	A	
Gate-source voltage	V_{GS}	± 30	V	
Repetitive or non-repetitive	I_{AR}	10	A	Tch≦ 150℃
Avalanche energy	E_{AS}	229	mJ	See page 12/12 ※
Maximum power dissipation	P_D	100	W	
Operating and storage	T_{ch}	150	℃	
temperature range	T_{stg}	-55 ～ +150	℃	

※ L=4.2mH, Vcc=50V

6. Electrical characteristics at Tc=25℃ (unless otherwise specified)
   Static ratings

Description	Symbol	Conditions		Characteristics			Unit
				Min.	Typ.	Max.	
Drain-source breakdown voltage	BV_{DSS}	I_D =1mA V_{GS}=0V		500			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}=500V V_{GS}= 0V	T_{ch}= 25℃		10	500	μA
	I_{DSS}		T_{ch}=125℃		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 = 5 A V_{GS}=10 V			0.73	0.90	Ω

Dynamic ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	g_{fs}	I_D = 5 A V_{DS}=25 V	2.5	5.0		S
Input capacitance	C_{iss}	V_{DS}=25V V_{GS}= 0V f =1MHz		950	1450	pF
Output capacitance	C_{oss}			180	270	pF
Reverse transfer capacitance	C_{rss}			80	120	pF
Turn-on time	$t_{d(on)}$	V_{CC}=300V V_{GS}= 10V I_D = 10A R_{GS}= 10Ω		25	40	ns
	t_r			70	110	ns
Turn-off time	$t_{d(off)}$			70	110	ns
	t_f			45	70	ns

Reverse diode

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Avalanche capability	I_{AV}	L=100μH, T_{ch}=25℃ ‡ See Fig1 and 2	10			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	t_{rr}	I_F = I_{DR} V_{GS}=0V $-dI_F/dt$=100A/μs T_{ch}=25℃		450		ns
Reverse recovery charge	Q_{rr}			5.5		μC

7. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th\,ch-c}$				1.25	℃/W
	$R_{th\,ch-a}$				35.0	℃/W

Fig. 1 Test circuit

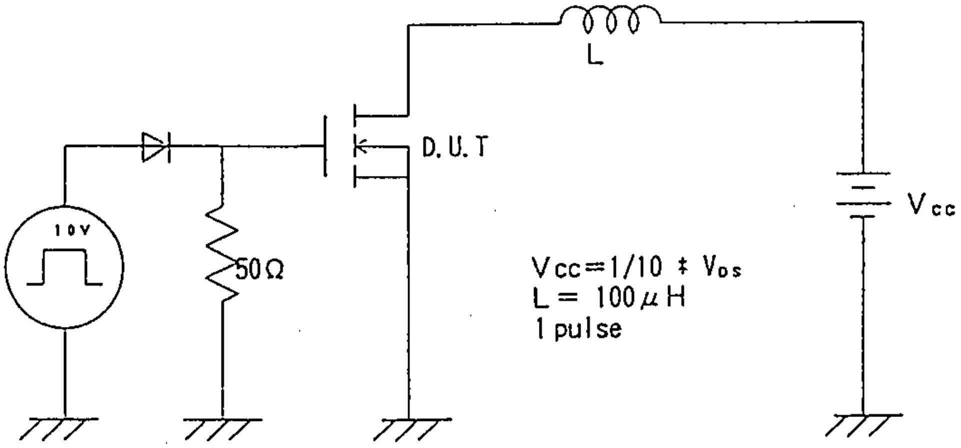
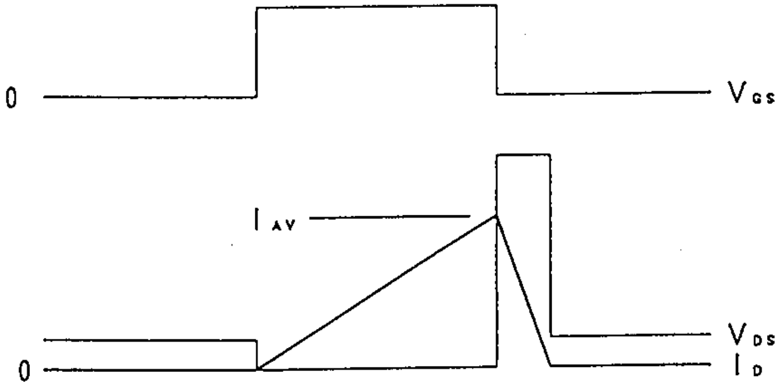
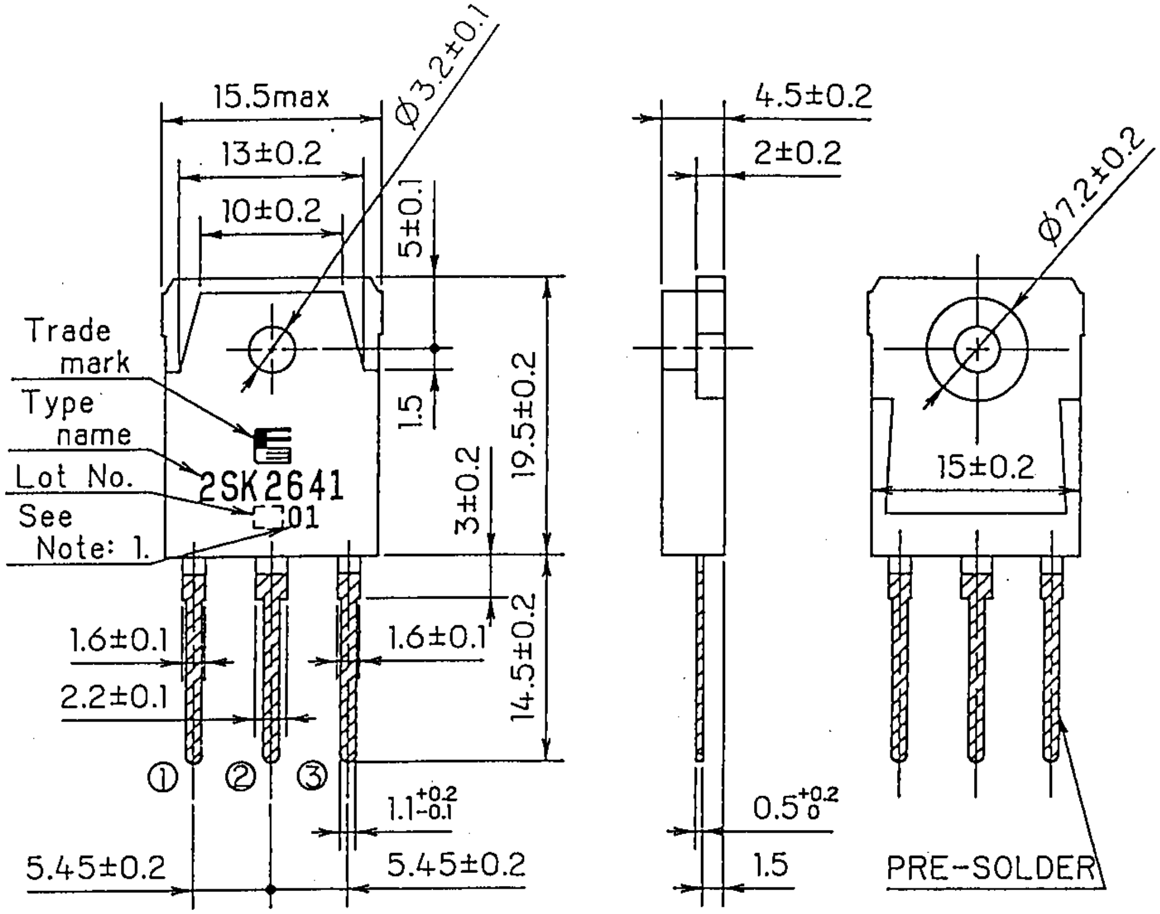


Fig. 2 Operating waveforms

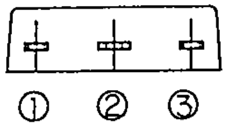


FUJI POWER MOS FET

TYPE : 2SK2641-01



DIMENSIONS ARE IN MILLIMETERS.



CONNECTION

① GATE
② DRAIN
③ SOURCE

Note: 1. Guaranteed mark of avalanche ruggedness.

JEDEC : TO-247
EIAJ : SC-65

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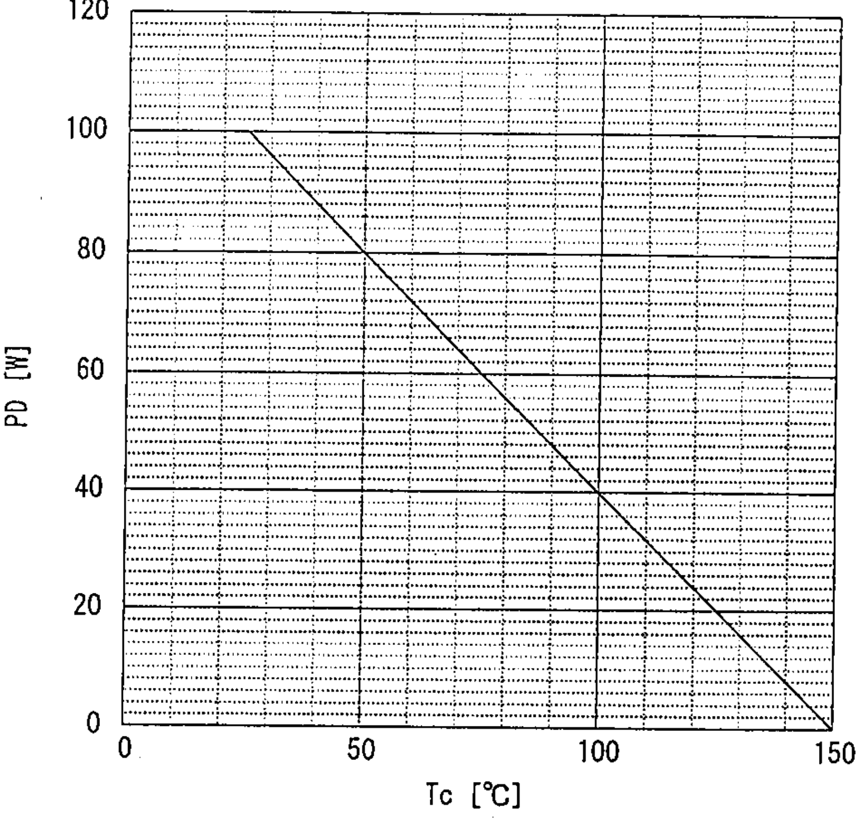
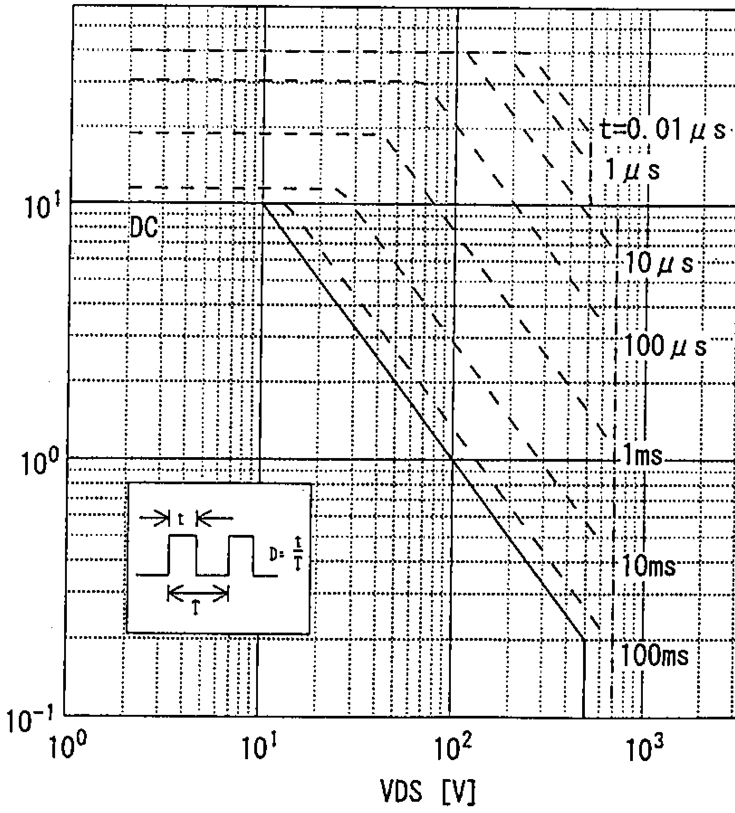
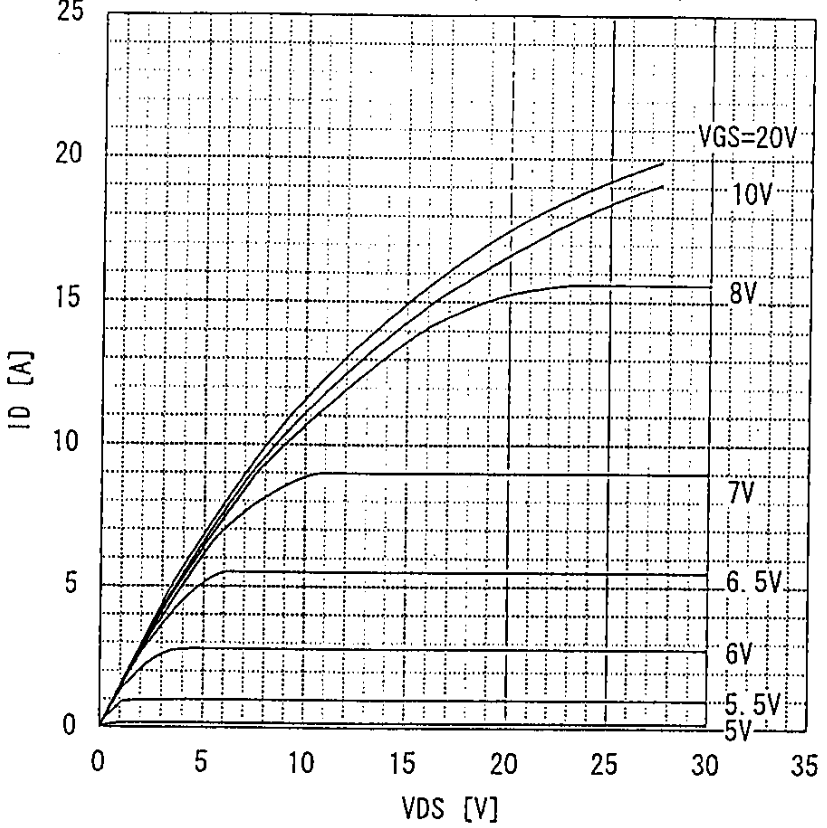


Power Dissipation
PD=f(Tc)

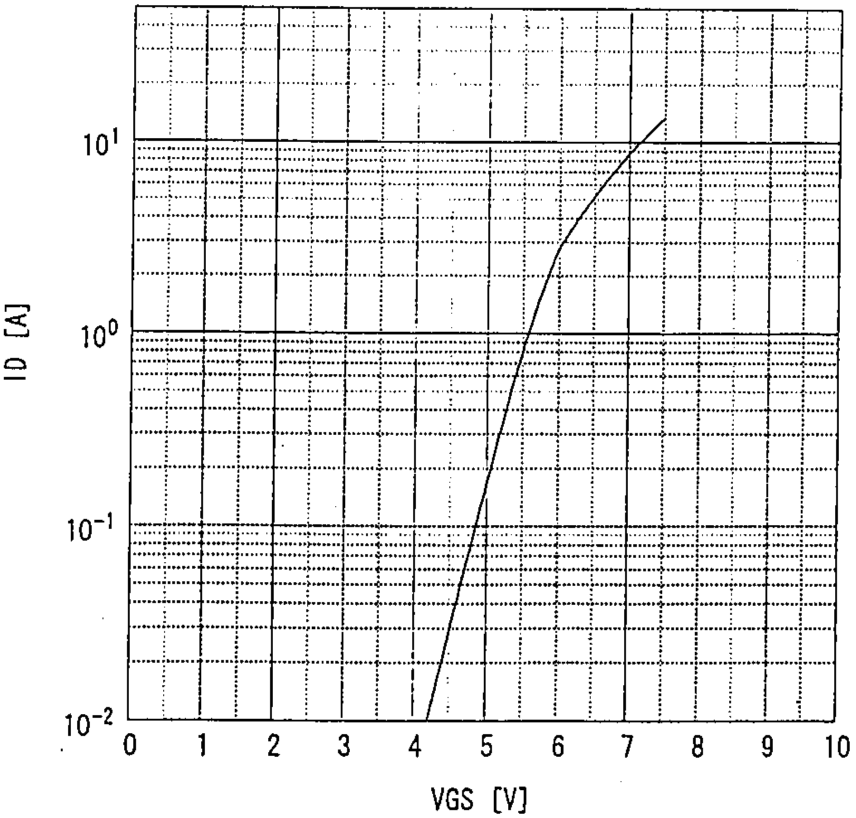


Safe operating area
ID=f(VDS):D=0.01, Tc=25℃

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

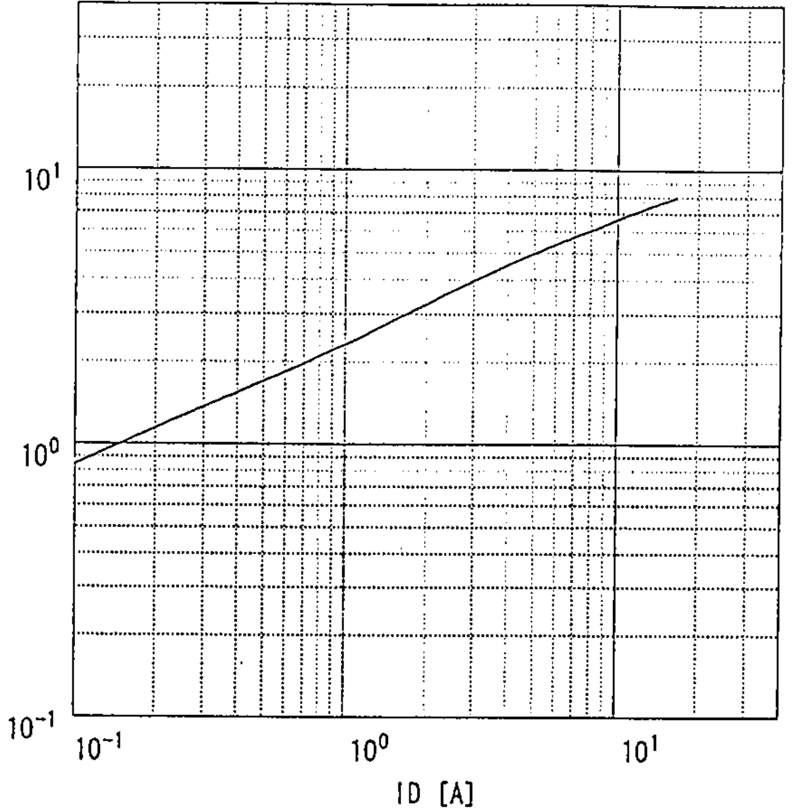


Typical transfer characteristic
ID=f(VGS):80μs pulse test, VDS=25V, Tch=25℃



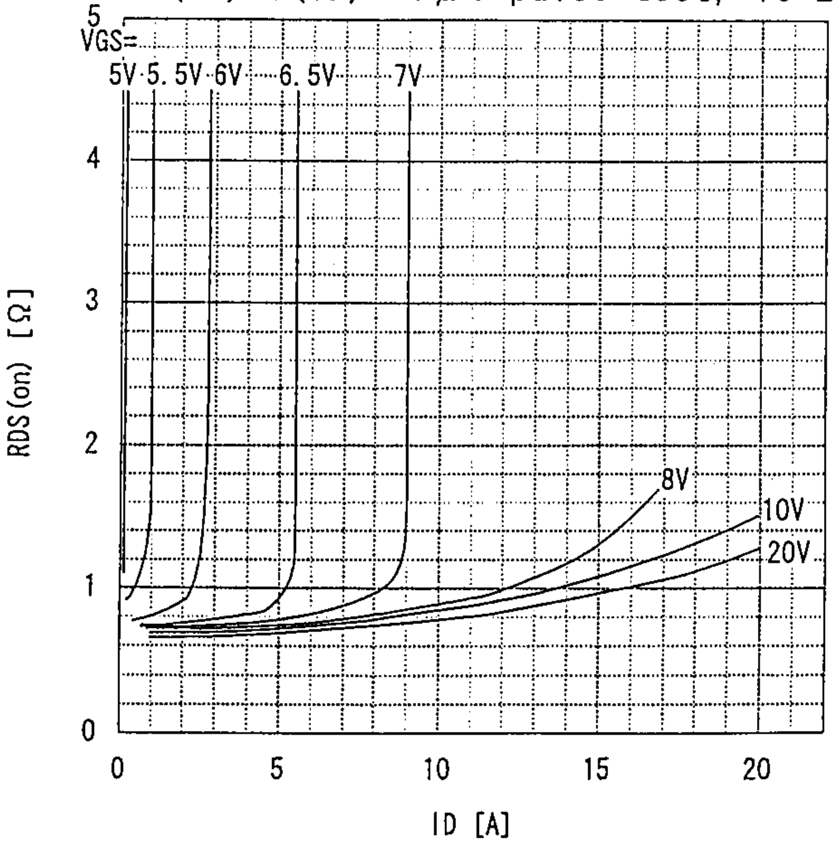
Typical forward transconductance

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

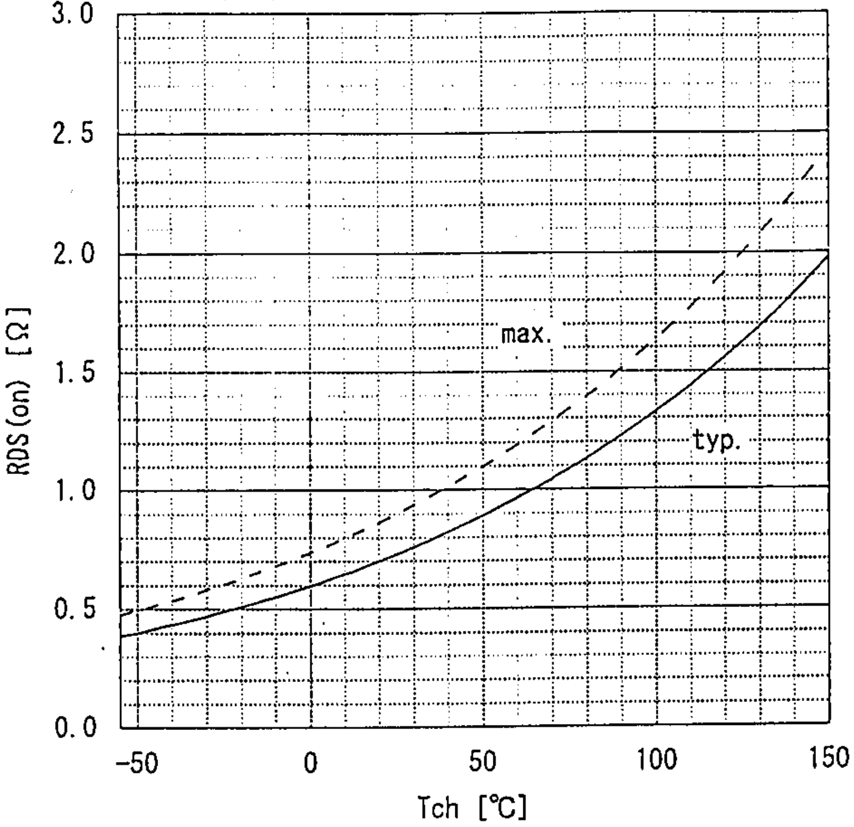


Typical drain-source on-state resistance

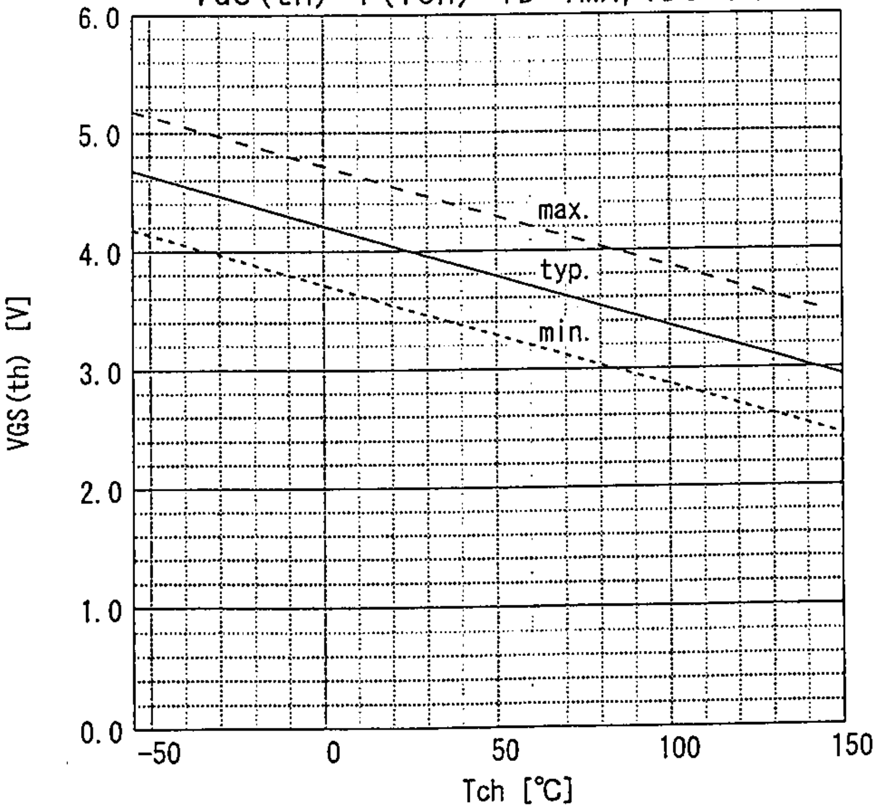
RDS(on)=f(ID):80μs pulse test, Tc=25℃



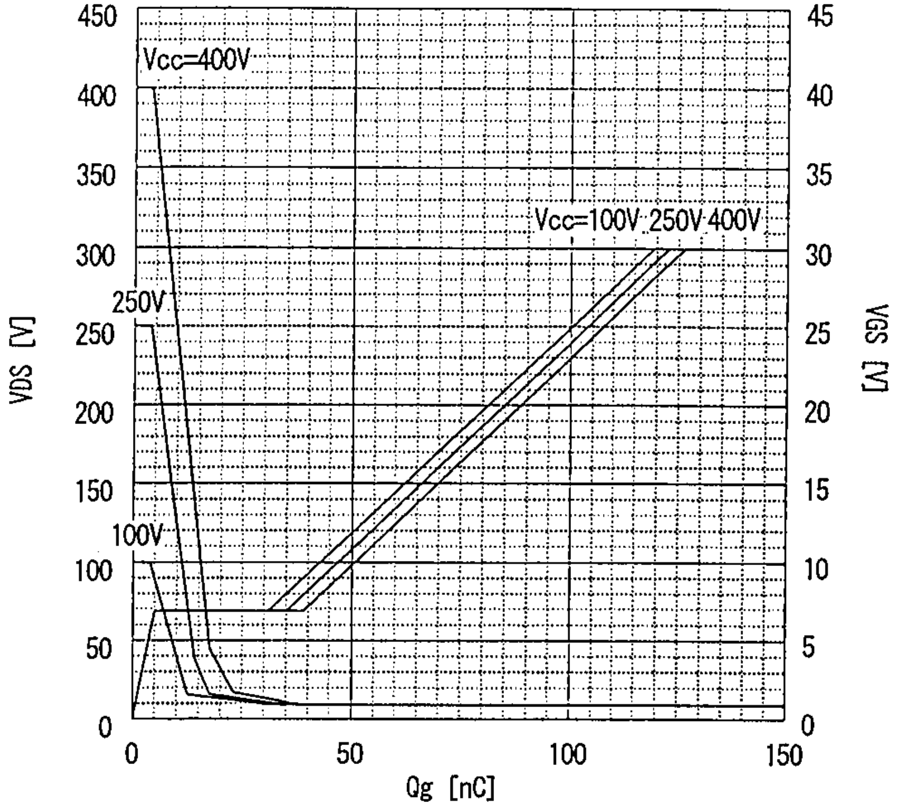
Drain-source on-state resistance
RDS(on)=f(Tch):ID=5A, VGS=10V



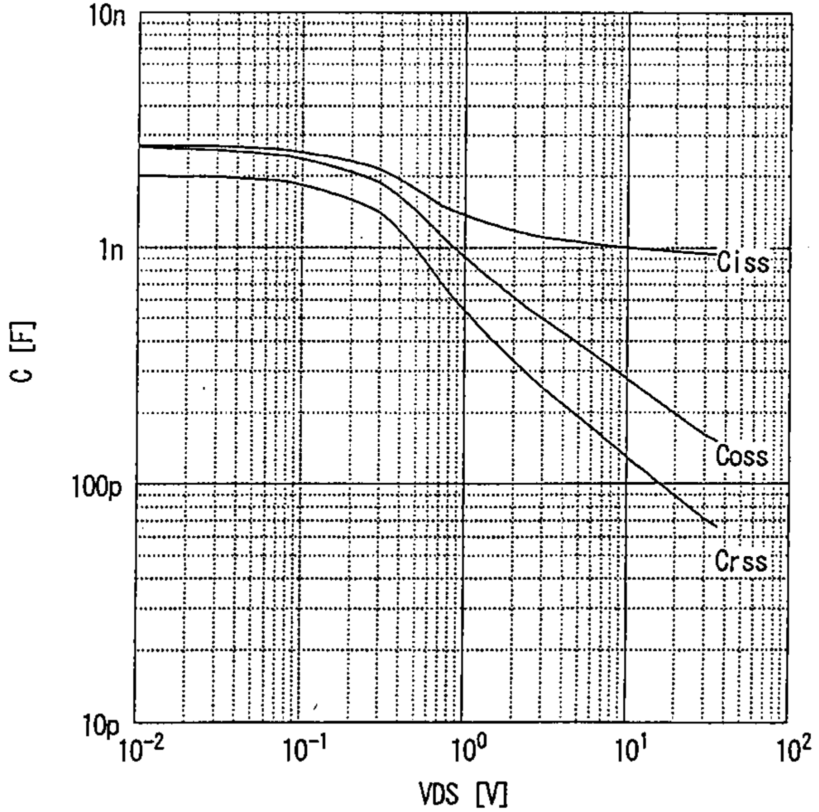
Gate threshold voltage
VGS(th)=f(Tch):ID=1mA, VDS=VGS



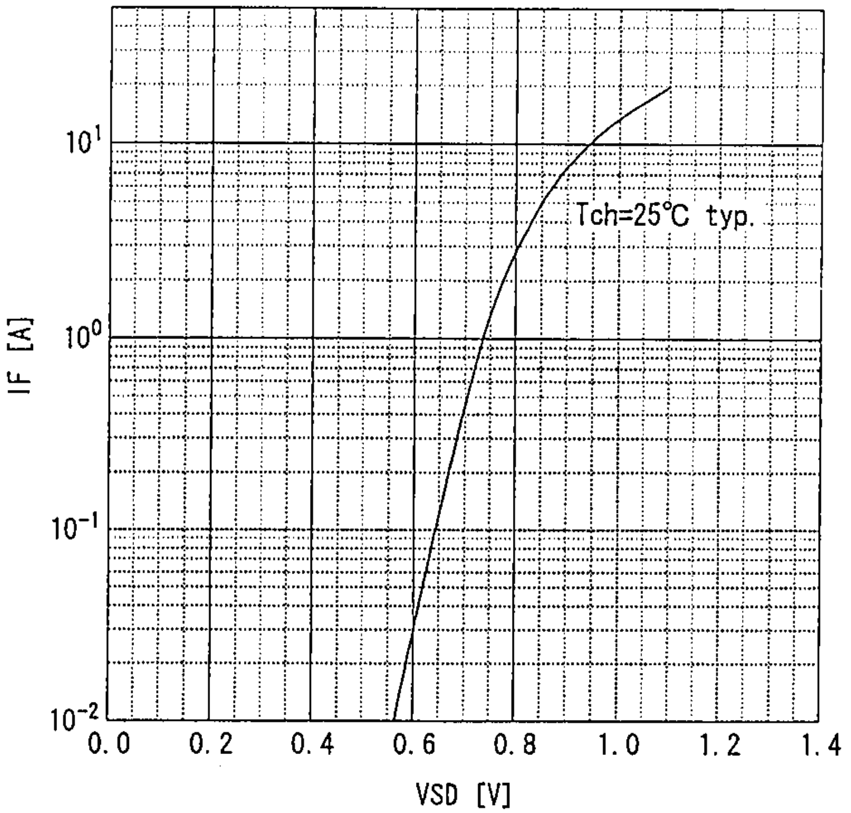
Typical gate charge characteristic
VGS=f(Qg):ID=10A, Tc=25°C



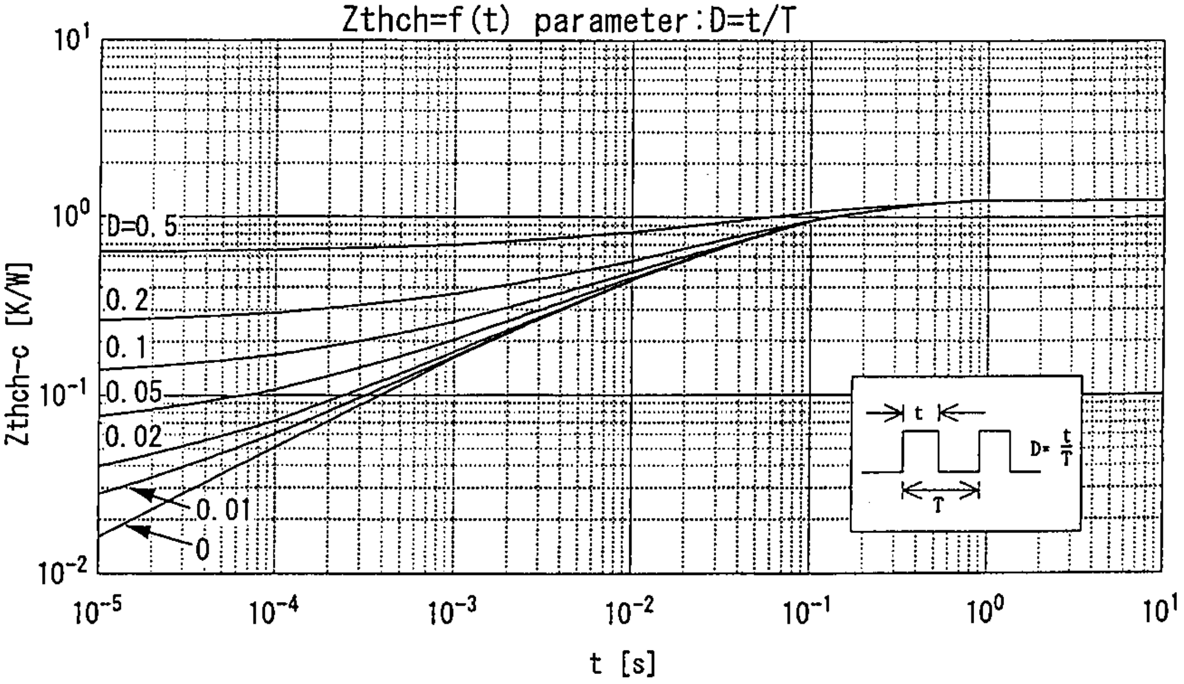
Typical capacitances
C=f(VDS):VGS=0V, f=1MHz



Forward characteristic of reverse of diode
IF=f(VSD):80μs pules test, VGS=0V



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



Avalanche energy derating
Eas=f(starting Tch):Vcc=50V, I_{AV}=10A