SPECIFICATION

DEVICE NAME : Power MOSFET .

TYPE NAME : 2SK2806-01 .

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.

Y 0257-R-004a

1.Scope This specifies Fuji Power MOSFET 2SK2806-01

2.Construction N-Channel enhancement mode power MOSFET

3.Applications for Switching

4.Outview To-220 Outview See to 5/13 page

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

Description	Symbol	Characteristics	Unit	Remarks
Drain-Source Voltage	V_{DS}	30	V	
Continuous Drain Current	I_D	±35	A	
Pulsed Drain Current	I_{DP}	±140	A	
Gate-Source Voltage	V_{GS}	±16	V	
Maximum Avalanche Energy	E_{AV}	129.3	mJ	*1
Maximum Power Dissipation	P_D	30	W	
Operating and Storage	T_{ch}	150	℃	
Temperature range	T_{stg}	-55 to +150	℃	

*1 L=0.070mH,Vcc=12V

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		30			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}=30V 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}=±16V V_{DS}=0V			10	100	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	I_D=17.5A	V_{GS}=4V		22	30	mΩ
			V_{GS}=10V		14	20	

Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	I_D=17.5A V_{DS}=25V	16	33		S
Input Capacitance	Ciss	V_{DS}=25V		1100	1650	pF
Output Capacitance	Coss	V_{GS}=0V		550	830	
Reverse Transfer Capacitance	Crss	f=1MHz		240	360	
Turn-On Time	td(on)	V_{cc}=15V		9	15	ns
	tr	V_{GS}=10V		15	23	
Turn-Off Time	td(off)	I_D=35A		75	115	
	tf	R_{GS}=10Ω		50	75	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	L=100μH Tch=25℃ See Fig.1 and Fig.2	35			A
Diode Forward On-Voltage	V_{SD}	I_F=2×I_{DR} V_{GS}=0V T_{ch}=25℃		0.98	1.71	V
Reverse Recovery Time	trr	I_F=2×I_{DR}		50		ns
Reverse Recovery Charge	Qrr	-di/dt=100A/μs T_{ch}=25℃		0.08		μc

7.Thermal Resistance

Description	Symbol	min.	typ.	max.	Unit
Channel to Case	Rth(ch-c)			4.16	℃/W
Channel to Ambient	Rth(ch-a)			75.0	℃/W

Fig. 1 Test circuit

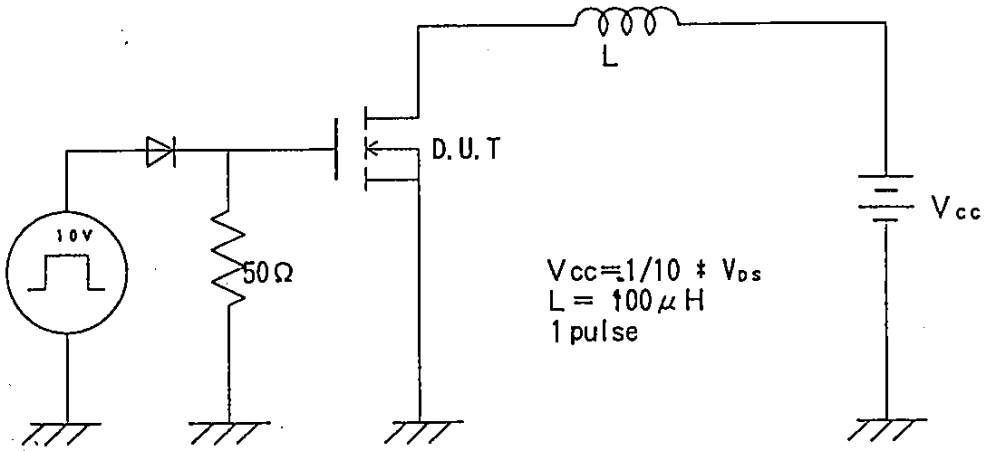
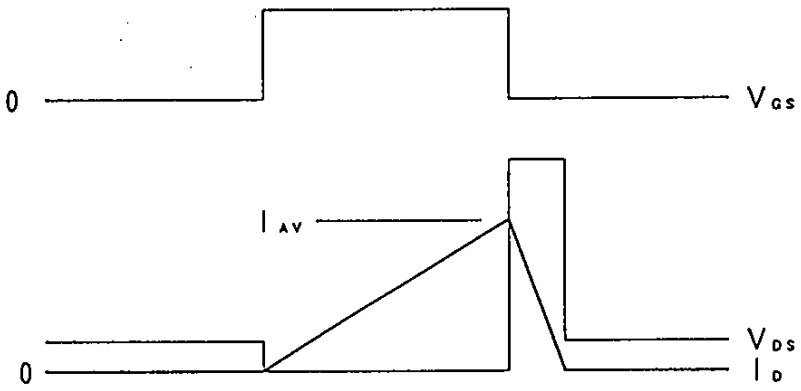
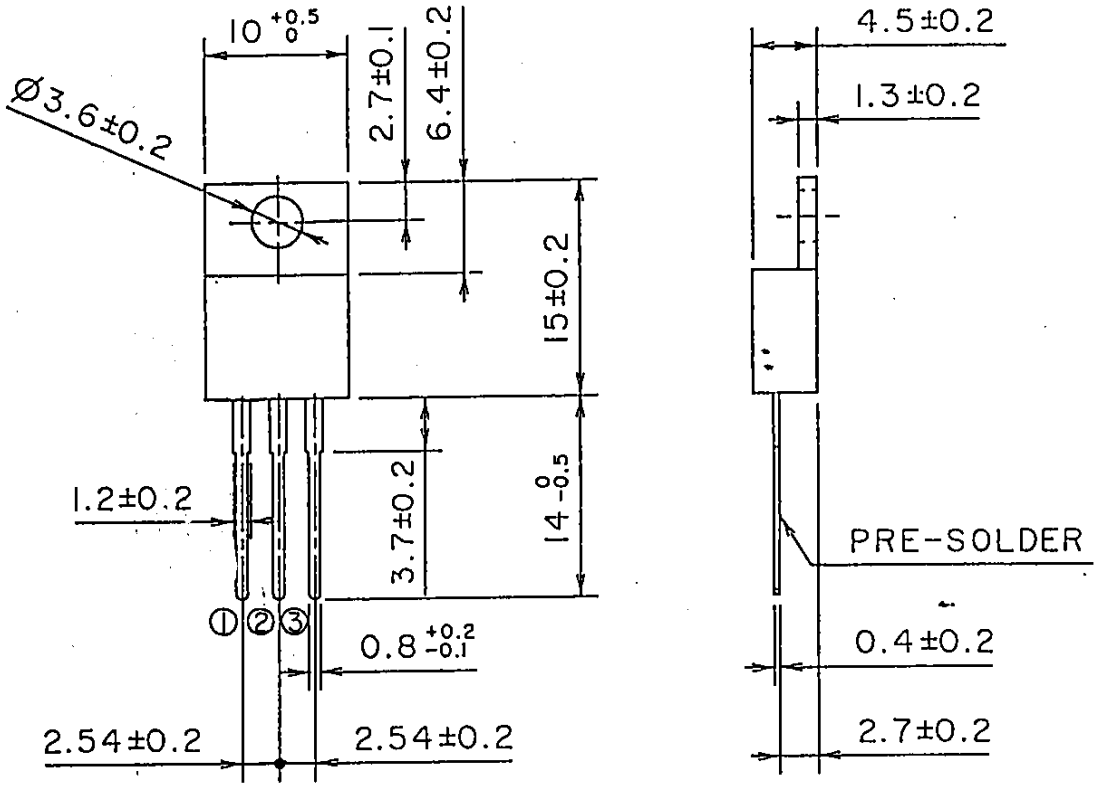


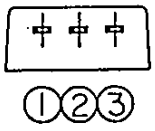
Fig. 2 Operating waveforms





DIMENSIONS ARE IN MILLIMETERS.

CONNECTION



① GATE
② DRAIN
③ SOURCE

JEDEC : TO-220AB

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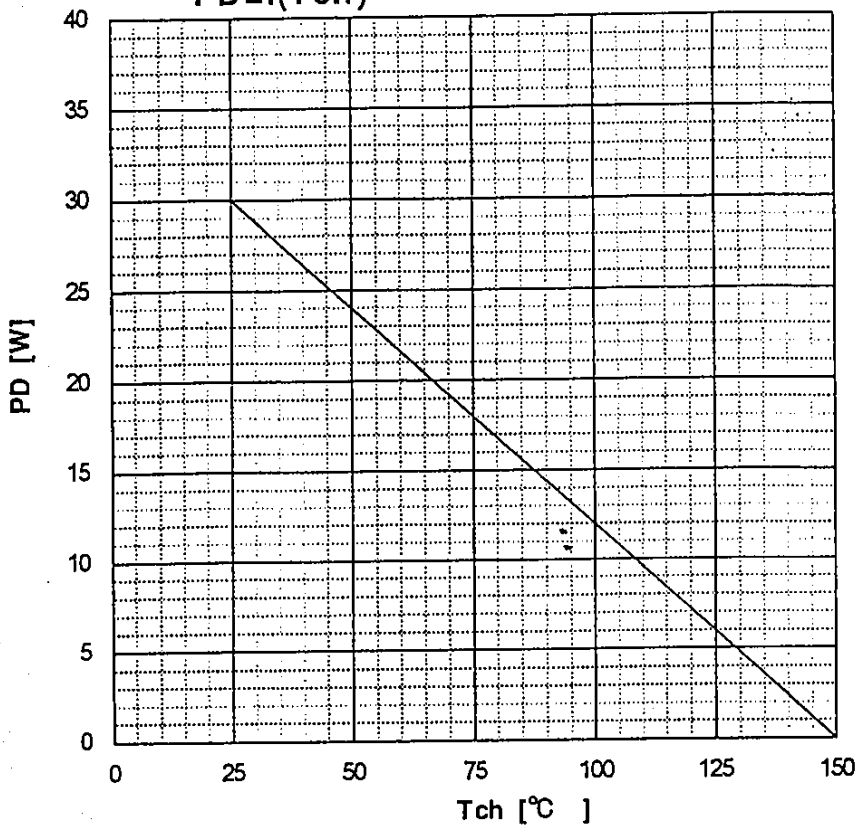
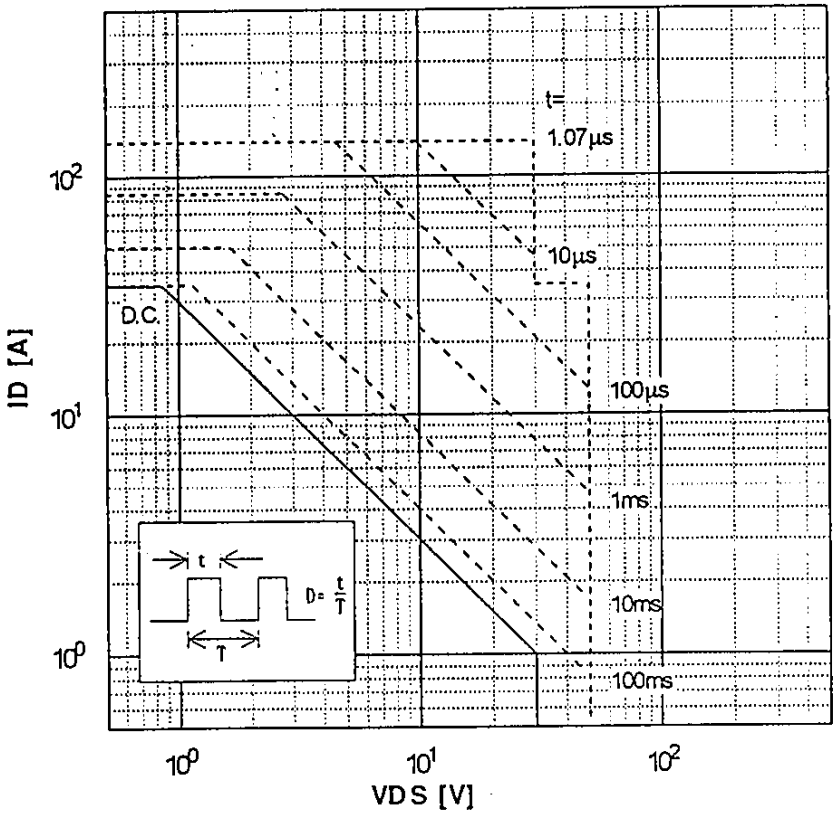
Allowable Power Dissipation vs. Tch

PD=f(Tch)



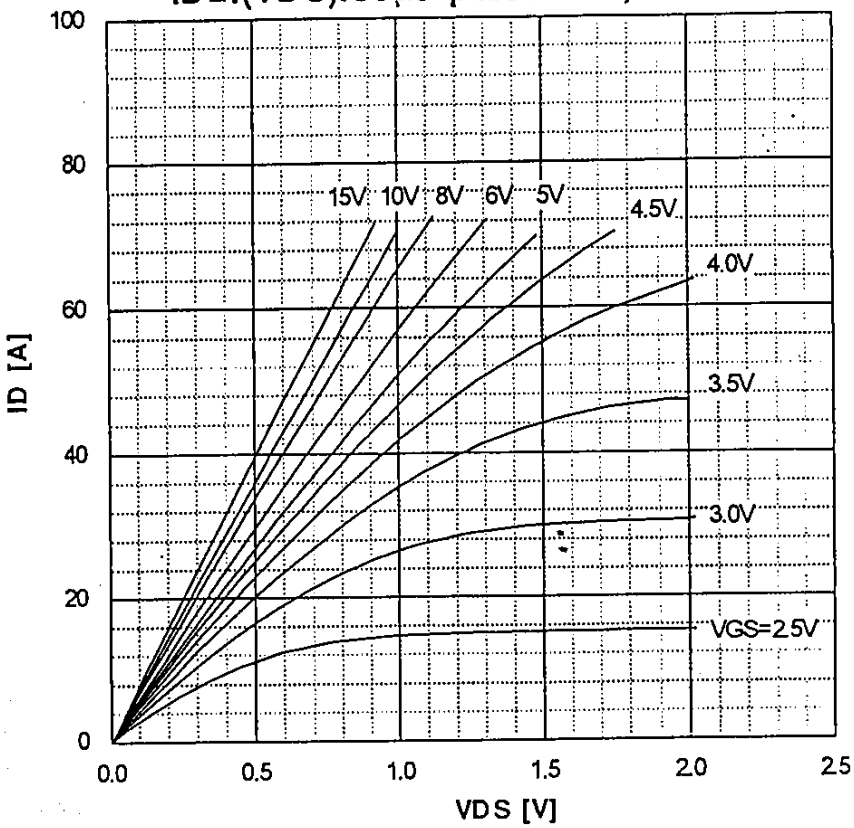
Safe operating area

ID=f(VDS):D=0.01,Tc=25℃



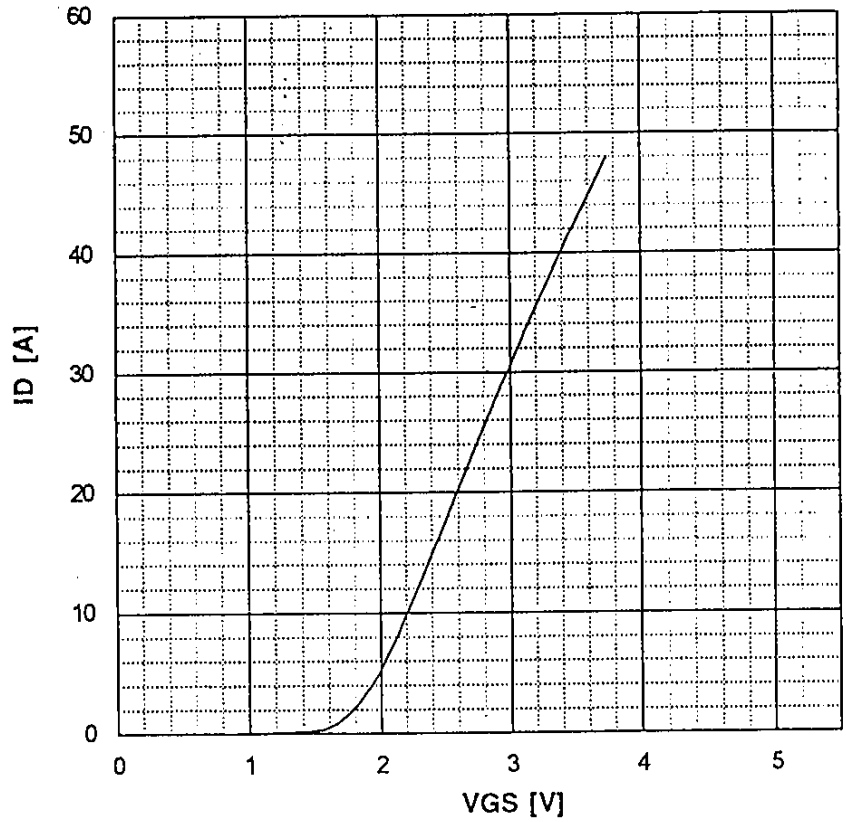
Typical Output Characteristics

ID=f(VDS):80μs pulse test,Tch=25℃



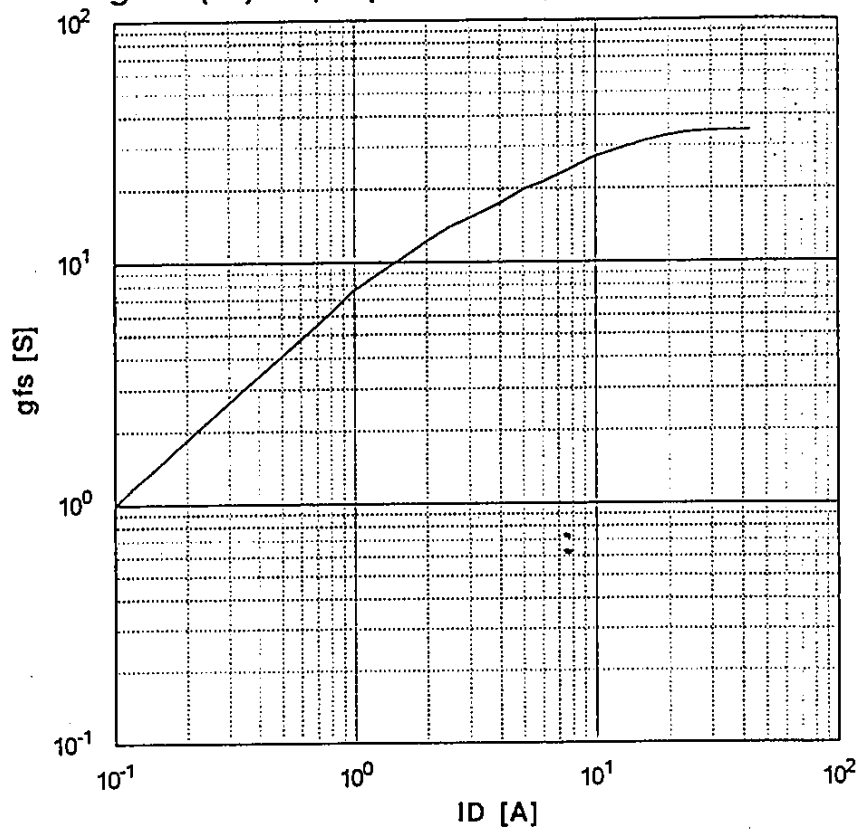
Typical Transfer Characteristic

ID=F(VGS):80μs pulse test,VDS=25V,Tch=25℃



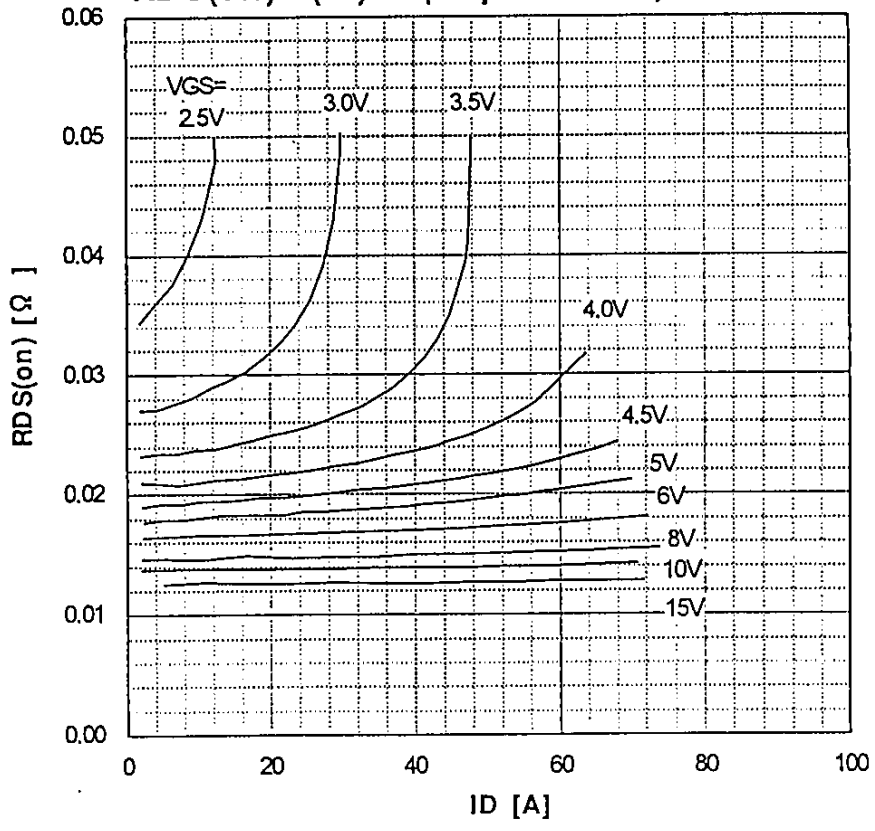
Typical Transconductance

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



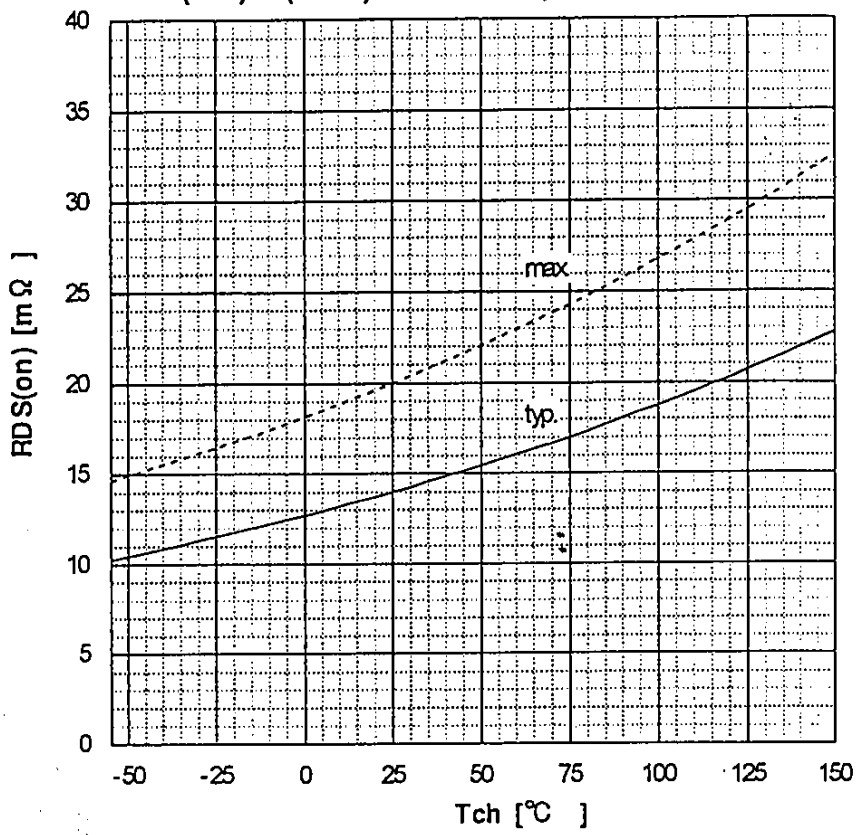
Typical Drain-Source on-state Resistance vs. ID

RDS(on)=f(ID):80μs pulse test,Tch=25℃



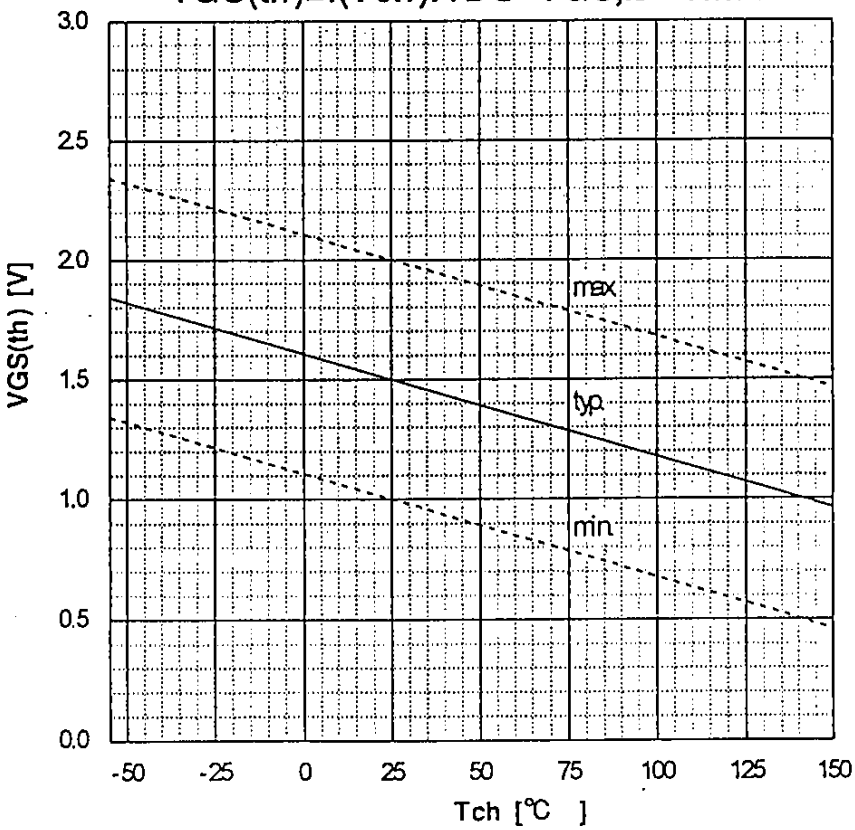
Drain-Source On-state Resistance vs. Tch

RDS(on)=f(Tch):ID=17.5A,VGS=10V



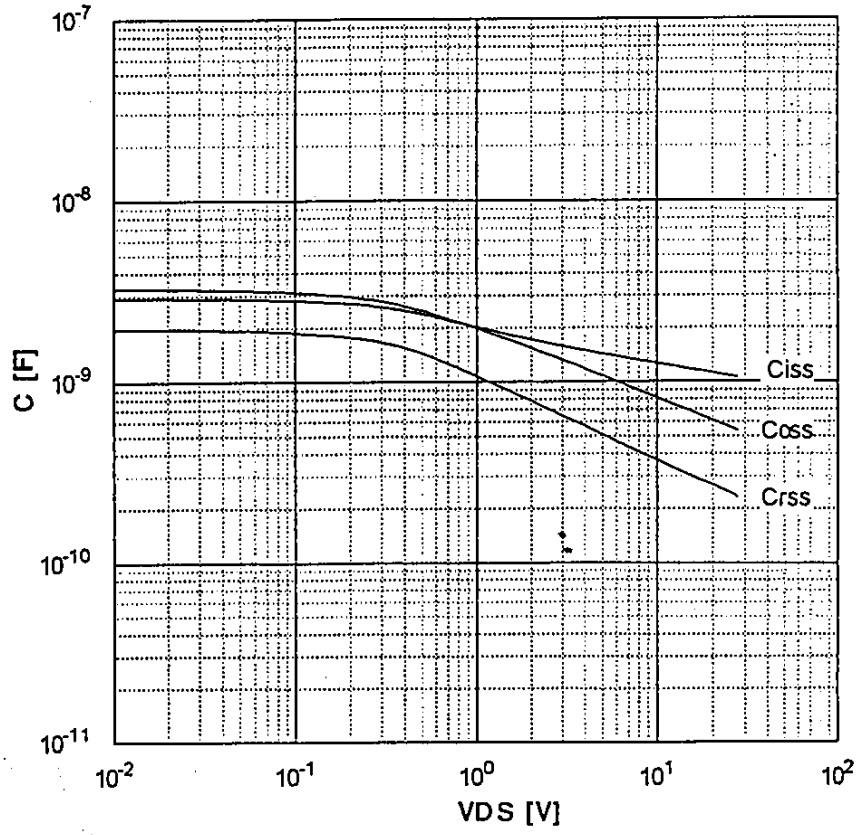
Gate Threshold Voltage vs. Tch

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



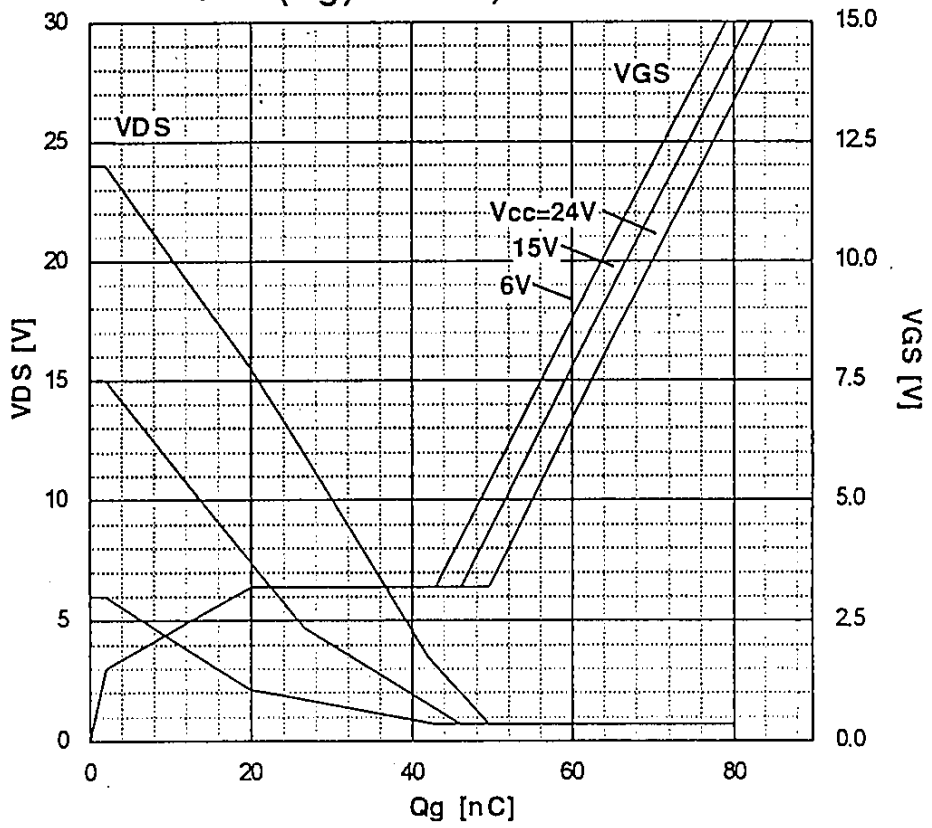
Typical Capacitances vs. VDS

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



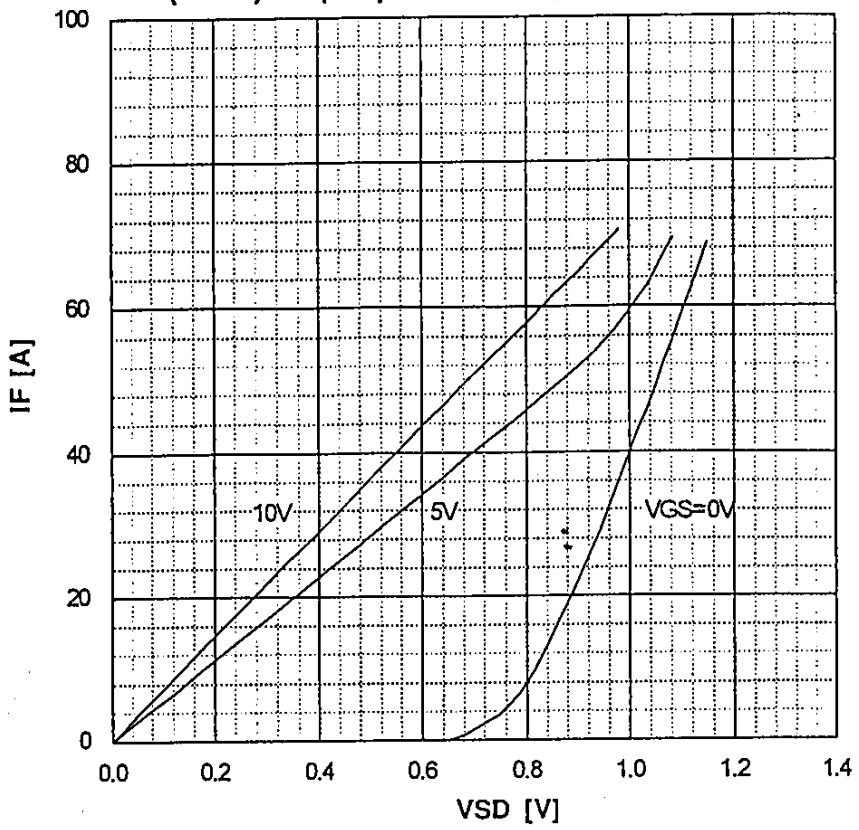
Typical Gate Charge Characteristics

VGS=f(Qg):ID=35A,Tch=25℃



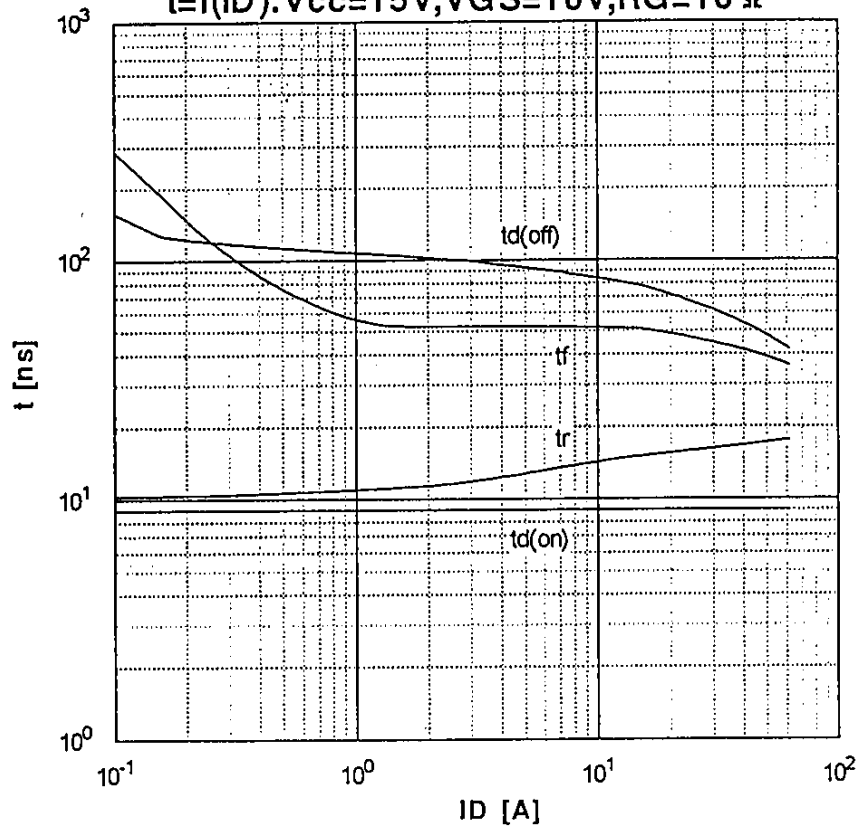
Typical Forward Characteristics of Reverse Diode

IF=f(VSD):80μs pulse test,Tch=25℃



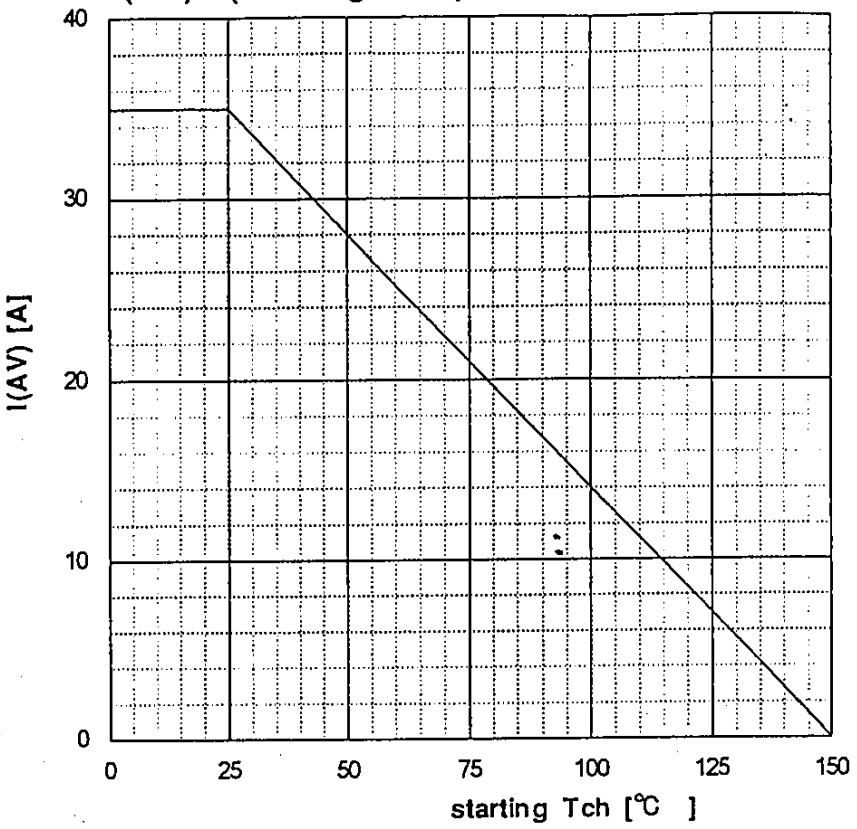
Typical Switching Characteristics vs. ID

t=f(ID):Vcc=15V,VGS=10V,RG=10Ω



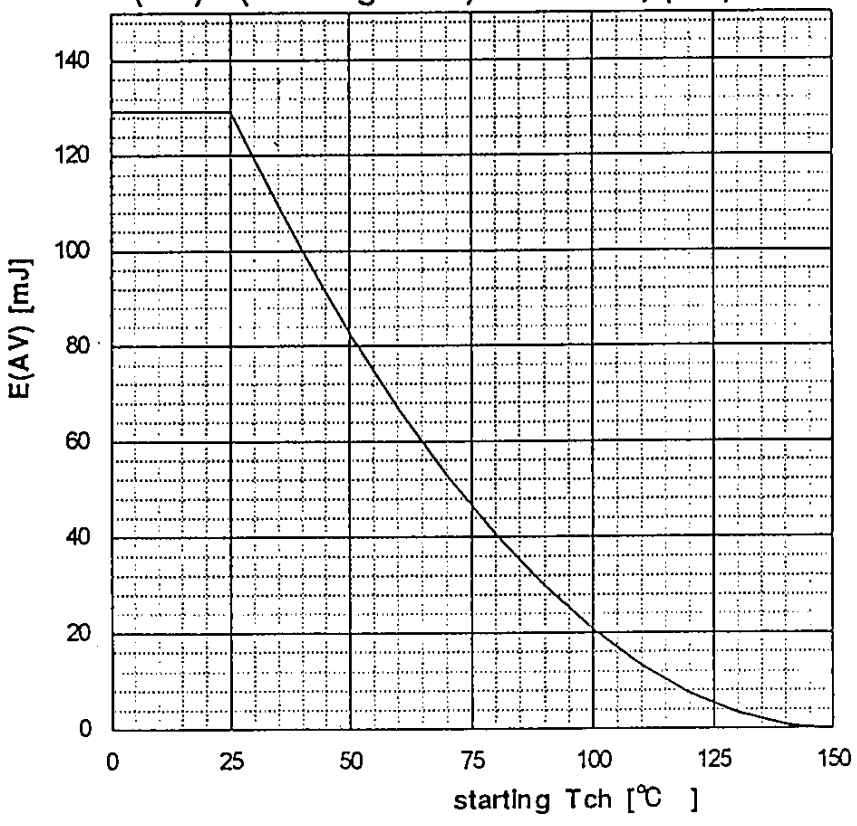
Maximum Avalanche Current vs. starting Tch

I(AV)=f(starting Tch)

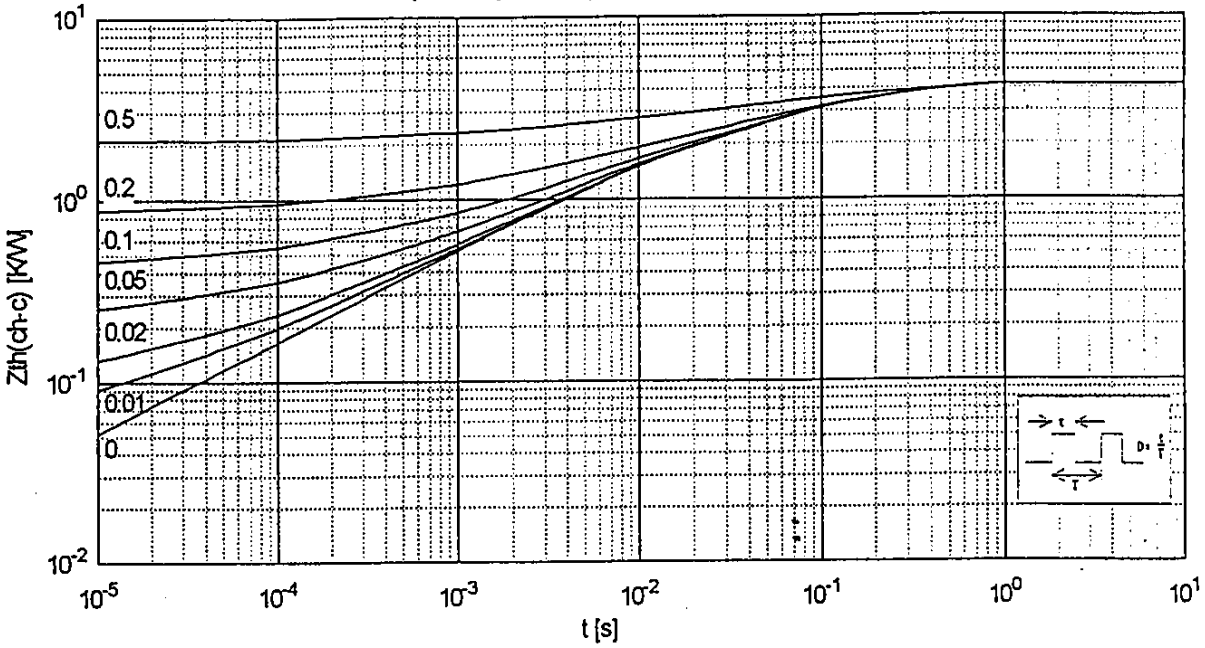


Maximum Avalanche Energy vs. starting Tch

E(AV)=f(starting Tch):Vcc=12V,I(AV)≦ 35A



Transient Thermal Impedance
Zth(ch-c)=f(t):parameter D=t/T



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