SPECIFICATION

(TENTATIVE)

Device Name : Power MOSFET

Type Name : 2SK2891-01

Spec. No. :

Fuji Electric Co.,Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED
DRAWN			
CHECKED			

Fuji Electric Co.,Ltd.

DWG.NO.

H04-004-07

1.Scope This specifies Fuji Power MOSFET 2SK2891-01

2.Construction N-Channel enhancement mode power MOSFET

3.Applications for Switching

4.Outview TO-3P 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	±100	A	
Pulsed Drain Current	I_{DP}	±400	A	
Gate-Source Voltage	V_{GS}	±16	V	
Maximum Avalanche Energy	E_{AV}	1555.6	mJ	*1
Maximum Power Dissipation	P_D	125	W	
Operating and Storage	T_{ch}	150	℃	
Temperature range	T_{stg}	-55 to +150	℃	

*1 L=0.207mH,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	$R_{DS}(on)$	ID=50A	VGS=4V		7.0	9.5	mΩ
			VGS=10V		4.4	5.5	

Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	I_D=50A V_{DS}=25V	35	70		S
Input Capacitance	Ciss	V_{DS}=25V		3900	5850	pF
Output Capacitance	Coss	V_{GS}=0V		2000	3000	
Reverse Transfer Capacitance	Crss	f=1MHz		850	1280	
Turn-On Time	td(on)	V_{cc}=15V		17	30	ns
	tr	V_{GS}=10V		70	110	
Turn-Off Time	td(off)	I_D=100A		250	380	
	tf	R_{GS}=10Ω		180	270	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	L=100 μH Tch=25℃ See Fig.1 and Fig.2	100			A
Diode Forward On-Voltage	V_{SD}	I_F=50A V_{GS}=0V T_{ch}=25℃		1.0	1.5	V
Reverse Recovery Time	trr	I_F=50A V_{GS}=0V		65		ns
Reverse Recovery Charge	Qrr	-di/dt=100A/μs T_{ch}=25℃		0.12		μC

7.Thermal Resistance

Description	Symbol	min.	typ.	max.	Unit
Channel to Case	Rth(ch-c)			1.0	℃/W
Channel to Ambient	Rth(ch-a)			35.0	℃/W

Fig.1 Test circuit

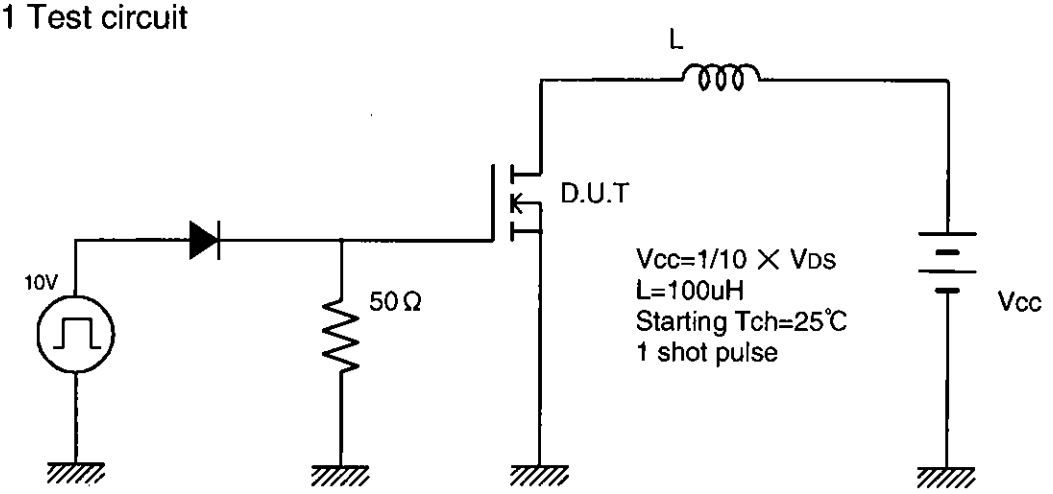
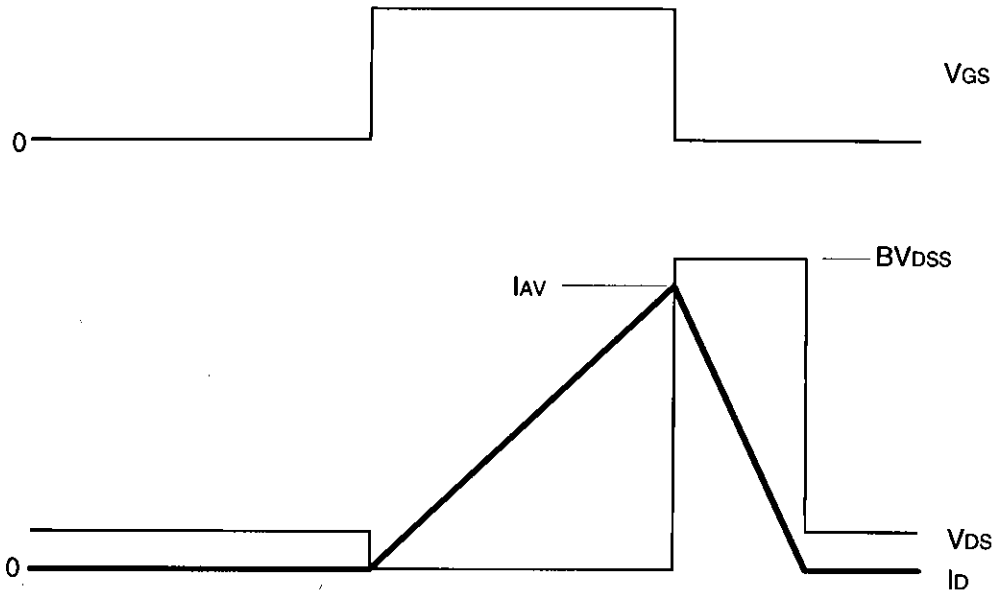
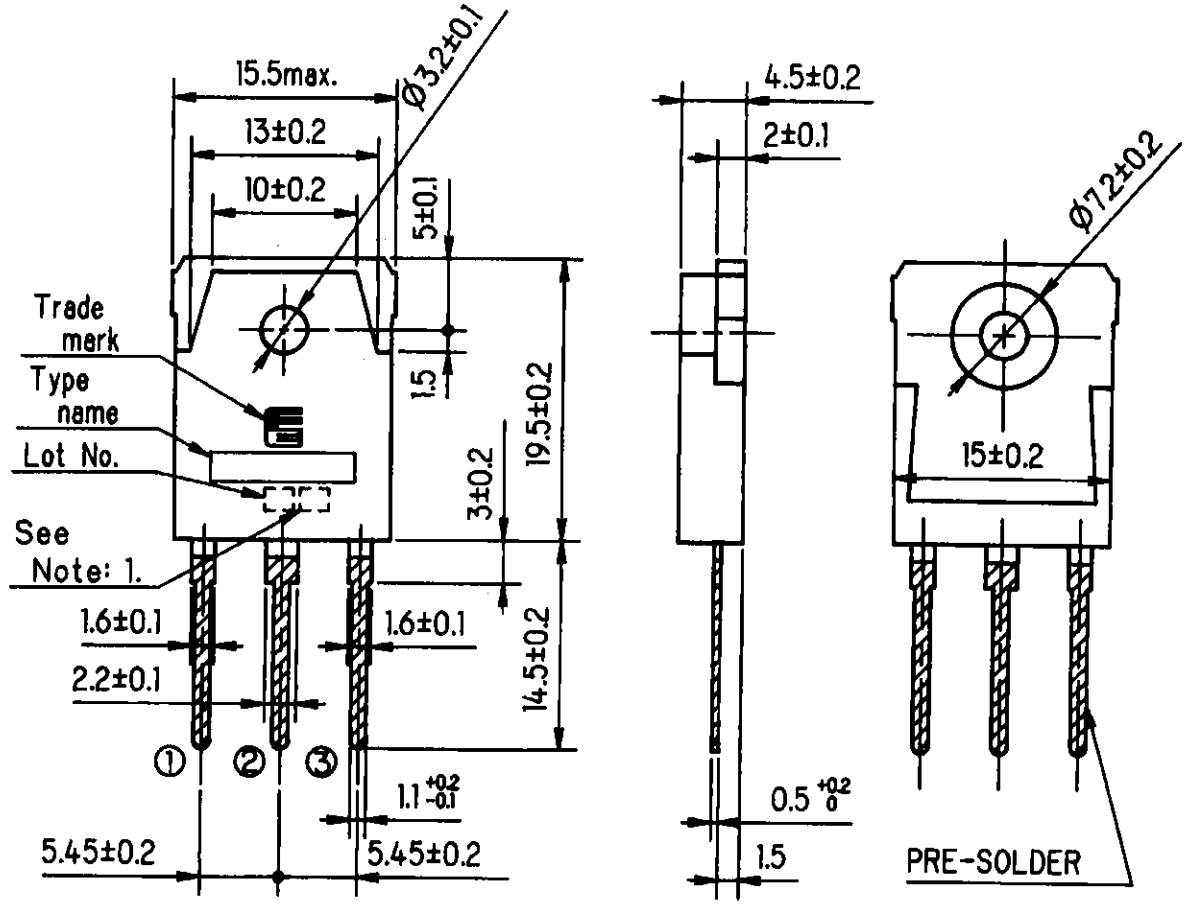
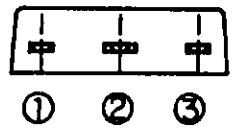


Fig.2 Operating waveforms





DIMENTIONS ARE IN MILLIMETERS.



CONNECTION

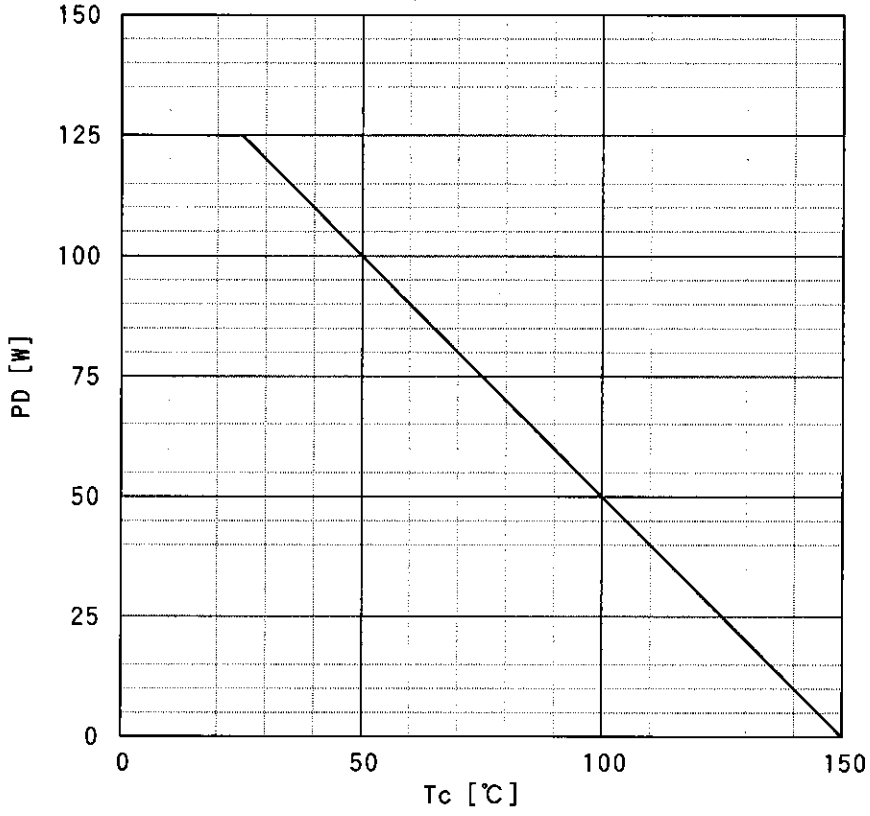
① GATE
② DRAIN
③ SOURCE

Note: 1. Guaranteed mark of avalanche ruggedness.

JEDEC : TO-247
EIAJ : SC-65

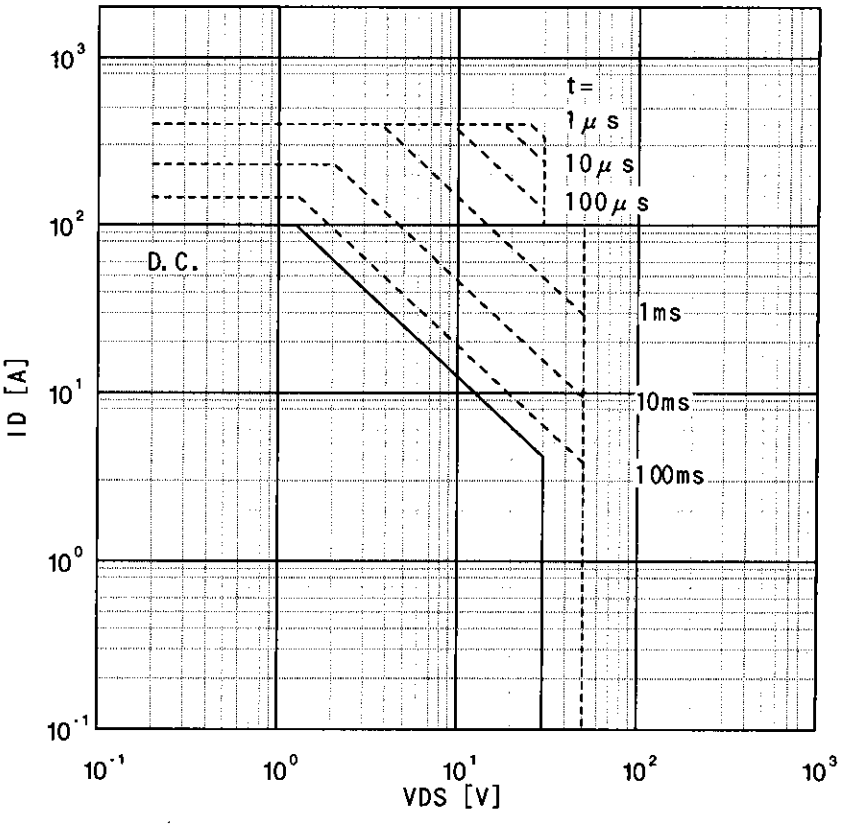
Power Dissipation

PD=f(Tc)



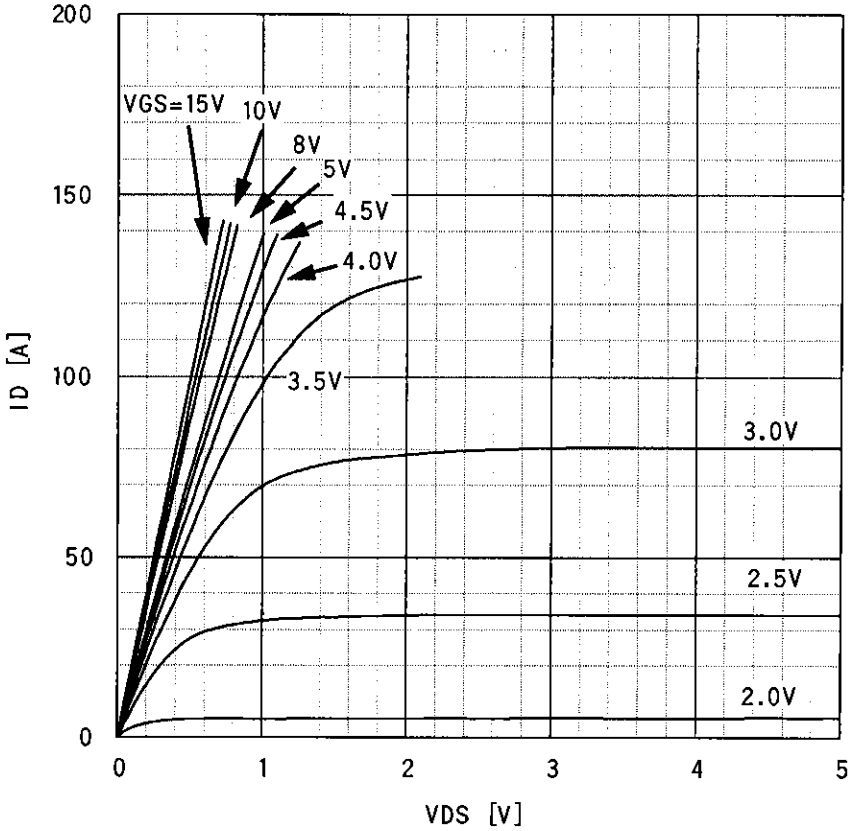
Safe operating area

ID=f(VDS):D=0.01,Tc=25℃



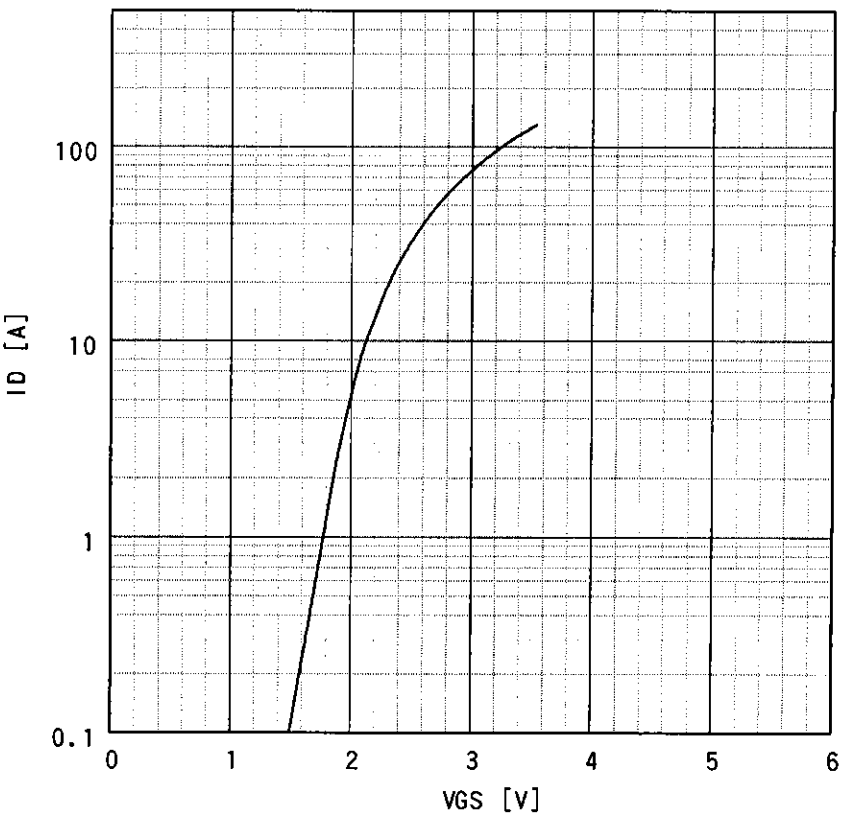
Typical output characteristics

ID=f(VDS):80μs pulse test, Tc=25℃

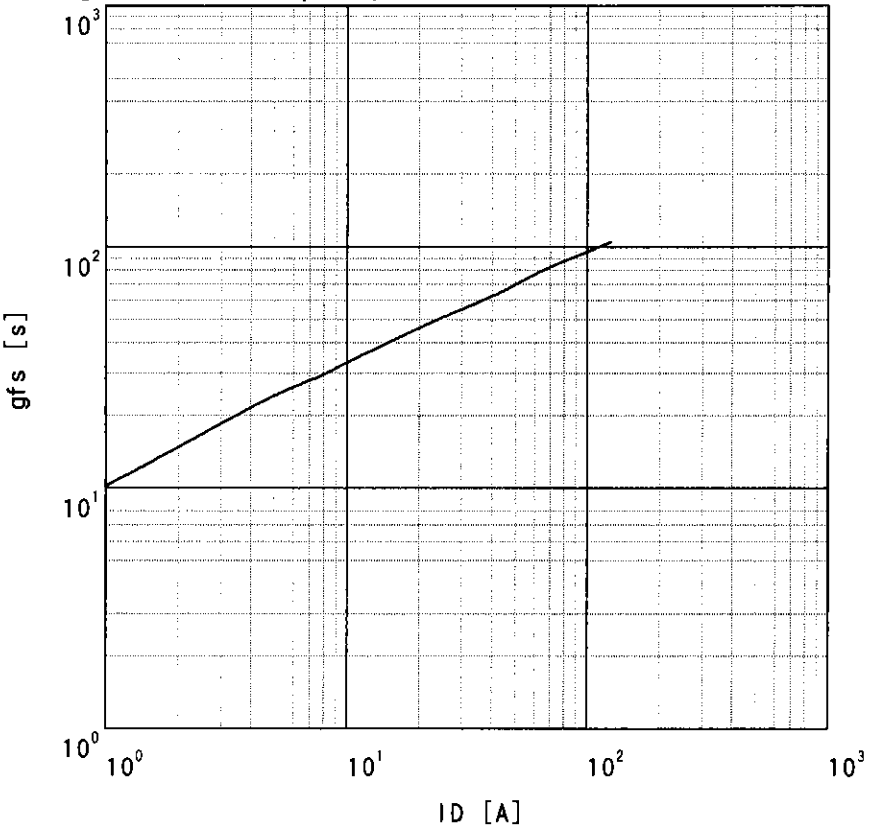


Typical transfer characteristics

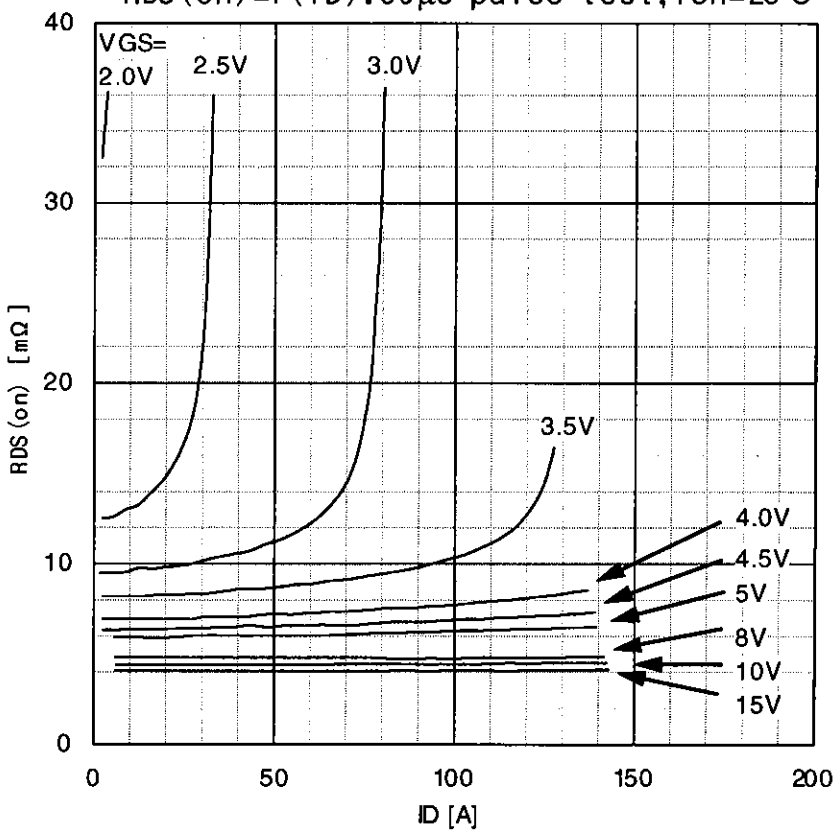
ID=f(VGS):80μs pulse test, VDS=25V, Tch=25℃



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

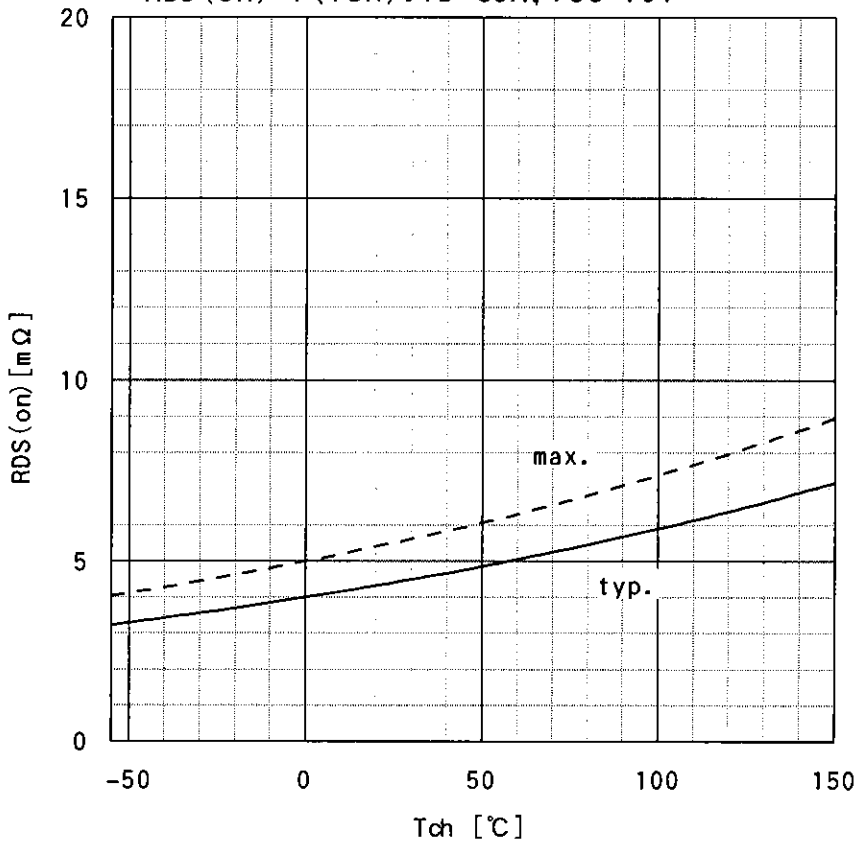


Typical Drain-Source on-State Resistance
RDS(on)=f(ID):80μs pulse test, Tch=25℃



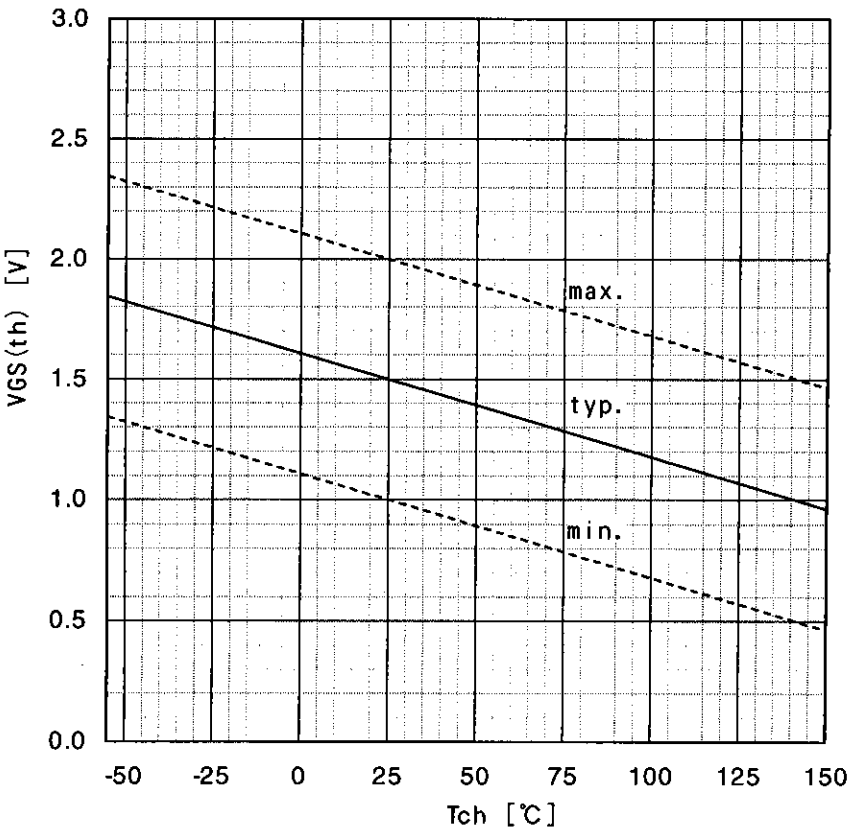
Drain-source on-state resistance

RDS(on)=f(Tch):ID=50A, VGS=10V



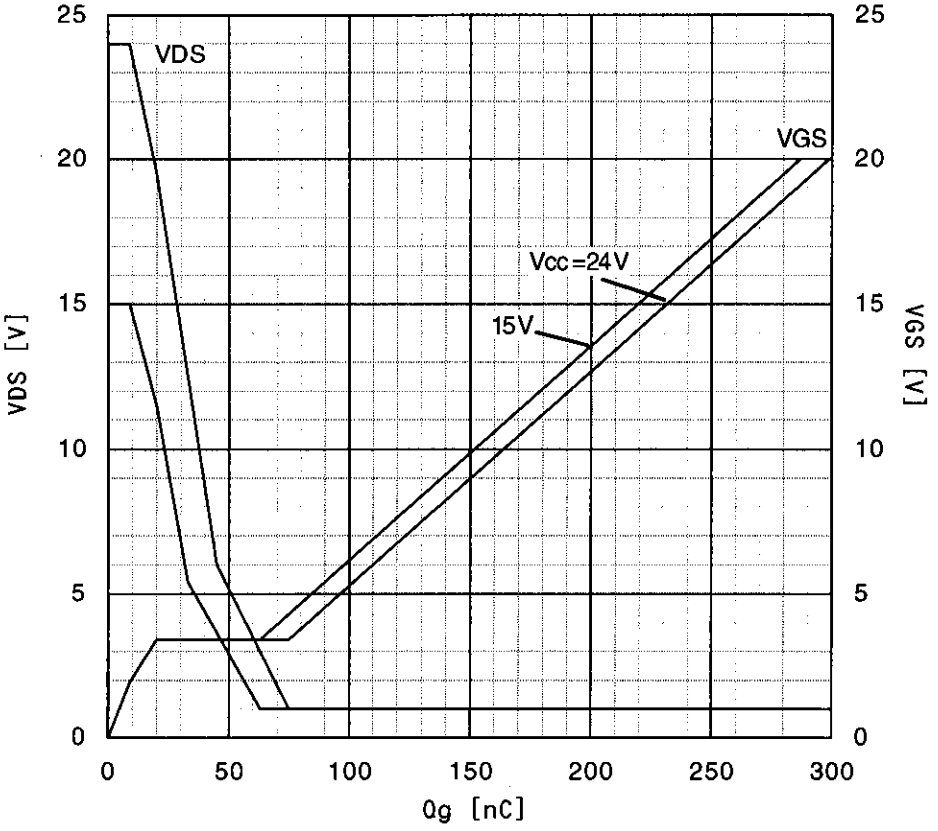
Gate Threshold Voltage vs. Tch

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



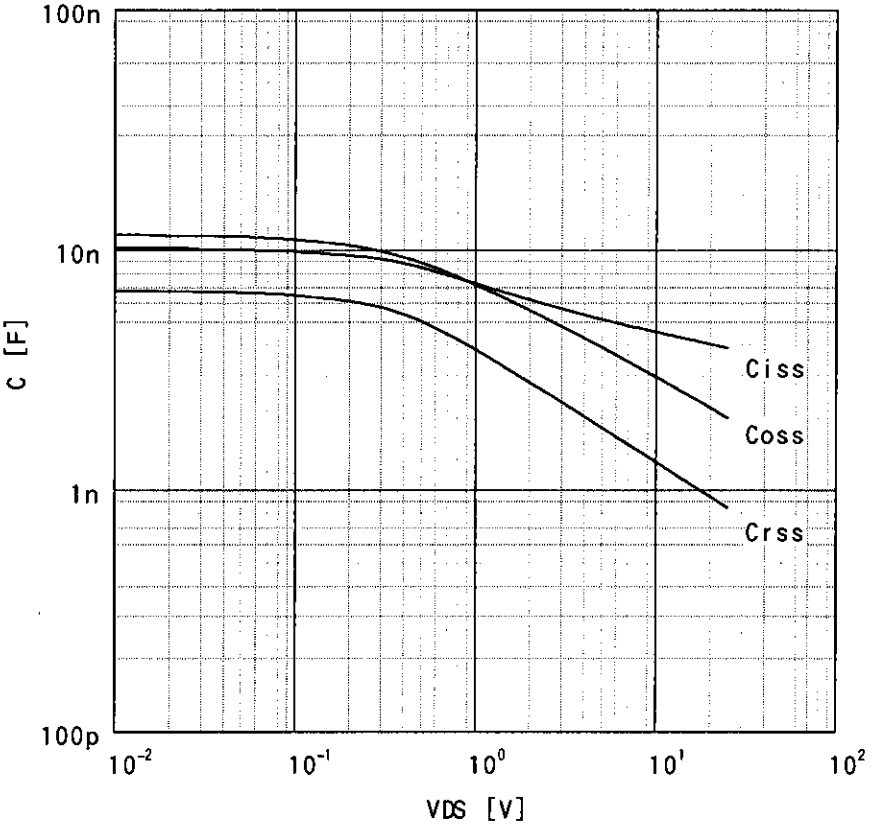
Typical Gate Charge Characteristics

VGS=f(Qg):ID=100A, Tch=25℃



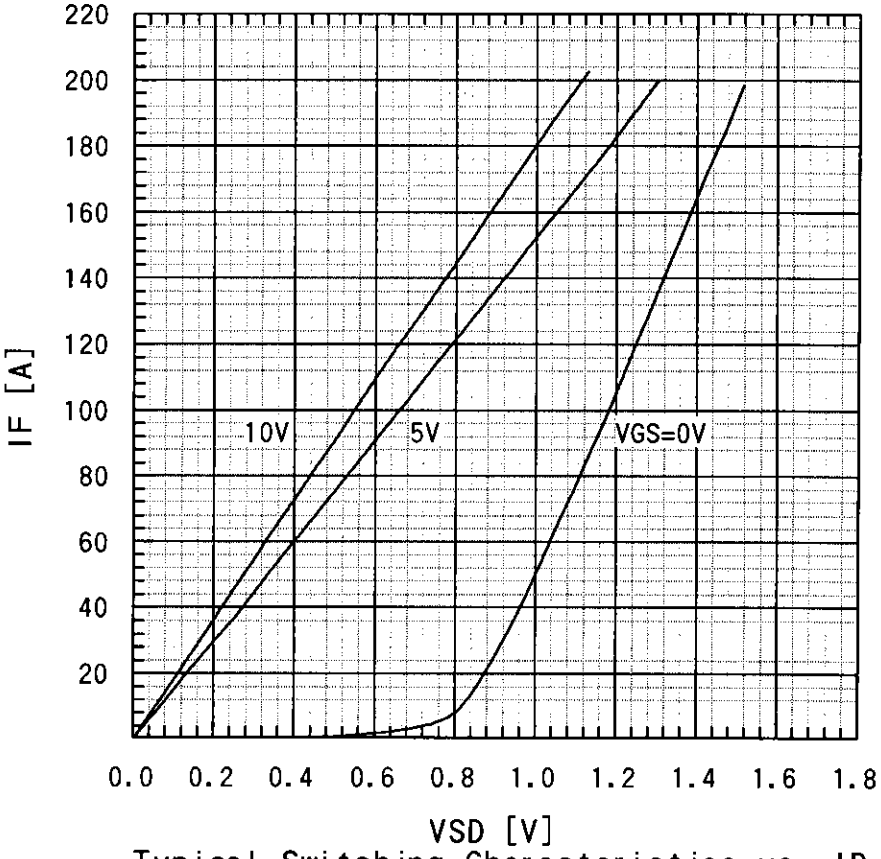
Typical capacitances

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



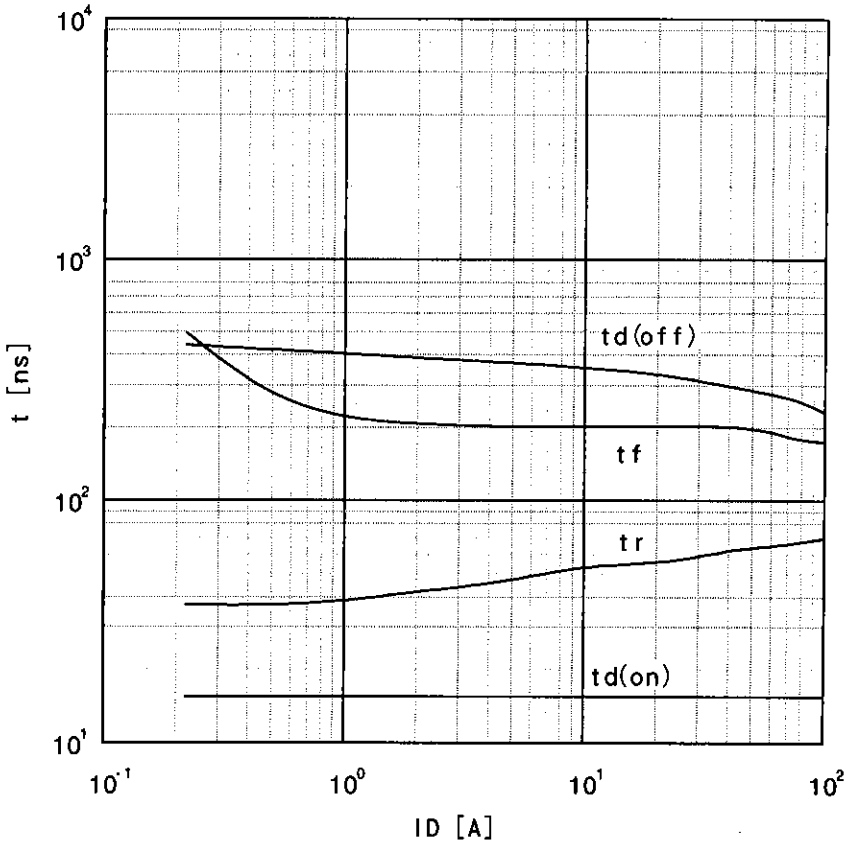
Typical Forward Characteristics of Reverse Diode

IF=f(VSD):80 μs pulse test, Tch=25℃



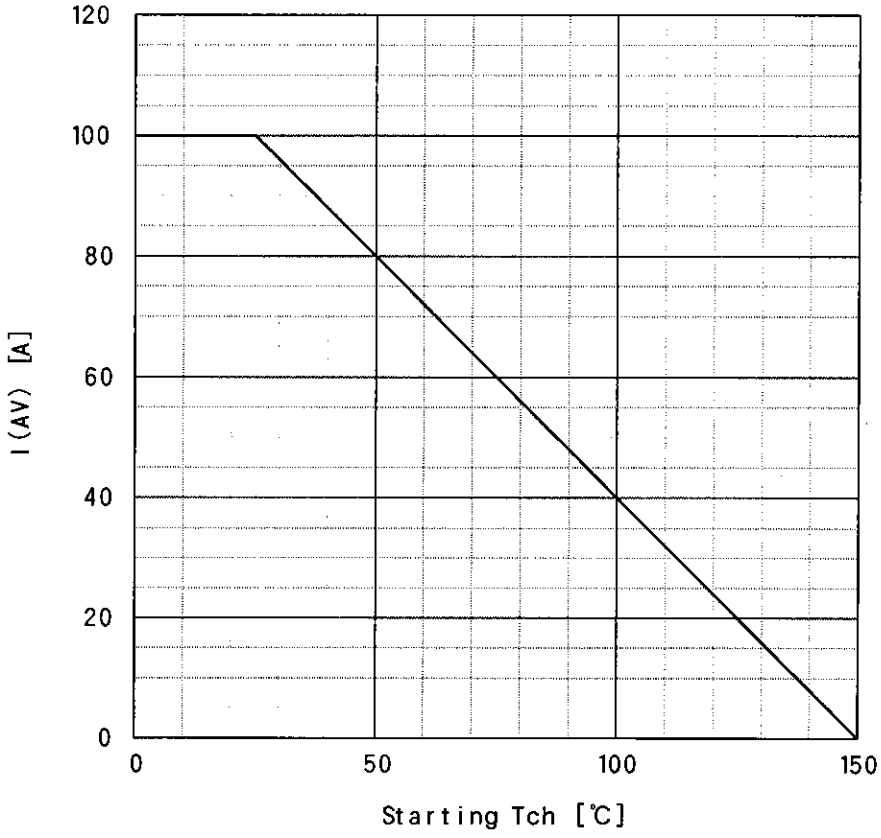
Typical Switching Characteristics vs. ID

t=f(ID):Vcc=15V, VGS=10V, RG=10Ω



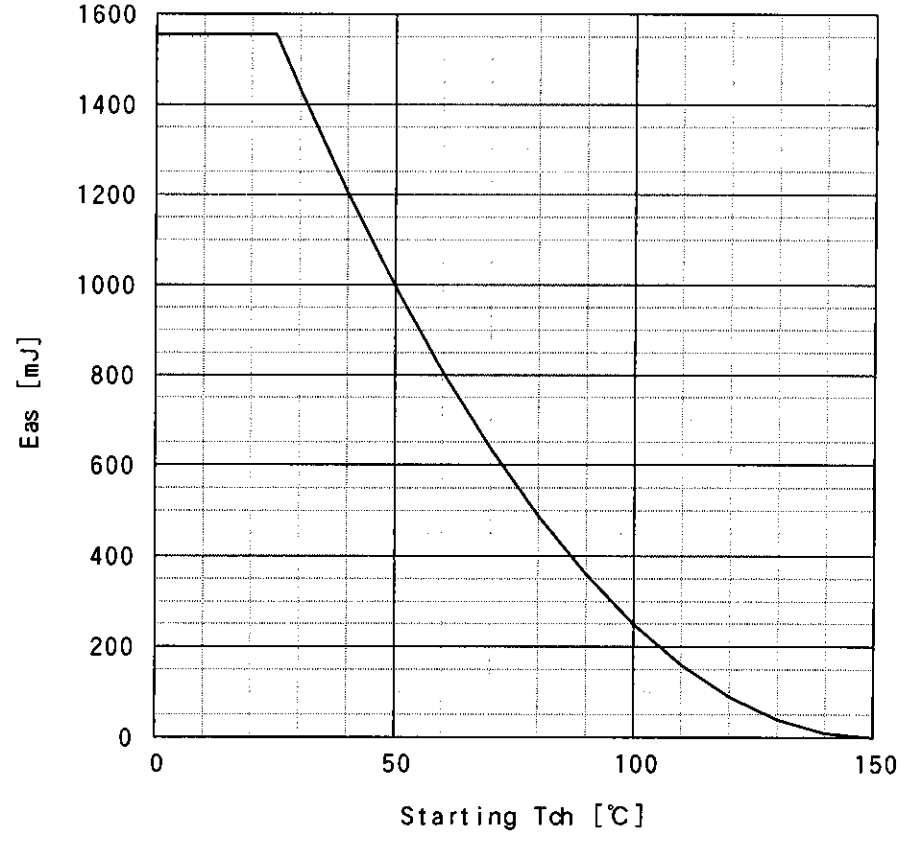
Maximum Avalanche Current vs. starting Tch

I(AV)=f(starting Tch)

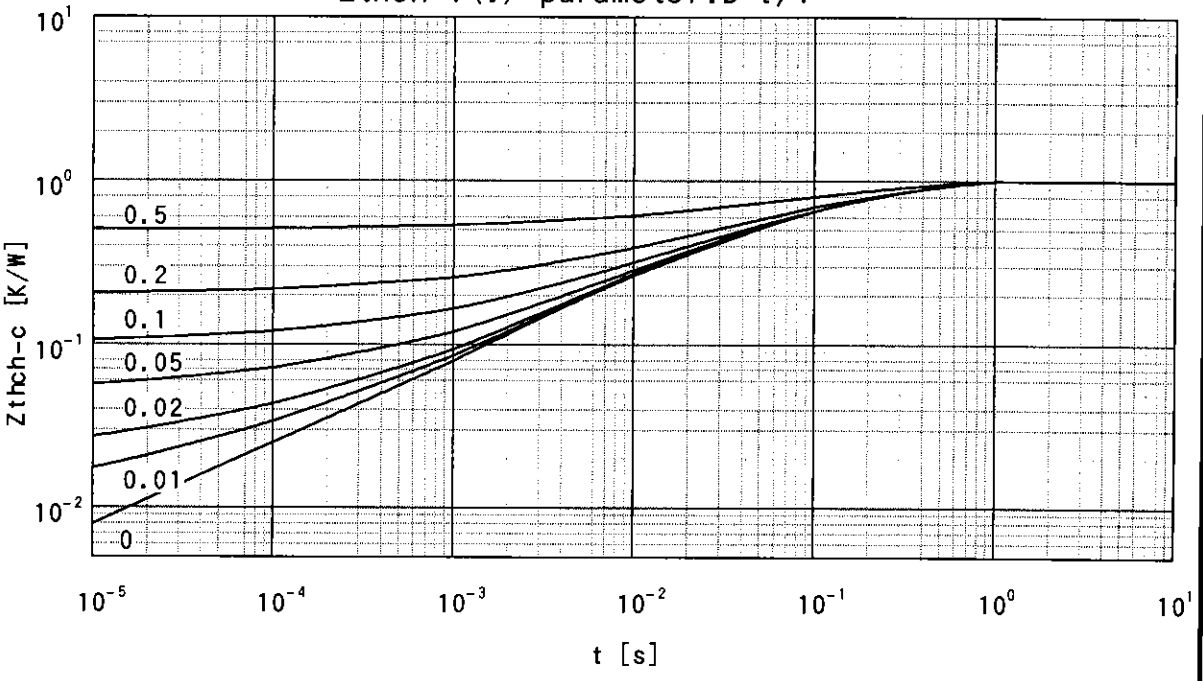


Maximum Avalanche energy vs. starting Tch

Eas=f(starting Tch):Vcc=12V, I_{AV}≦100A



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



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