SPECIFICATION

Device Name	:	Power MOSFET .
Type Name	:	2SK3217-01MR .
Spec. No.	:	.
Date	:	7-Jan.-1999 .

Fuji Semiconductor, Inc. - P.O. Box 702708 - Dallas, TX 75370 - 972-733-1700 -
www.fujisemiconductor.com

	DATE	NAME	APPROVED
DRAWN	7-Jan.-'99		
CHECKED			

Fuji Electric Co.,Ltd.

DWG.NO. 1•^13 a b

H04-004-05

1.Scope This specifies Fuji Power MOSFET 2SK3217-01MR

2.Construction N-Channel enhancement mode power MOSFET

3.Applications for Switching

4.Outview TO-220F

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

Description	Symbol	Characteristics	Unit	Remarks
Drain-Source Voltage	V_{DS}	100	V	
Continuous Drain Current	I_D	±50	A	
Pulsed Drain Current	I_{DP}	±200	A	
Gate-Source Voltage	V_{GS}	±30	V	
Maximum Avalanche Energy	E_{AV}	464	mJ	*1
Maximum Power Dissipation	P_D	70	W	
	P_D	2.0	W	Ta=25℃
Operating and Storage	T_{ch}	150	℃	
Temperature range	T_{stg}	-55 to +150	℃	

*1 L=298μH,Vcc=24V

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		100			V
Gate Threshold Voltage	V_{GS}(th)	I_D=1mA V_{DS}=V_{GS}		2.5	3.0	3.5	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V V_{GS}=0V	T_{ch}=25℃		1	100	μA
			T_{ch}=125℃		0.1	0.5	mA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30V V_{DS}=0V			10	100	nA
Drain-Source On-State Resistance	R_{DS}(on)	ID=25A VGS=10V			20	25	mΩ

Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	I_D=25.0A V_{DS}=25V	16.0	32.0		S
Input Capacitance	Ciss	V_{DS}=25V		3200	4800	pF
Output Capacitance	Coss	V_{GS}=0V		760	1140	
Reverse Transfer Capacitance	Crss	f=1MHz		230	345	
Turn-On Time	td(on)	V_{cc}=48V		23	35	ns
	tr	V_{GS}=10V		130	195	
Turn-Off Time	td(off)	I_D=50A		110	165	
	tf	R_{GS}=10Ω		65	100	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	L=100μH Tch=25℃ See Fig.1 and Fig.2	50			A
Diode Forward On-Voltage	V_{SD}	I_F=50A V_{GS}=0V T_{ch}=25℃		0.97	1.46	V
Reverse Recovery Time	trr	I_F=50A V_{GS}=0V		150		ns
Reverse Recovery Charge	Qrr	-di/dt=100A/μs T_{ch}=25℃		0.80		μC

7.Thermal Resistance

Description	Symbol	min.	typ.	max.	Unit
Channel to Case	Rth(ch-c)			1.79	℃/W
Channel to Ambient	Rth(ch-a)			62.5	℃/W

Fig.1 Test circuit

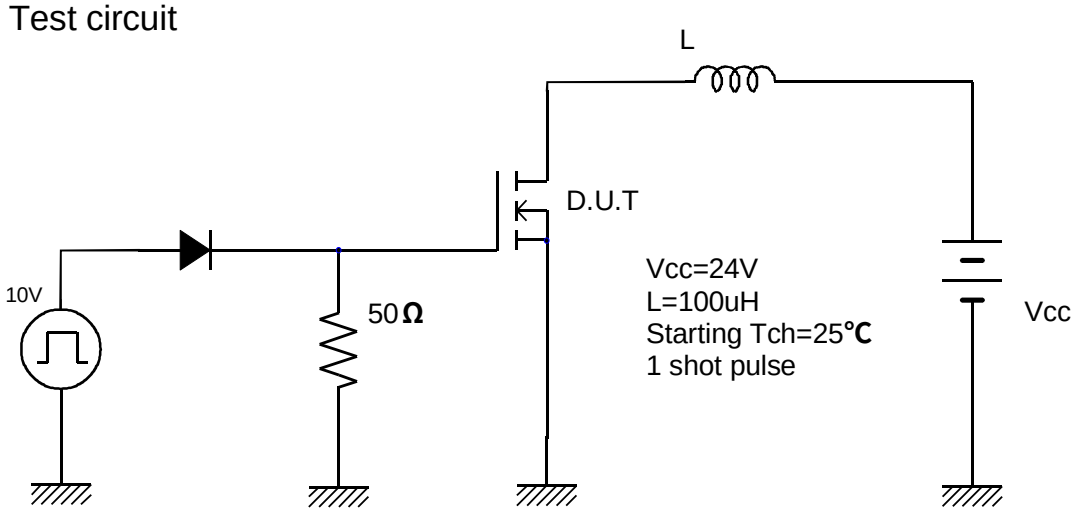
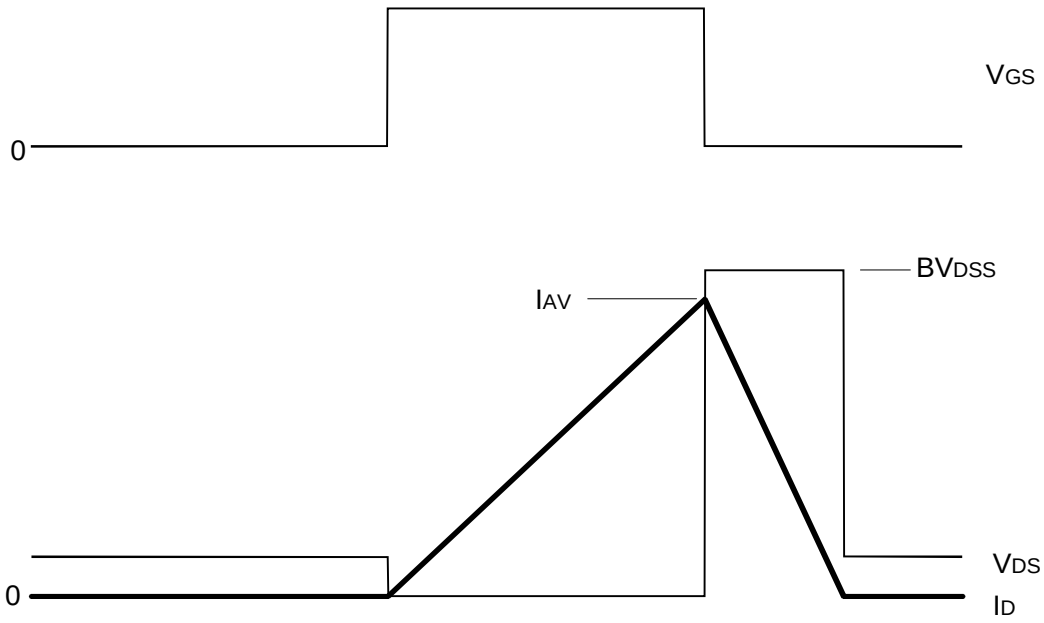
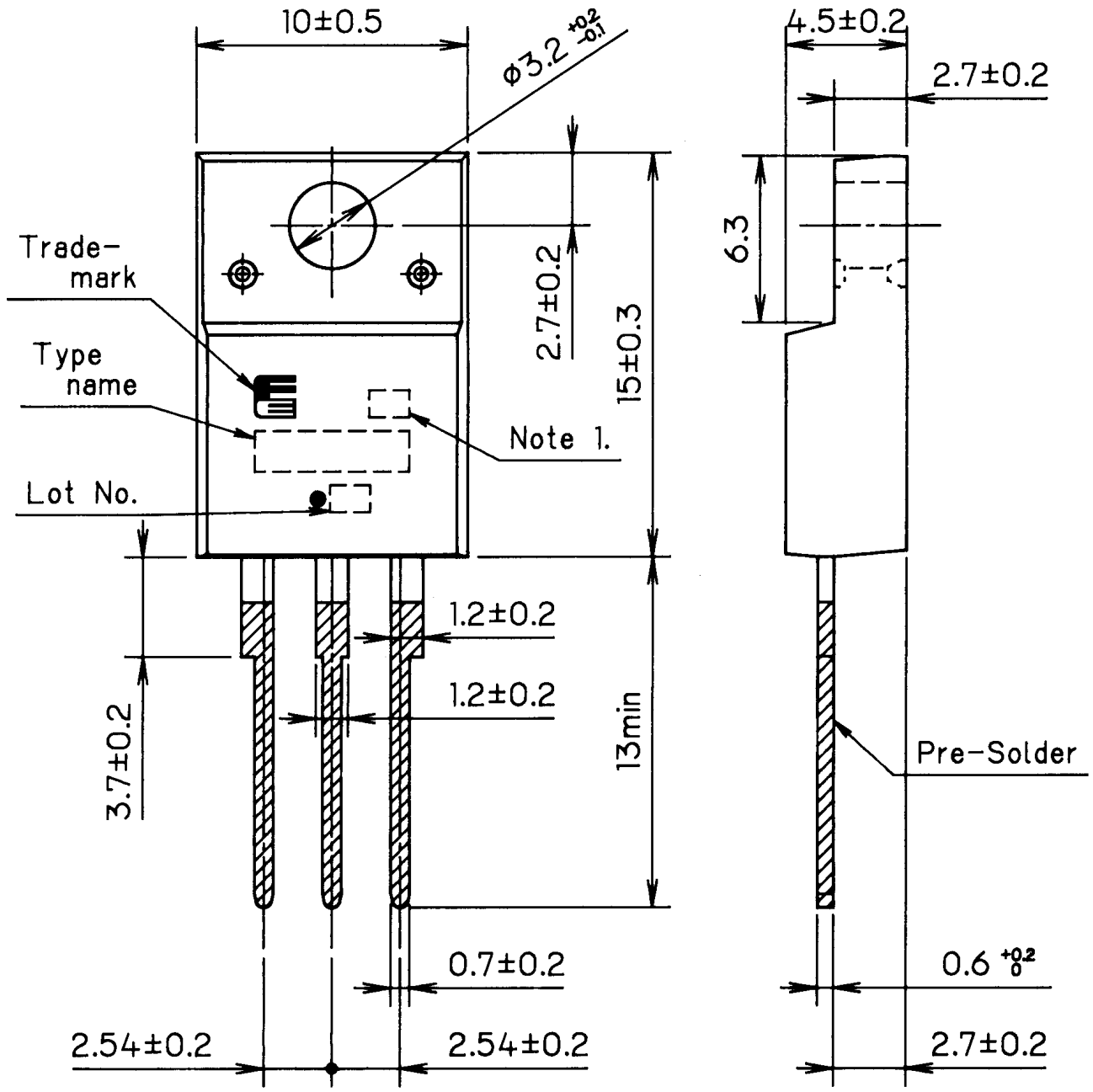
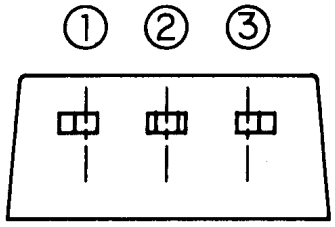


Fig.2 Operating waveforms







CONNECTION

① GATE
② DRAIN
③ SOURCE

Note 1. Guaranteed mark of avalanche ruggedness.

DIMENSIONS ARE IN MILLIMETERS.

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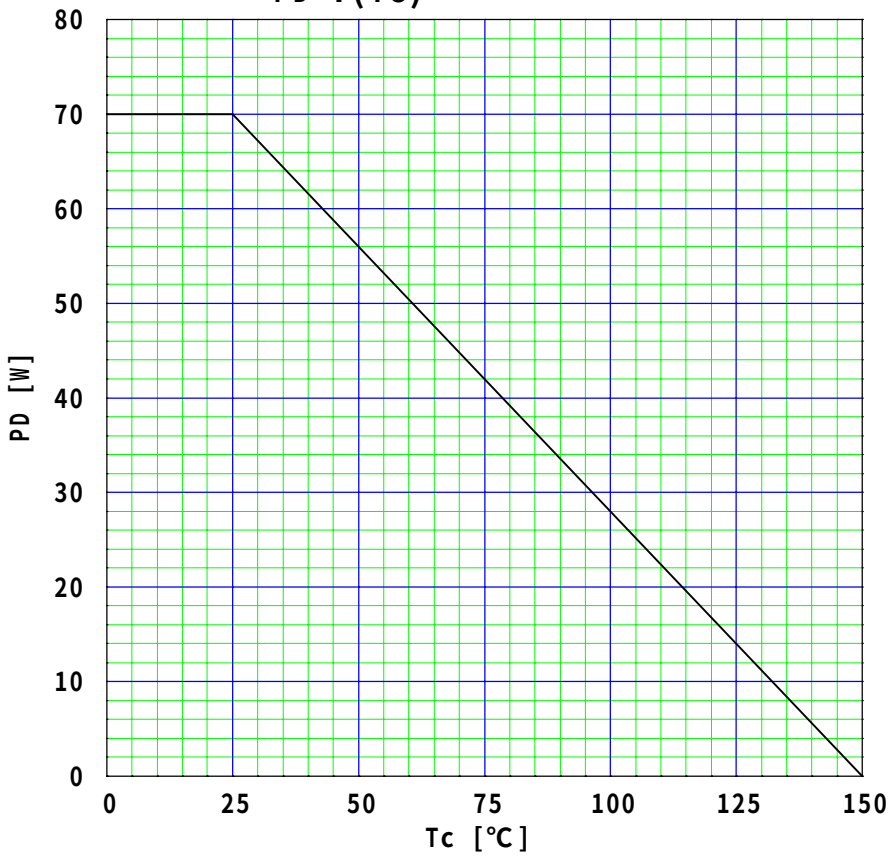
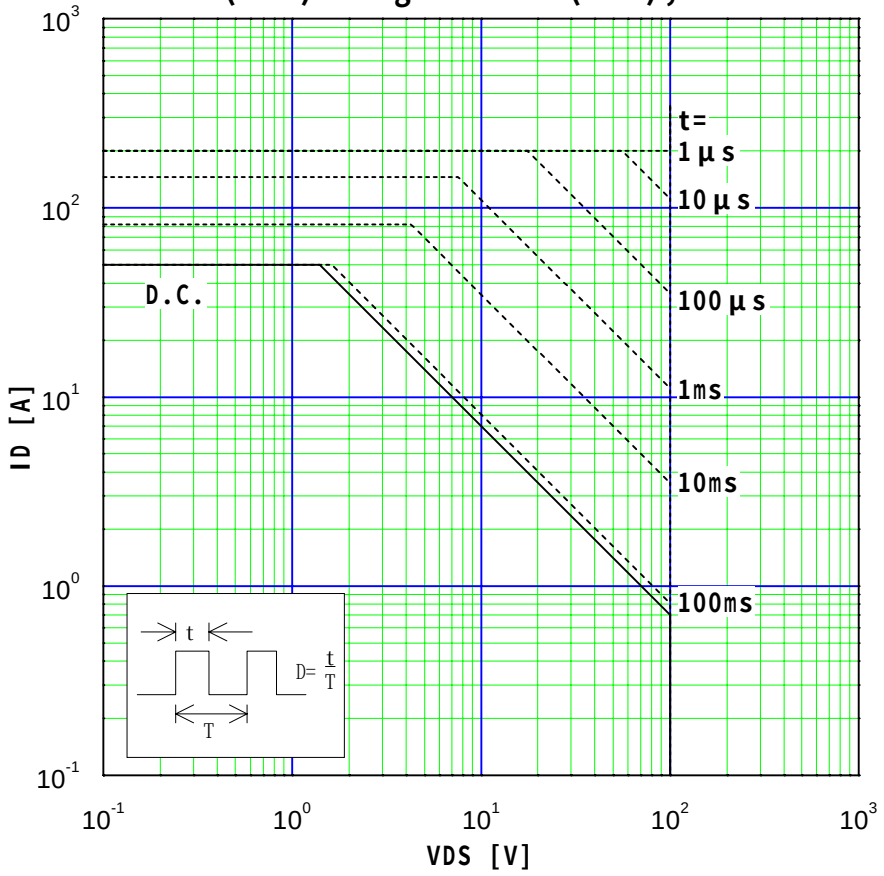
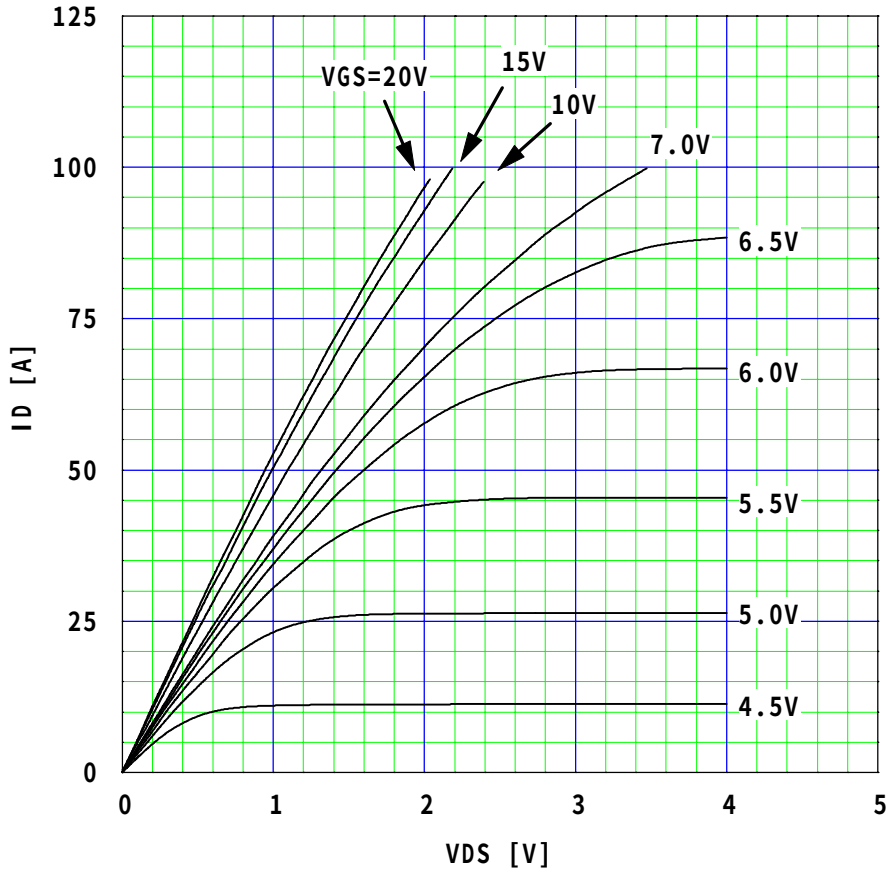
Power Dissipation
PD=f(Tc)



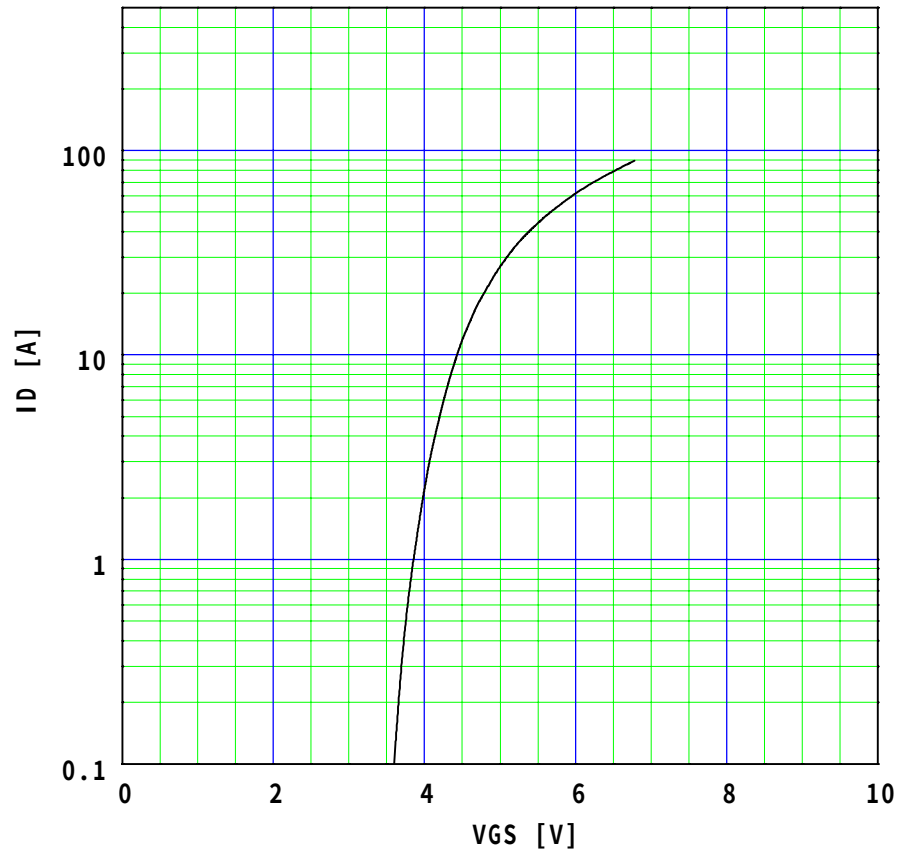
Safe operating area
ID=f(VDS):Single Pulse(D=0),Tc=25°C



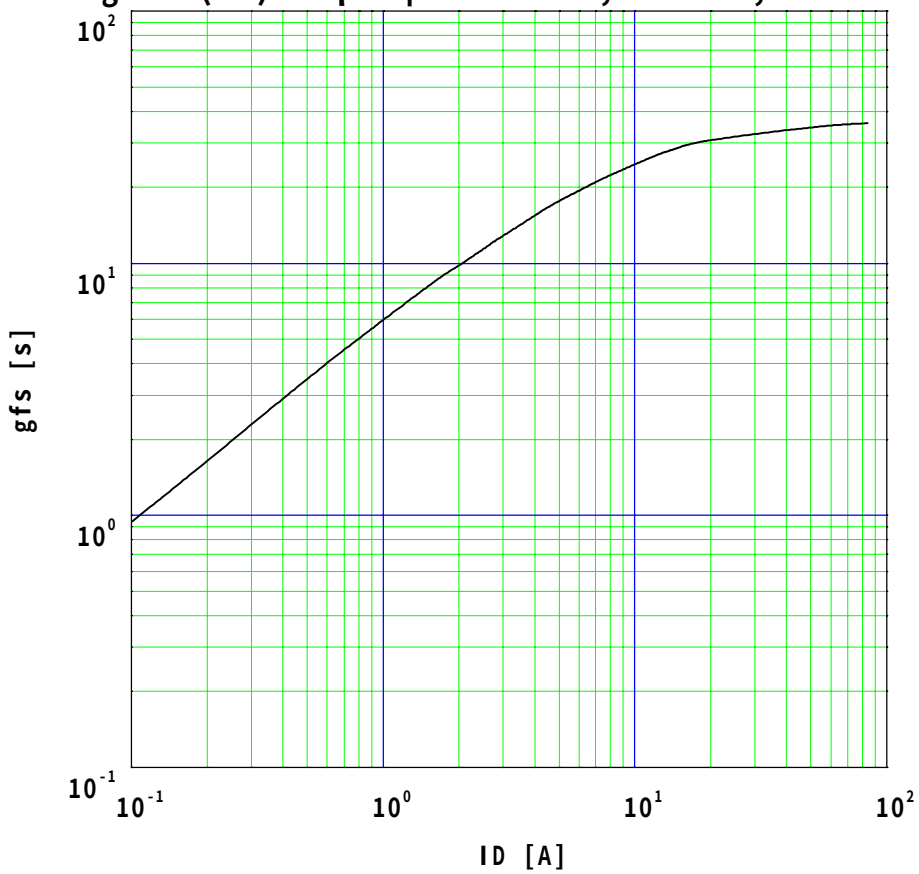
Typical output characteristics
ID=f(VDS):80μs pulse test,Tc=25℃



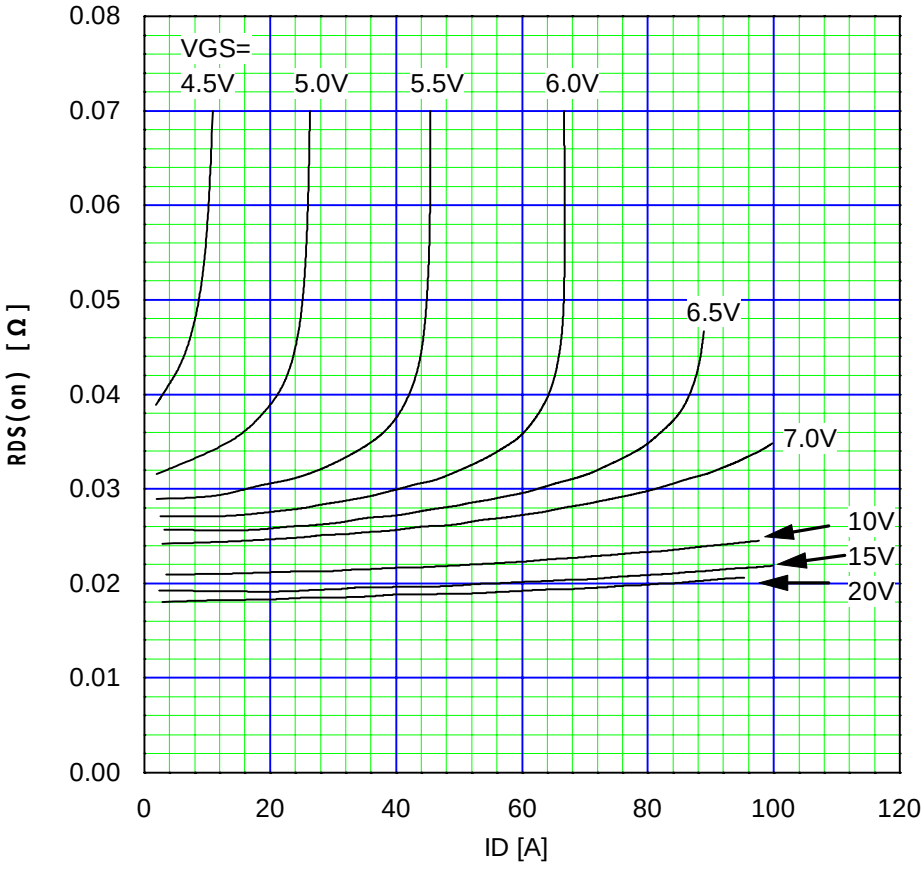
Typical transfer characteristics
ID=f(VGS):80μs pulse test,VDS=25V,Tch=25℃



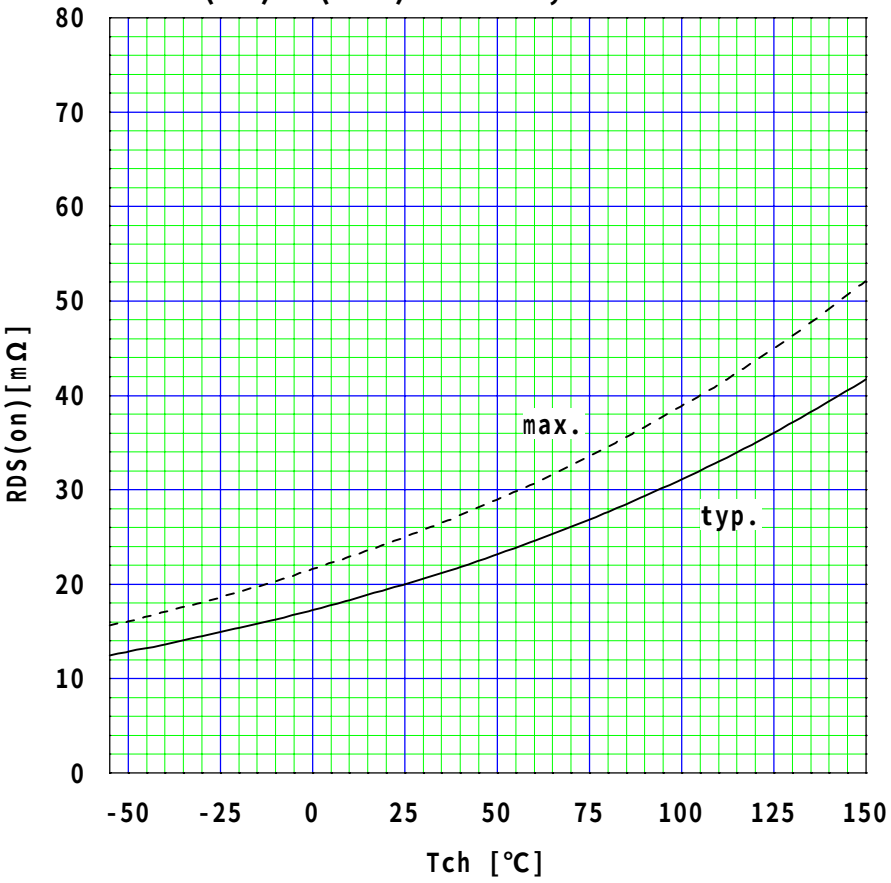
Typical forward transconductance
gfs=f(ID):80μs pulse test,VDS=25V,Tch=25℃



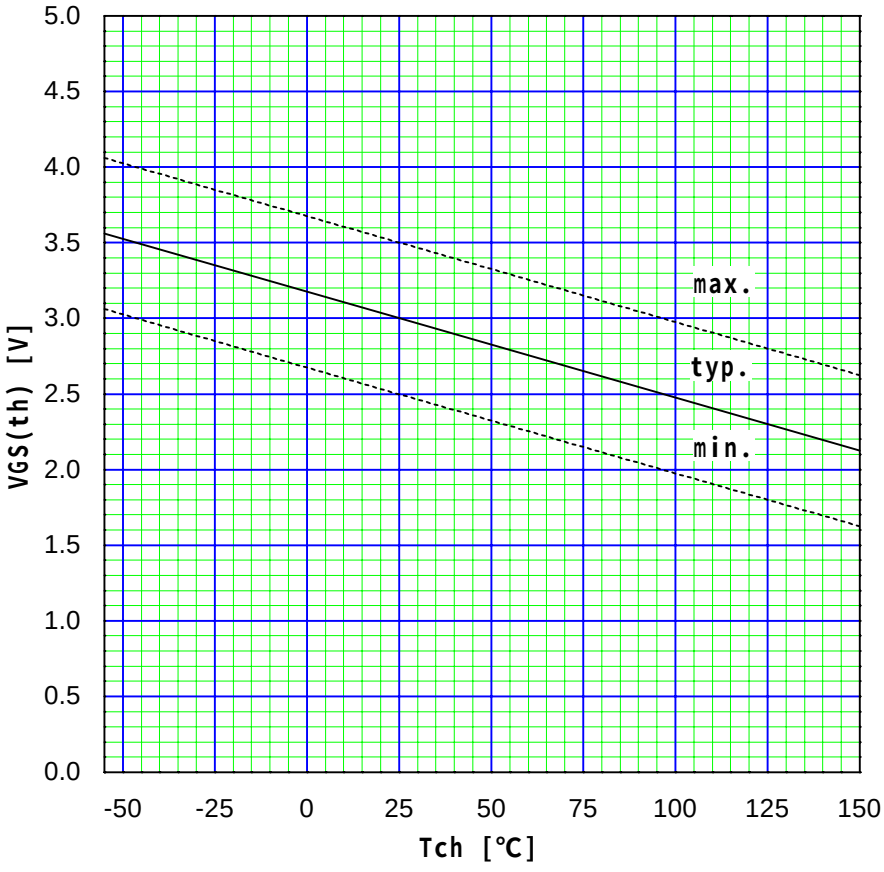
Typical Drain-Source on-State Resistance
RDS(on)=f(ID):80μs pulse test,Tch=25℃



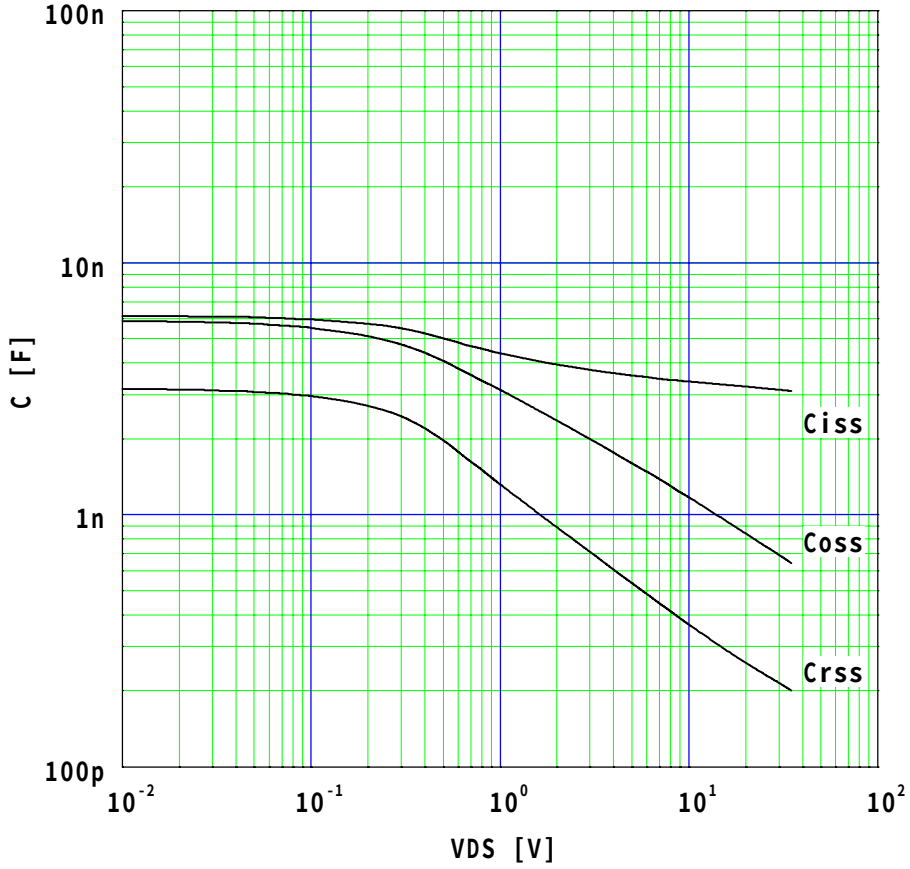
Drain-source on-state resistance
RDS(on)=f(Tch):ID=25A,VGS=10V



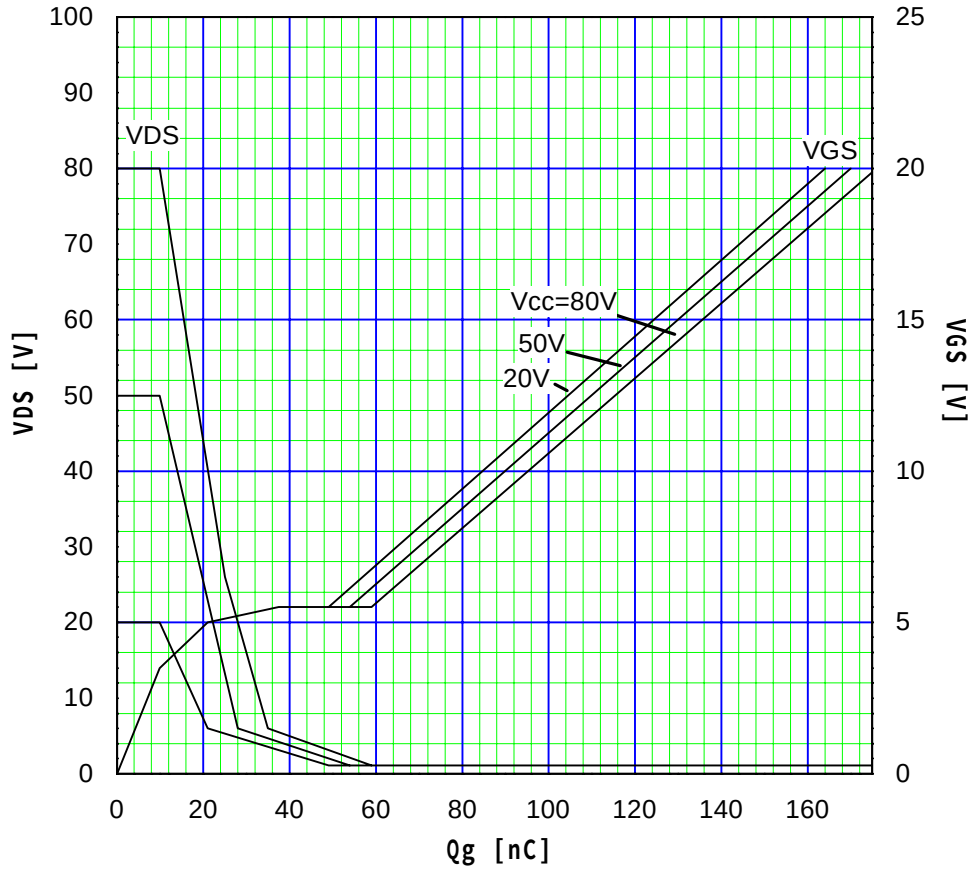
Gate Threshold Voltage vs. Tch
VGS(th)=f(Tch):VDS=VGS,ID=1mA



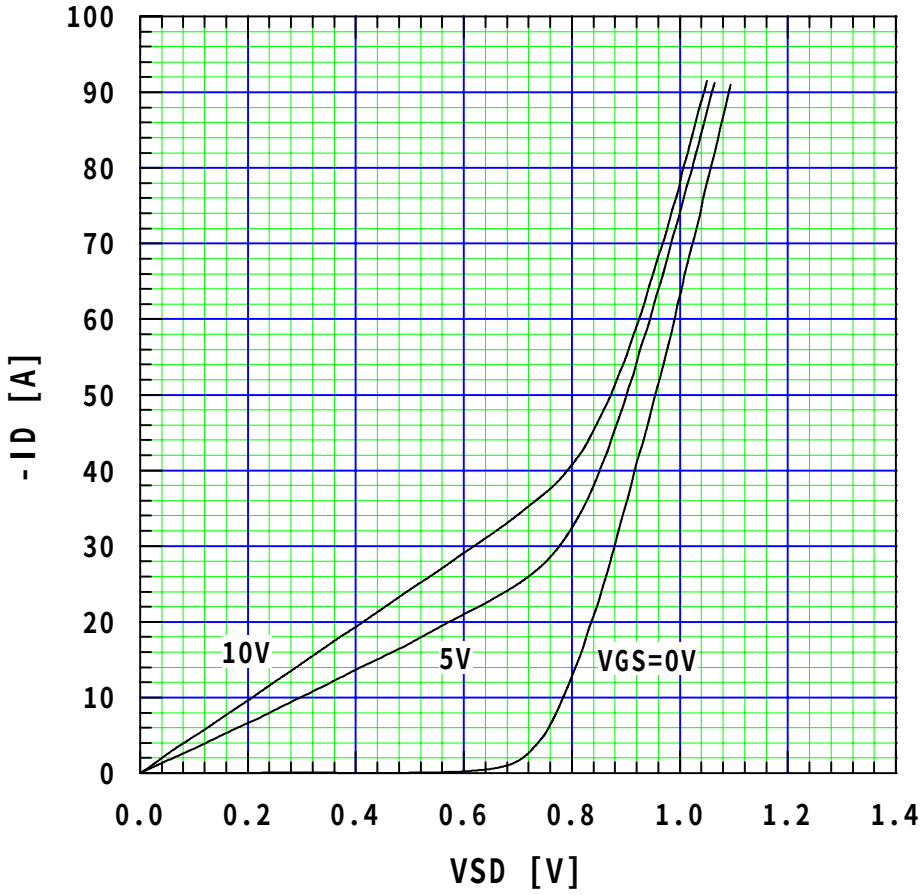
Typical capacitances
C=f(VDS):VGS=0V,f=1MHz



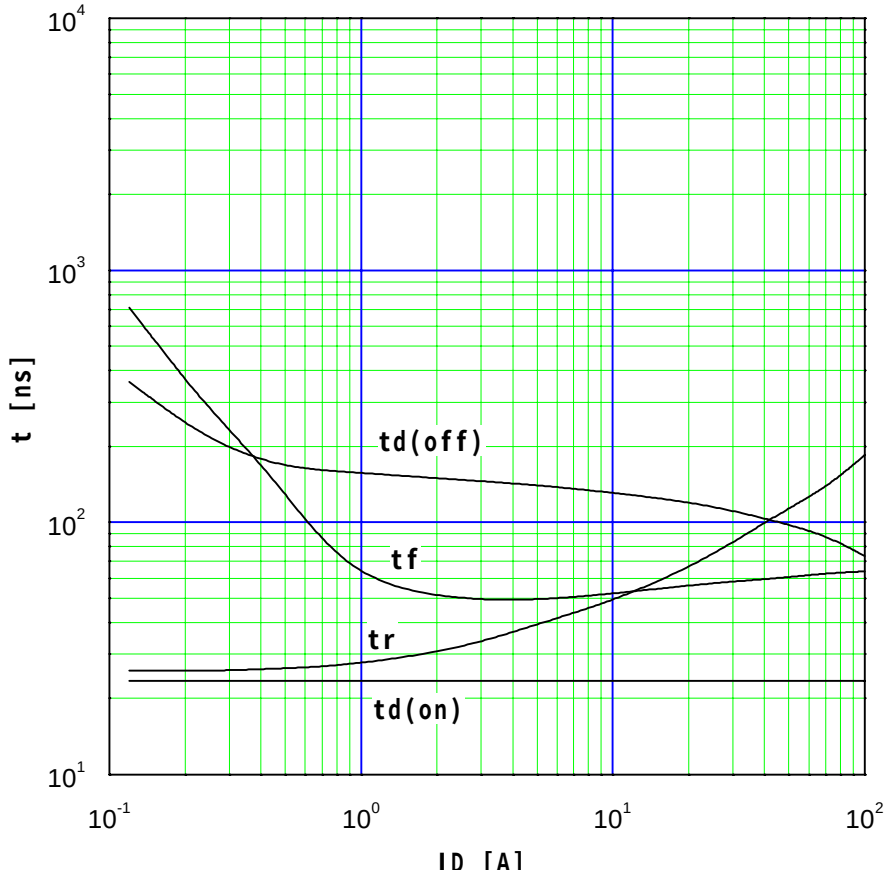
Typical Gate Charge Characteristics
VGS=f(Qg):ID=50A,Tch=25°C



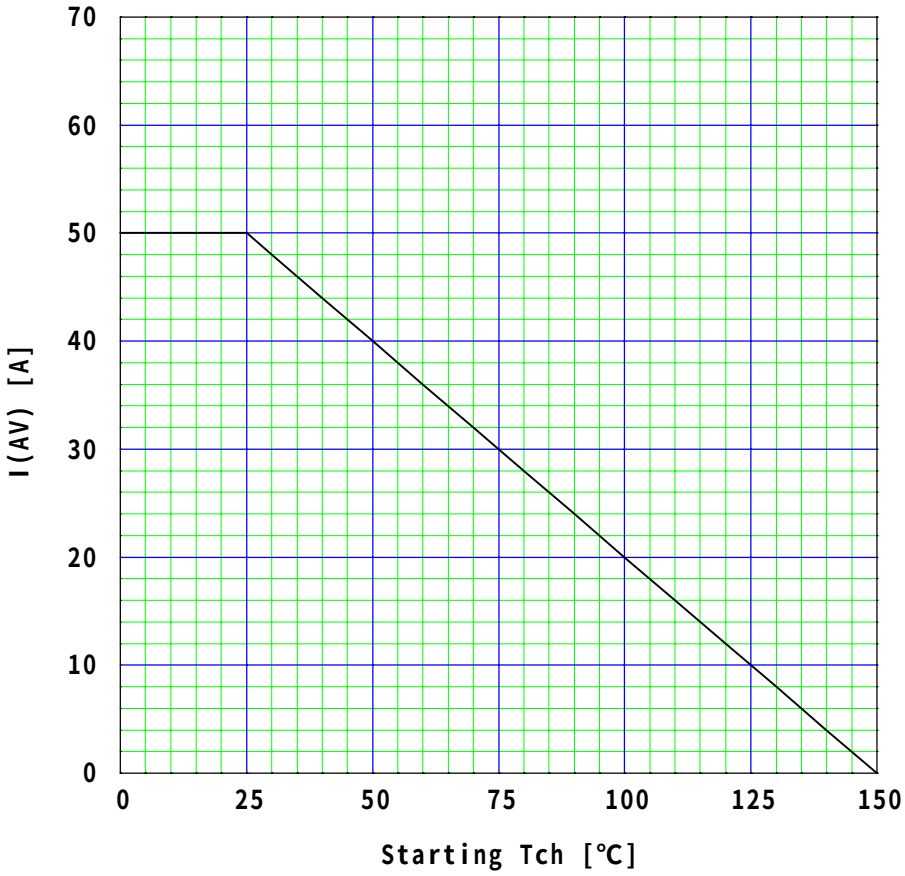
Typical Forward Characteristics of Reverse Diode
-ID=f(VSD):80μs pulse test,Tch=25℃



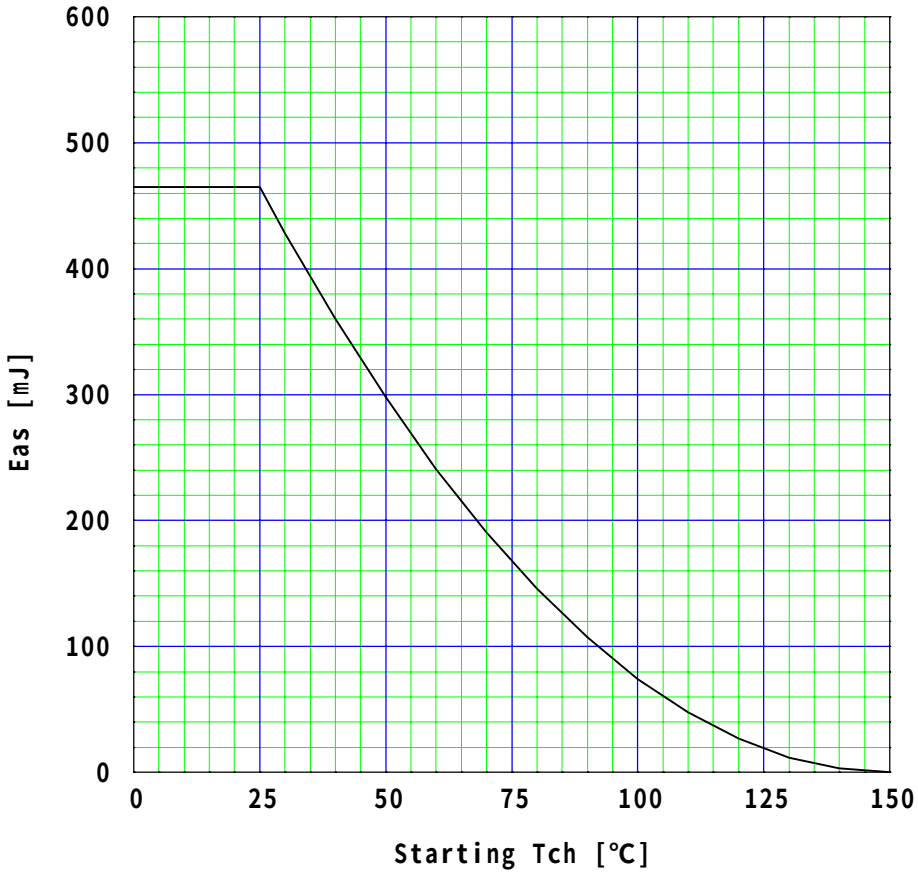
Typical Switching Characteristics vs. ID
t=f(ID):Vcc=48V,VGS=10V,RG=10Ω



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



Maximum Avalanche energy vs. starting Tch
Eas=f(starting Tch):Vcc=24V,I_{AV}≦50A,Non-Repetitive



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