SPECIFICATION

Device Name : POWER MOSFET

Type Name : 2SK2874-01L,S

Spec. No. :

Fuji Electric Co.,Ltd.
Matsumoto Factory

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	DATE	NAME	APPROVED
DRAWN			
CHECKED			

Fuji Electric Co.,Ltd.

DWG.NO.

1/13

1.Scope This specifies Fuji Power MOSFET 2SK2874-01L,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°C (unless otherwise specified)

Description	Symbol	Characteristics	Unit	Remarks
Drain-Source Voltage	V_{DS}	500	V	
Continuous Drain Current	I_D	±6	A	
Pulsed Drain Current	I_{DP}	±24	A	
Gate-Source Voltage	V_{GS}	±35	V	
Repetitive or non-repetitive	I_{AV}	6	A	$T_{ch} \leqq 150$°C
Maximum Avalanche Energy	E_{AV}	259.1	mJ	*1
Maximum Power Dissipation	P_D	50	W	
Operating and Storage	T_{ch}	150	°C	
Temperature range	T_{stg}	-55 to +150	°C	

*1 L=13.2mH,Vcc=50V

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

Static Ratings

Description	Symbol	Conditions		min.	typ.	max.	Unit
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	T_{ch}=25°C	-	10	500	μA
		V_{GS}=0V	T_{ch}=125°C	-	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=3A VGS=10V		-	1.25	1.5	Ω

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Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	I_D=3A V_{DS}=25V	2	4	-	S
Input Capacitance	Ciss	V_{DS}=25V V_{GS}=0V f=1MHz	-	540	810	pF
Output Capacitance	Coss		-	100	150	
Reverse Transfer Capacitance	Crss		-	45	70	
Turn-On Time	td(on)	V_{cc}=300V V_{GS}=10V I_D=6A R_{GS}=10Ω	-	13	20	ns
	tr		-	30	45	
Turn-Off Time	td(off)		-	40	60	
	tf		-	25	40	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	L=13.2mH Tch=25°C See Fig.1 and Fig.2	6	-	-	A
Diode Forward On-Voltage	V_{SD}	I_F=2 × I_{DR} V_{GS}=0V T_{ch}=25°C	-	1.0	1.5	V
Reverse Recovery Time	trr	I_F=I_{DR} -di/dt=100A/μs T_{ch}=25°C	-	450	-	ns
Reverse Recovery Charge	Qrr		-	3.2	-	μc

7.Thermal Resistance

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

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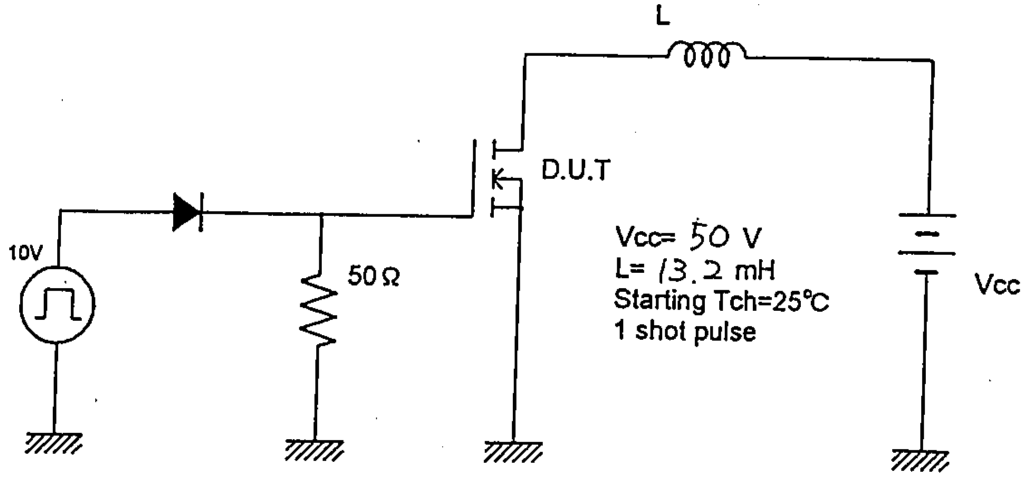
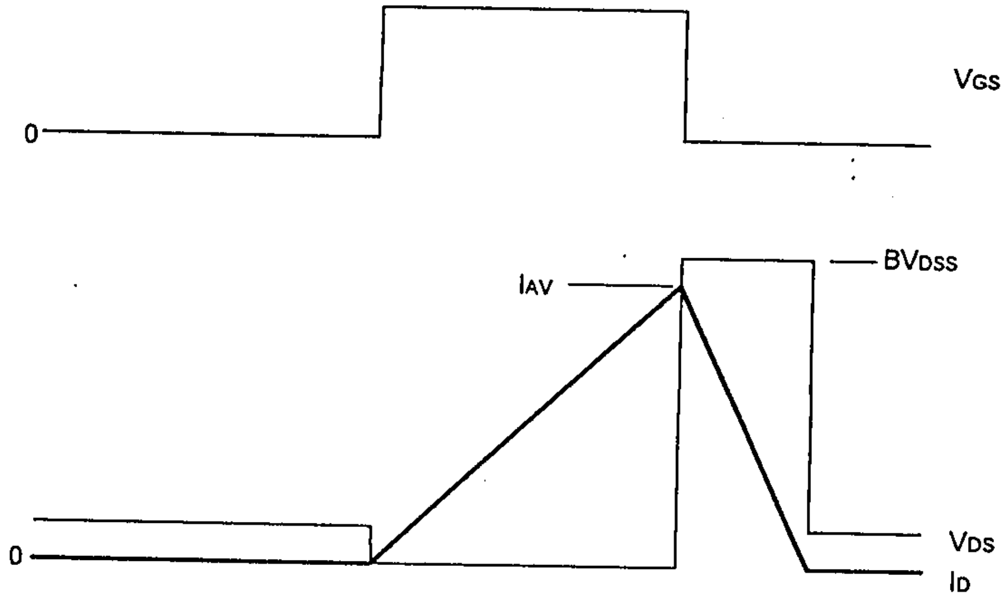
Fig.1 Test circuit



Vcc= 50 V
L= 13.2 mH
Starting Tch=25°C
1 shot pulse

Fig.2 Operating waveforms



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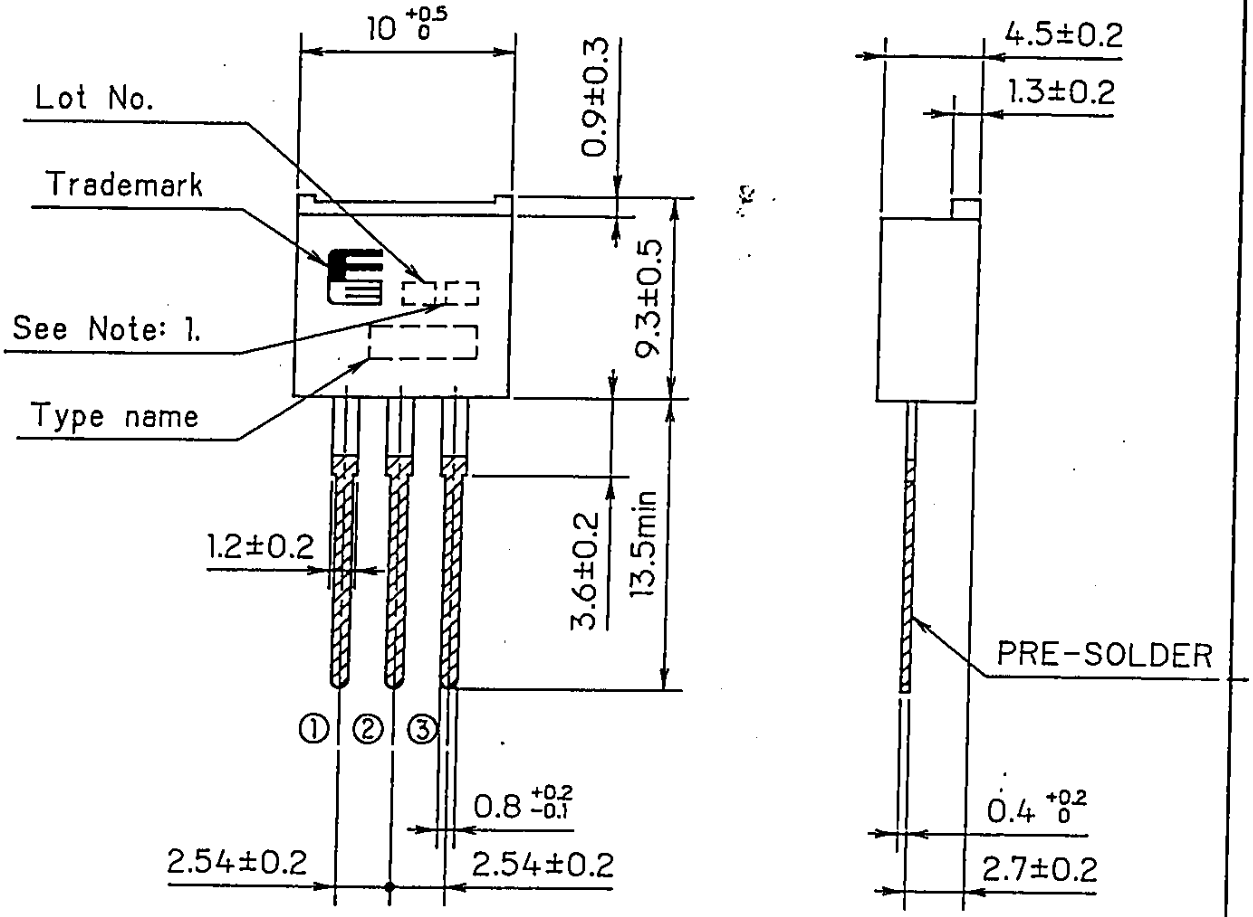
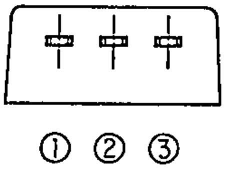
FUJI POWER MOS FET

TYPE :





CONNECTION

① GATE
② DRAIN
③ SOURCE

Note: 1. Guaranteed mark of avalanche ruggedness.

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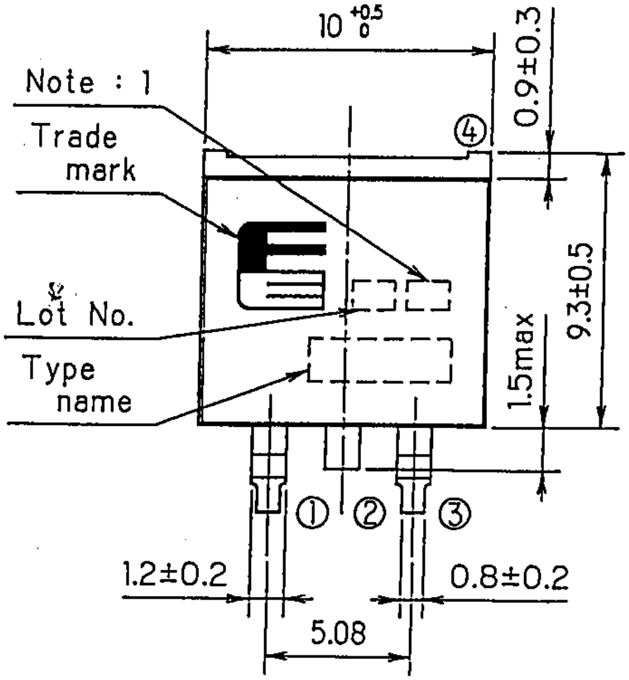
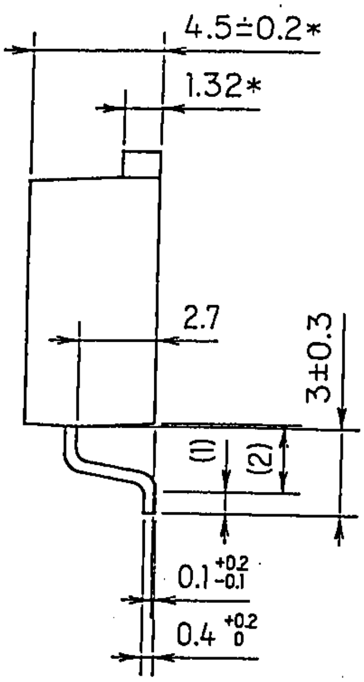
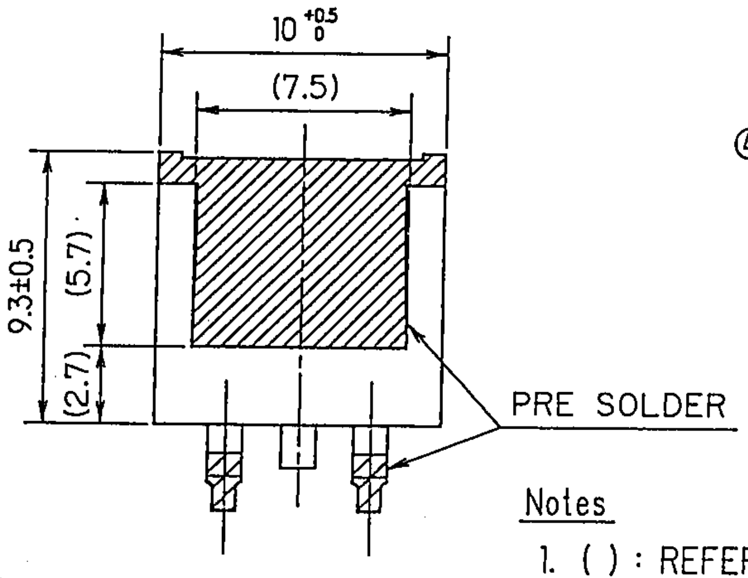
FUJI POWER MOS FET

TYPE :





BOTTOM VIEW



CONNECTION

① GATE
④ ② DRAIN
③ SOURCE

Notes

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

Note 1. Guaranteed mark of avalanche ruggedness.

DIMENSIONS ARE IN MILLIMETERS.

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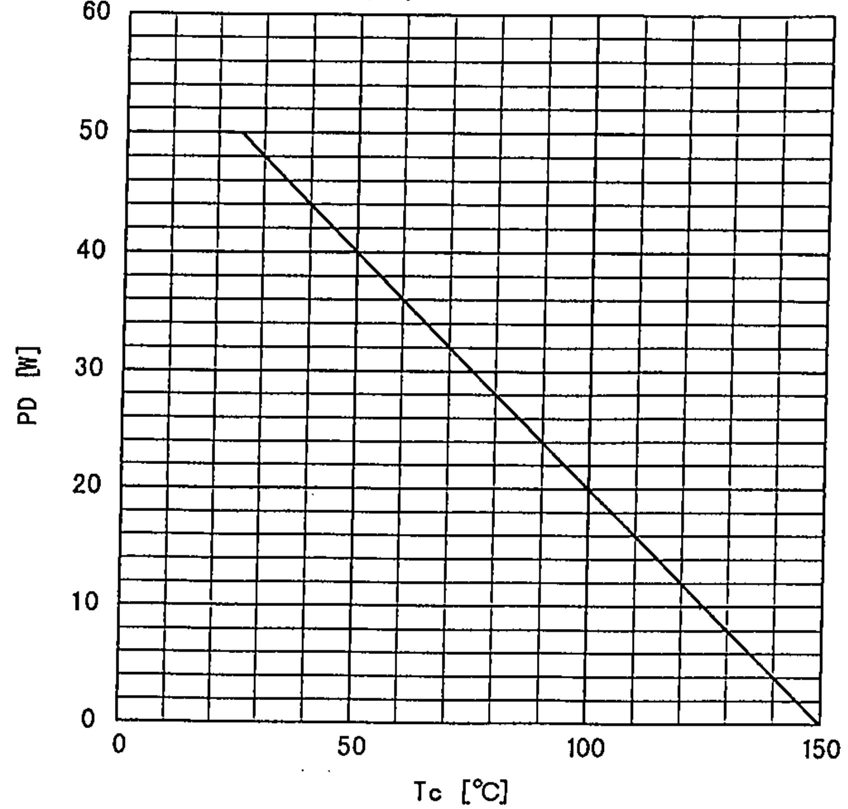
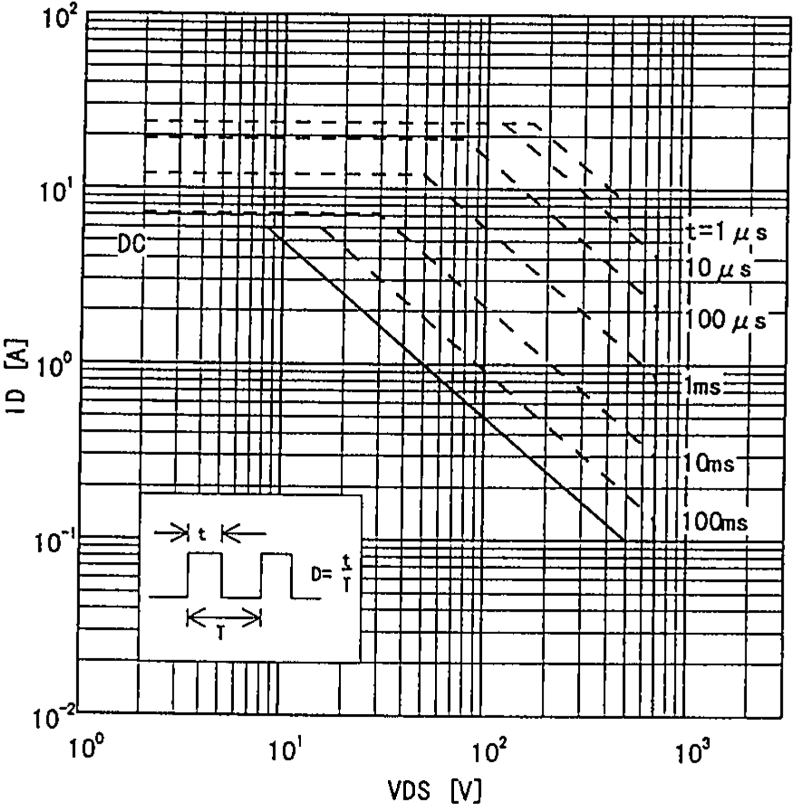
Power Dissipation

PD=f(Tc)

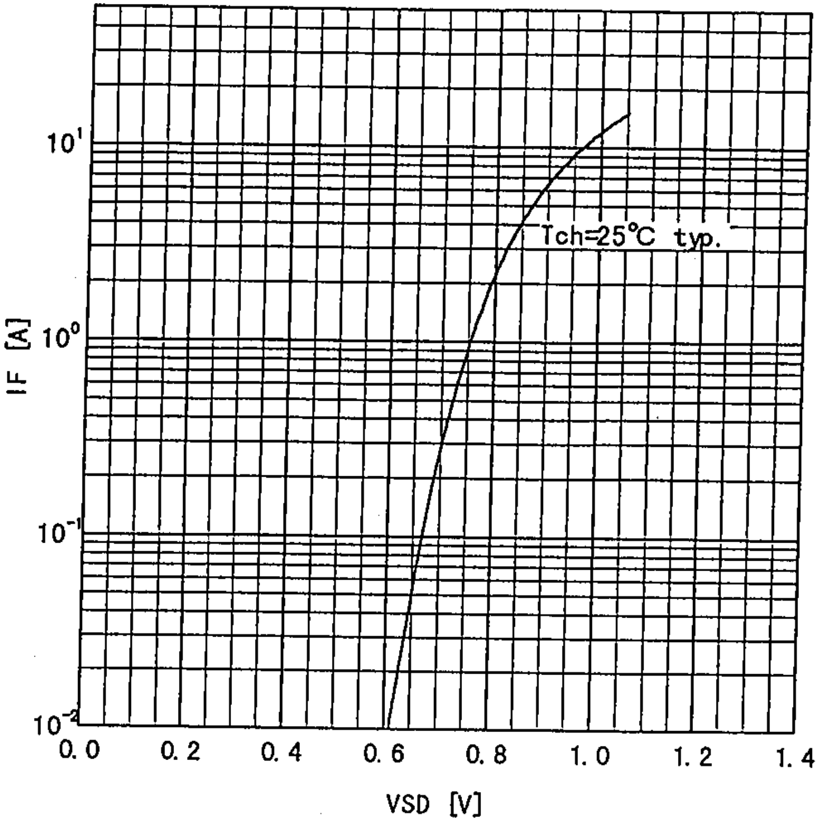


Safe operating area

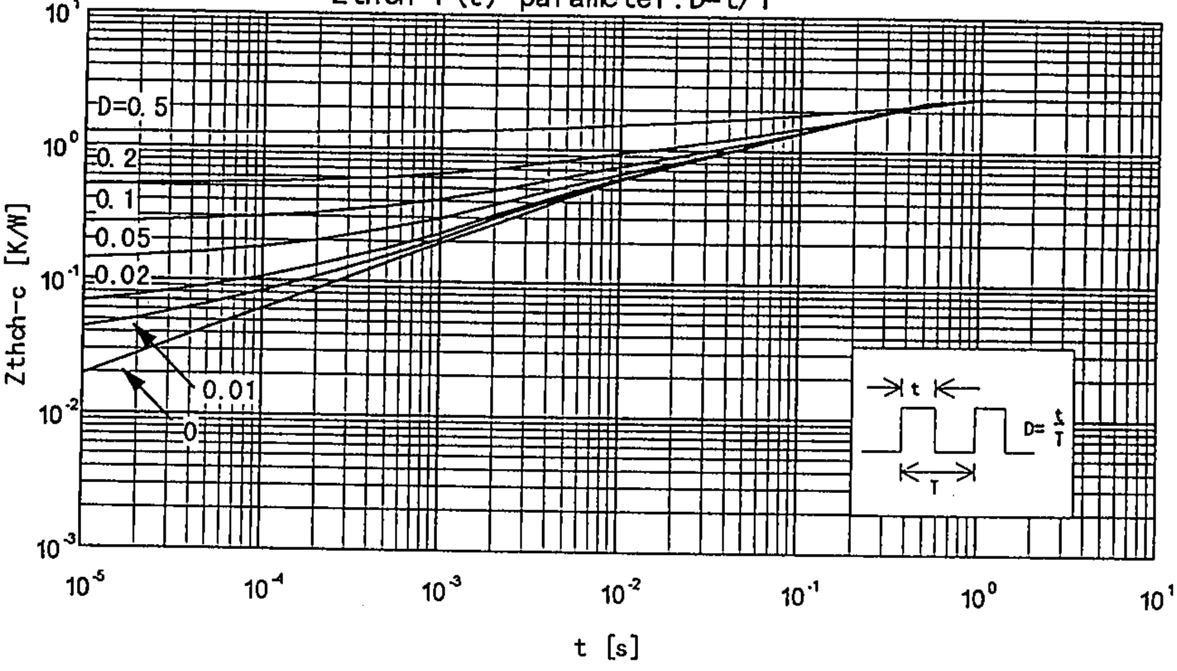
ID=f(VDS):D=0.01,Tc=25°C



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



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



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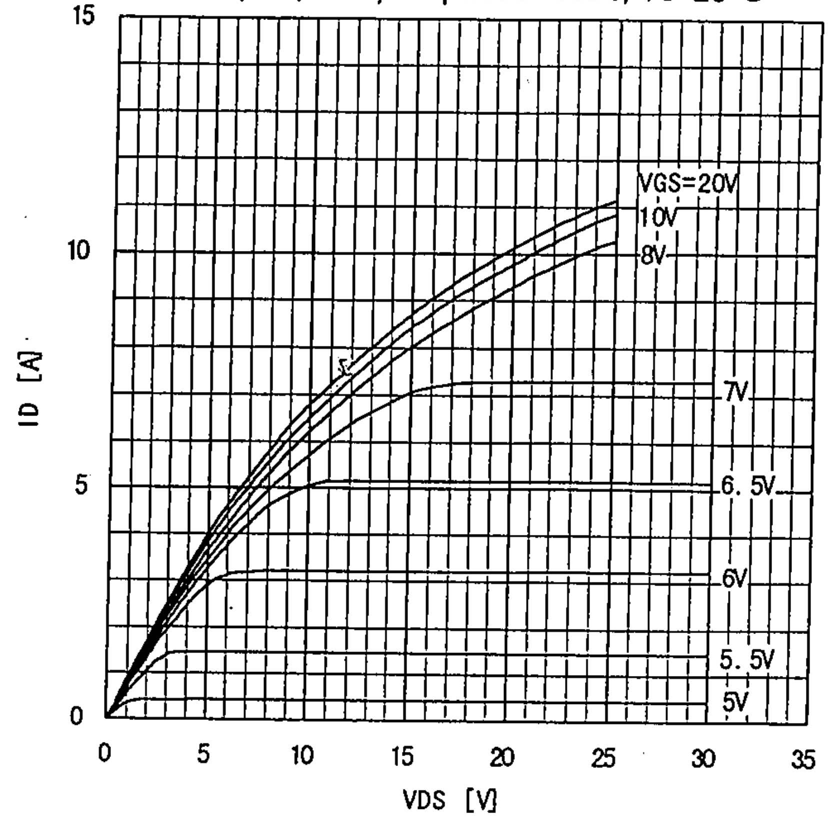
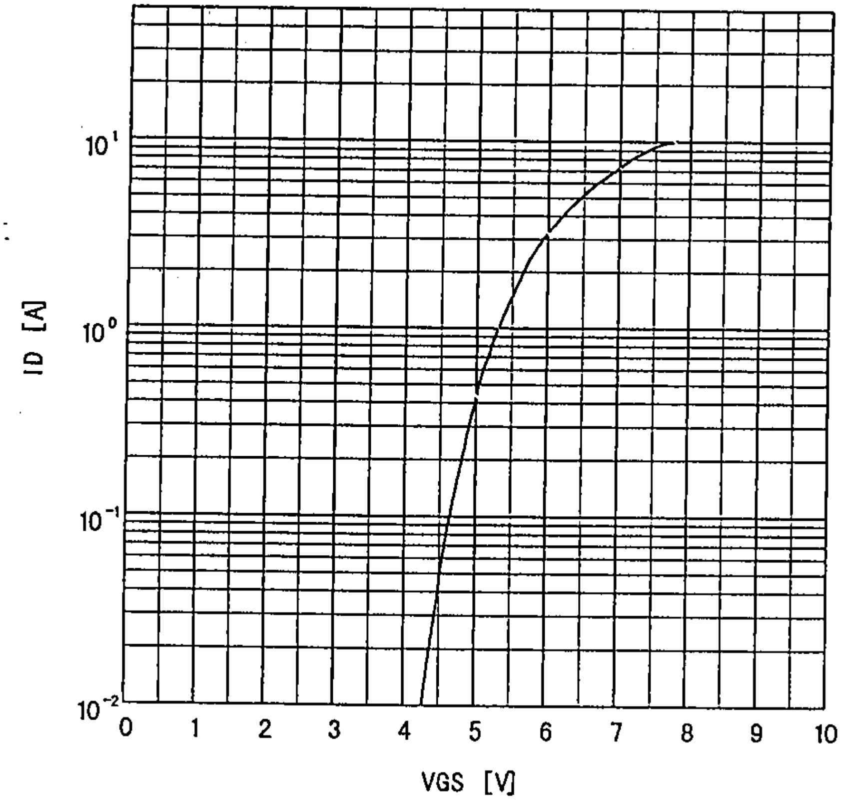
Typical output characteristics
ID=f(VDS):80μs pulse test, Tc=25°C



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



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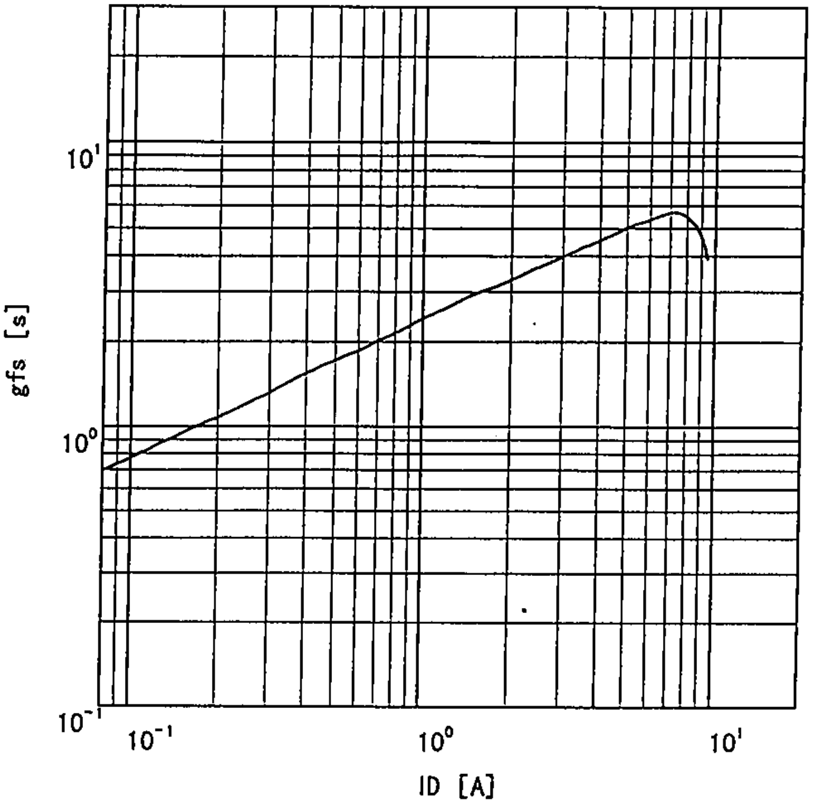
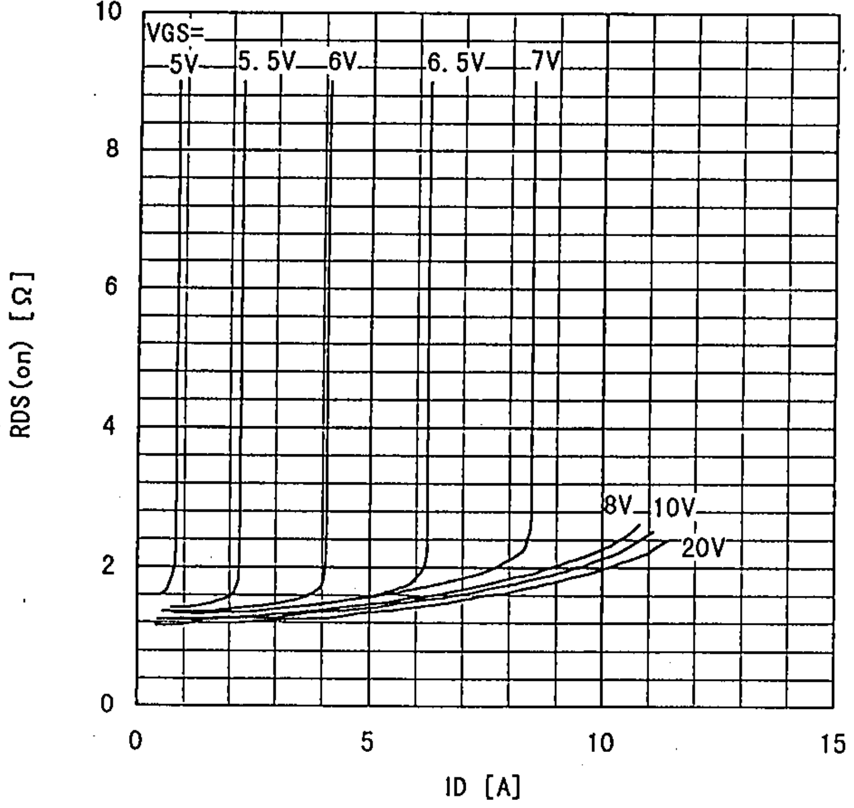
Typical forward transconductance
gfs=f(ID):80μs pulse test, VDS=25V, Tch=25°C



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



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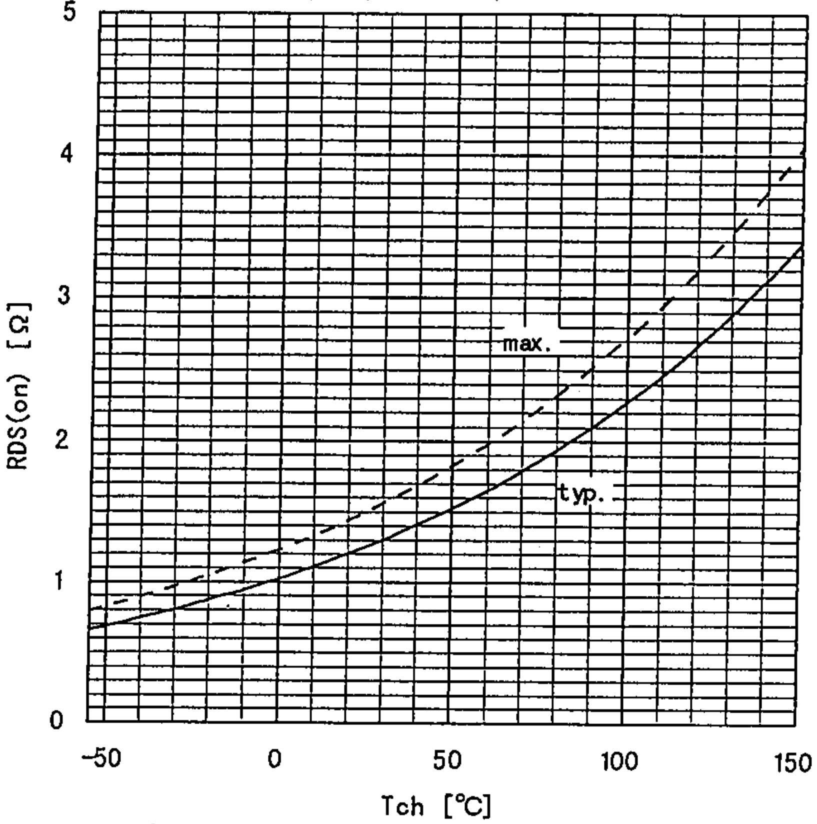
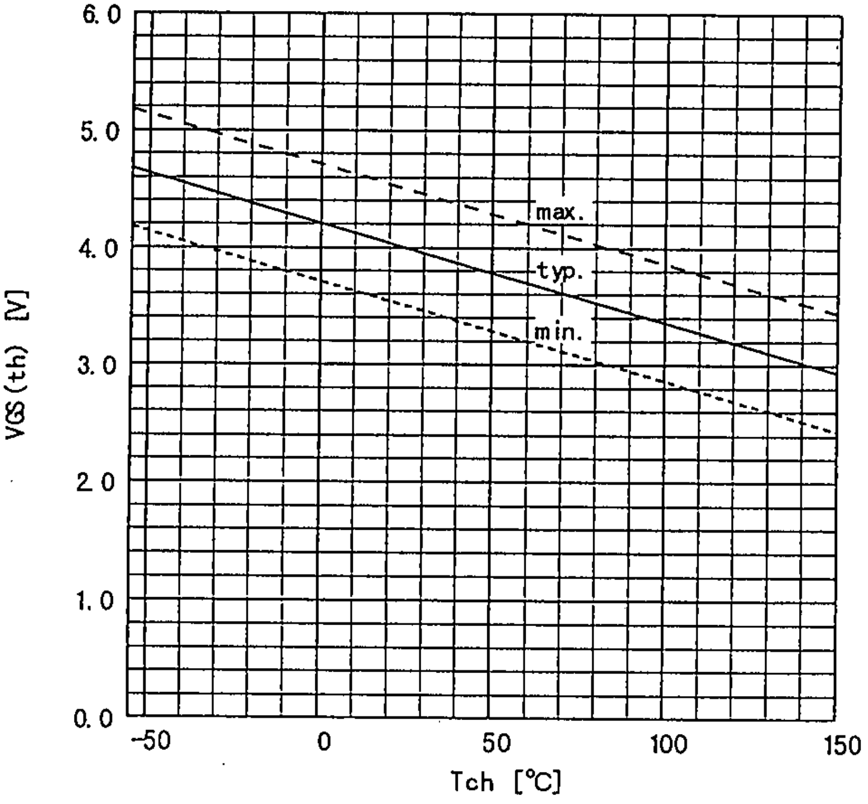
Drain-source on-state resistance

RDS(on)=f(Tch) : ID=3A, VGS=10V



Gate threshold voltage

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



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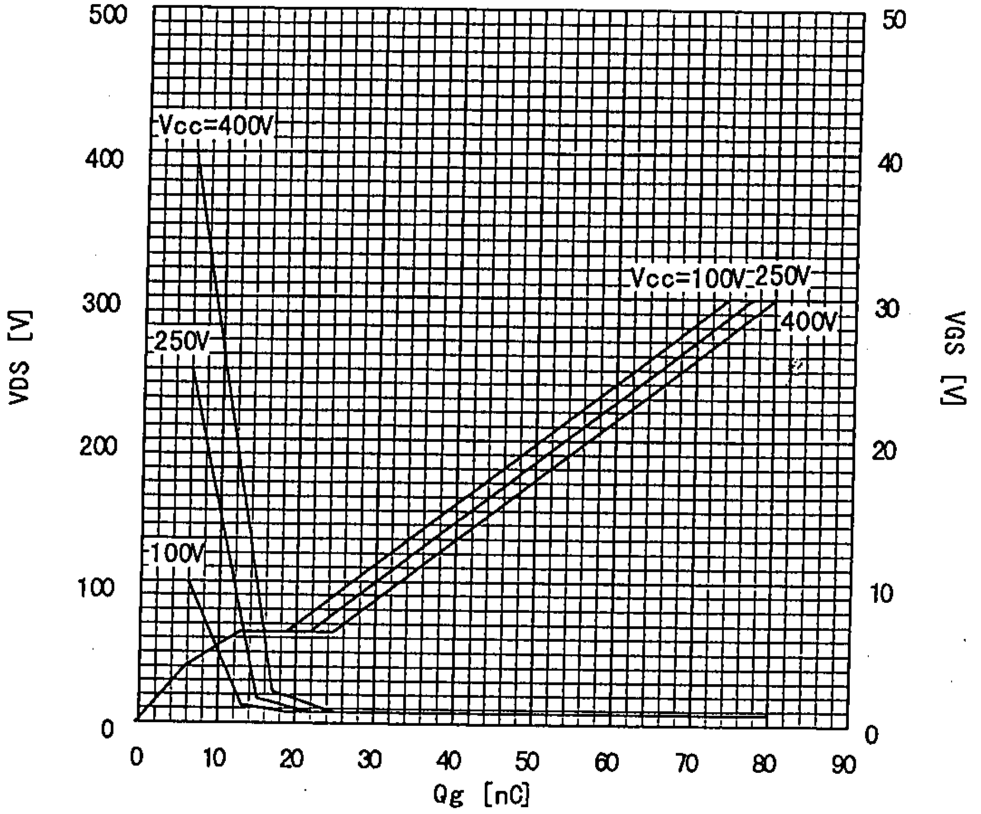
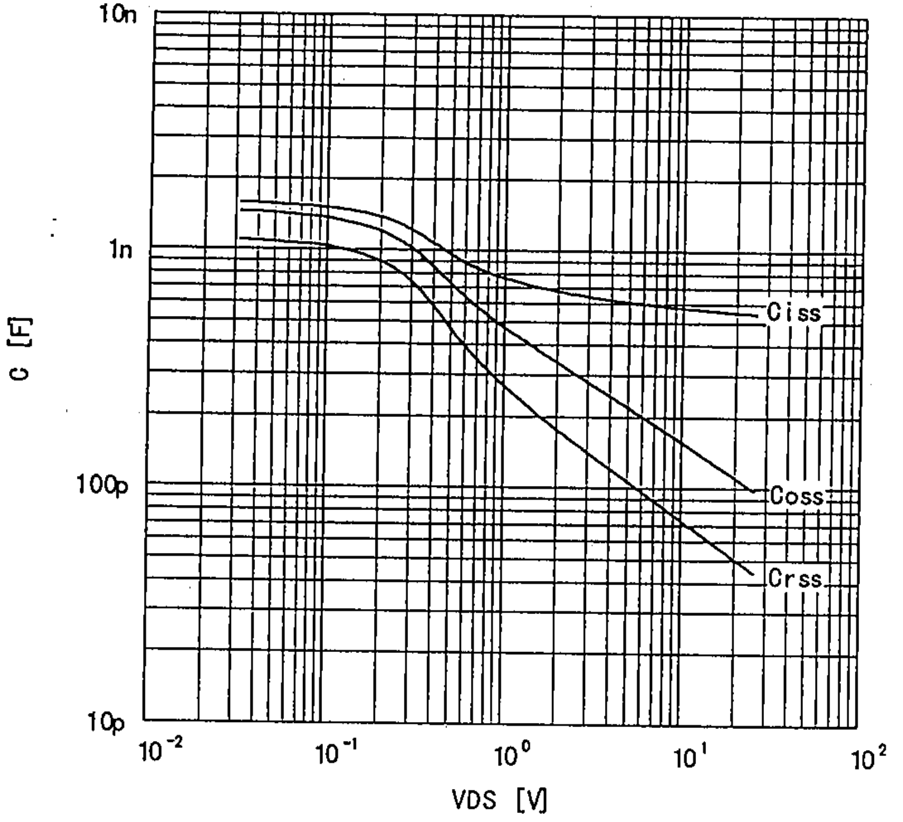
Typical gate charge characteristic

VGS=f(Qg) : ID=6A, Tc=25°C



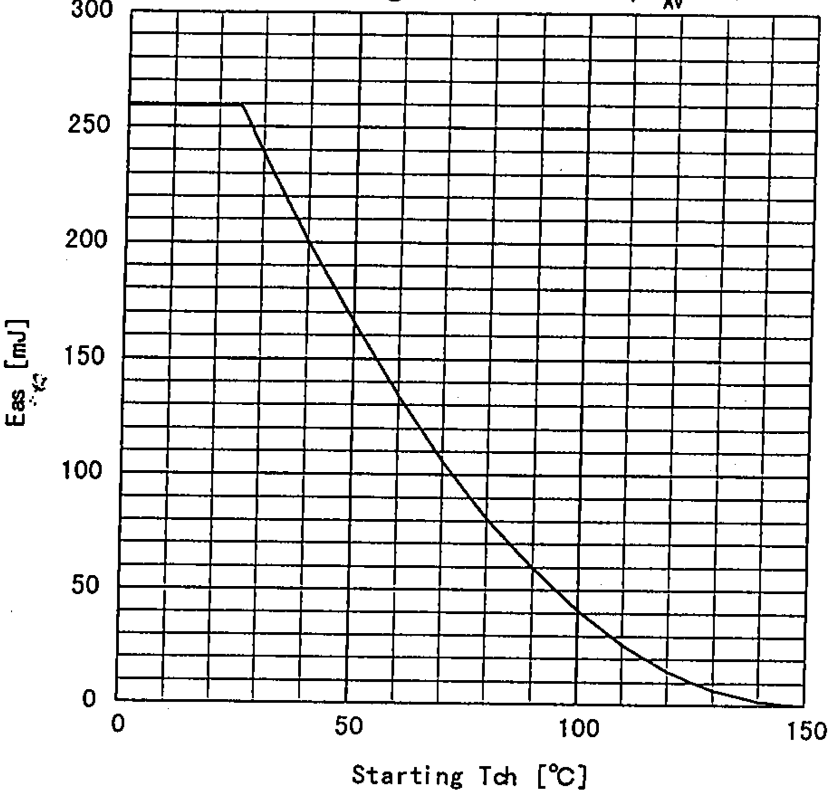
Typical capacitances

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



Avalanche energy derating

Eas=f(starting Tch):Vcc=50V, I_{AV}=6A



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