SPECIFICATION

DEVICE NAME : Power MOSFET

TYPE NAME : 2SK903-MR

SPEC. No. : **MS5F3095**

Fuji Electric Co.,Ltd.

This Specification is subject to change without notice.

	DATE	NAME	APPROVED
DRAWN	Sep.-18-'95	Y. Terasaki	
CHECKED	Sep-18-95	M. Tsaru	

Fuji Electric Co.,Ltd.

DWG.NO. **MS5F3095** 1/10

Y 0257-R-004a

1. Scope
This specifies Fuji power MOSFET 2SK903-MR

2. Construction N-channel enhancement mode power MOSFET

3. Application for switching

4. Outview TO-220F Outview See to 4/10 page

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

Description	Symbol	Characteristics	Unit	Remarks
Drain-source voltage	V_{DS}	800	V	
Drain-gate voltage	V_{DGR}	800	V	R_{GS}=20KΩ
Continuous Drain current	I_D	± 3	A	
Pulsed drain current	I_{Dpulse}	± 12	A	
Gate-source voltage	V_{GS}	± 20	V	
Maximum power dissipation	P_D	40	W	
Operating and storage temperature range	T_{ch}	150	℃	
	T_{stg}	-55 ~ +150	℃	

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

Description	Symbol	Conditions		Characteristics Min.	Typ.	Max.	Unit
Drain-source breakdown voltage	BV_{DSS}	I_D=1mA V_{GS}=0V		800			V
Gate threshold voltage	$V_{GS}(th)$	I_D=10mA V_{DS}=V_{GS}		2.1	3.0	4.0	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=800V 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}=±20V V_{DS}= 0V			10	100	nA
Drain-source on-state resistance	$R_{DS}(on)$	I_D = 1.5A V_{GS}= 10 V			3.0	4.0	Ω

Dynamic ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	g f s	I_D = 1.5A V_{DS}= 25 V	2.0	4.0		S
Input capacitance	C iss	V_{DS}=25V V_{GS}= 0V f =1MHz		900	1400	pF
Output capacitance	C oss			90	140	pF
Reverse transfer capacitance	C rss			35	60	pF
Turn-on time	t d(on)	V_{CC}=30 V V_{GS}=10 V I_D =2.1A R_{GS}=50 Ω		20	30	ns
	t r			40	60	ns
Turn-off time	t d(off)			150	250	ns
	t f			60	90	ns

Reverse diode

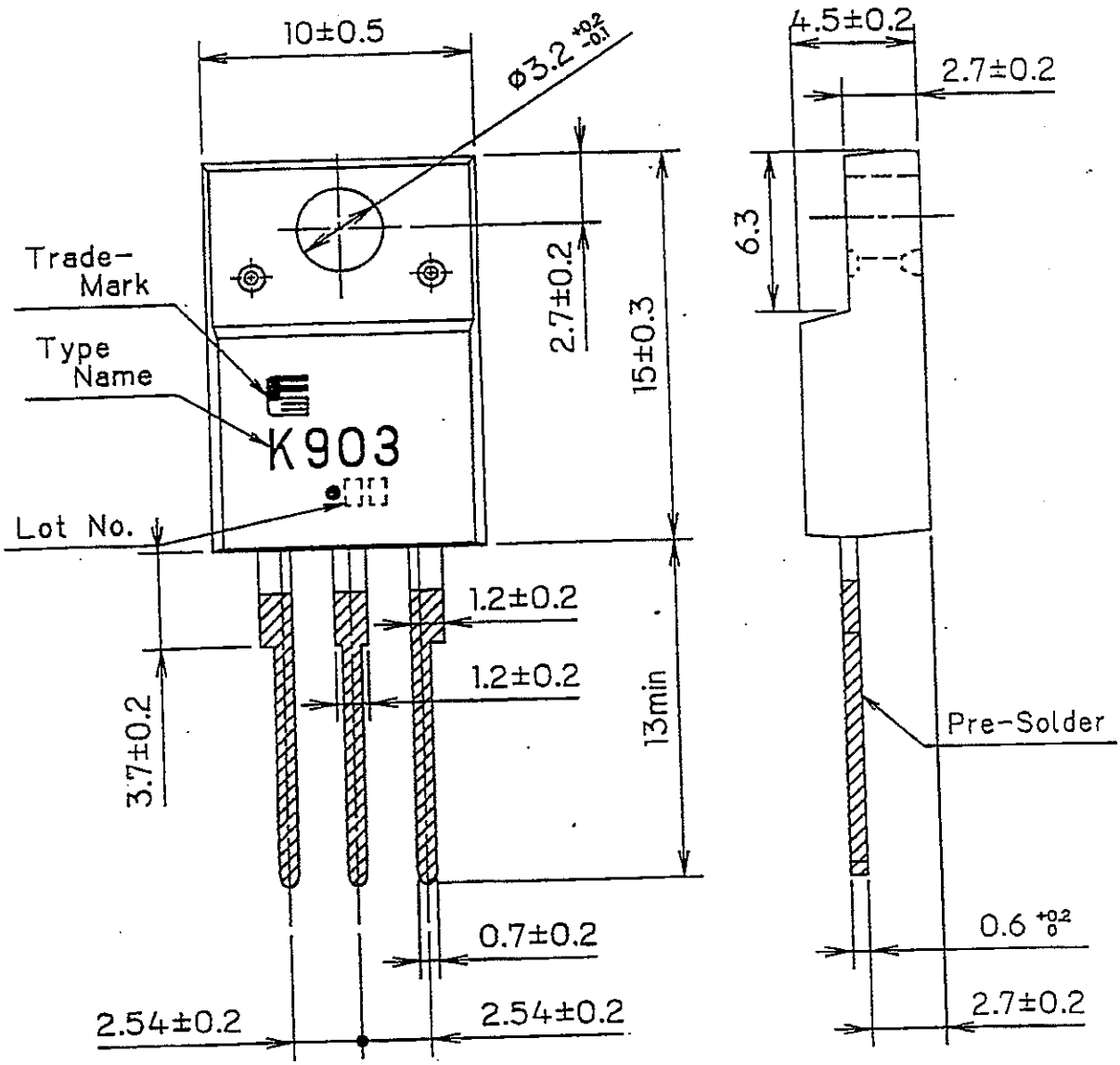
Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Diode forward on-voltage	V_{SD}	I_F = 2 × I_{DR} V_{GS}=0V, T_{ch}= 25℃		1.0	1.35	V
Reverse recovery time	t_{rr}	I_F = I_{DR} V_{GS}=0V $-dI_F/dt$=100A/μs T_{ch}= 25℃		400		ns
Reverse recovery charge	Q_{rr}			4		μC

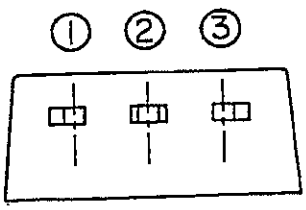
7. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	Rth_{ch}-c				3.125	℃/W
	Rth_{ch}-a				62.5	℃/W

FUJI POWER MOS FET

TYPE : 2SK903-MR





CONNECTION

① GATE
② DRAIN
③ SOURCE

DIMENSIONS ARE IN MILLIMETERS.

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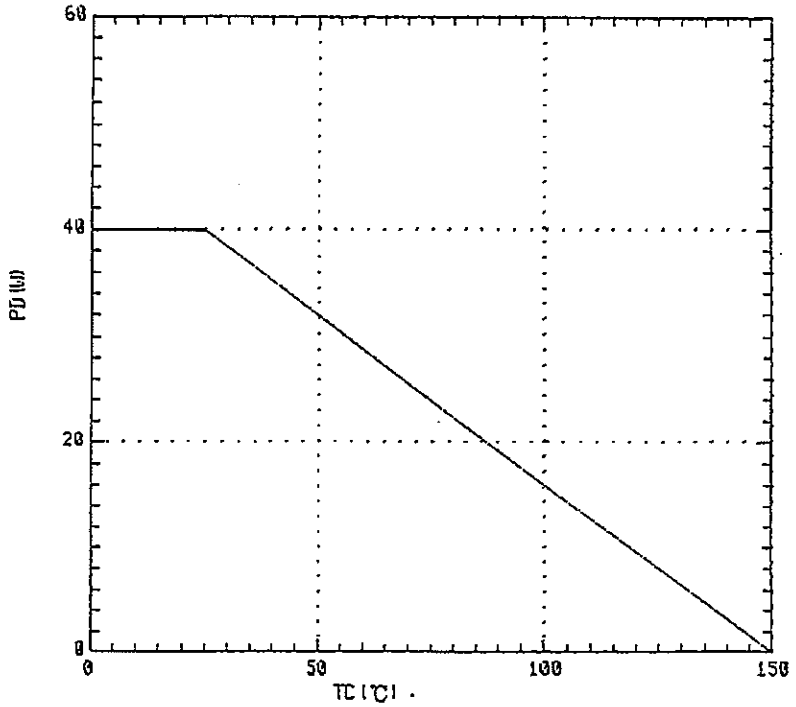
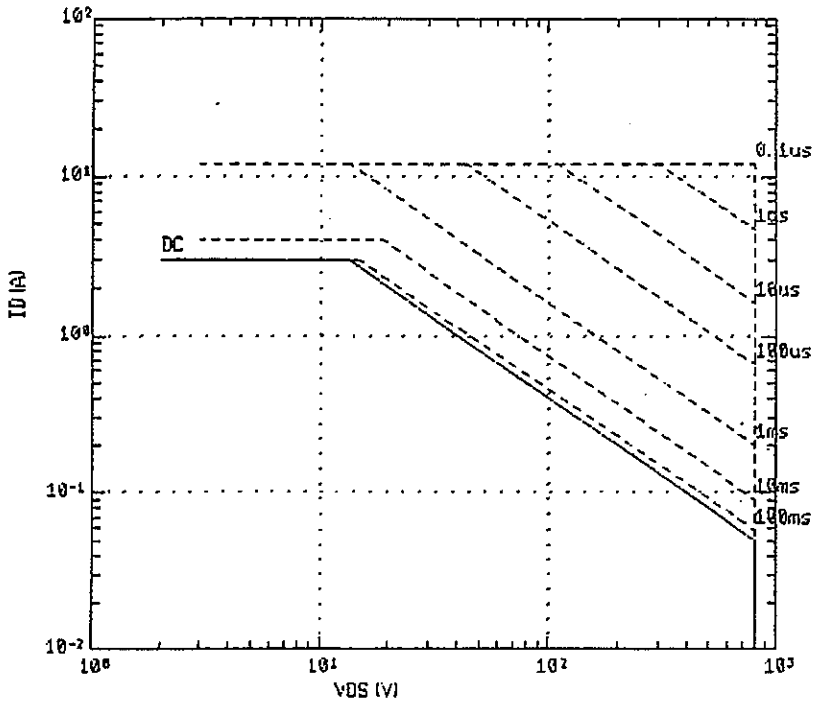
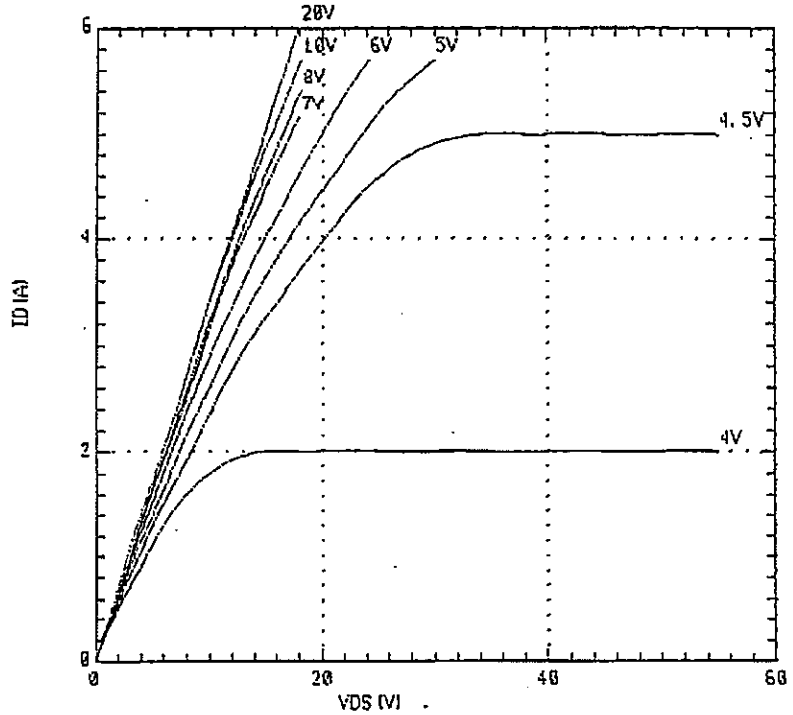
Power Dissipation
PD=f(TC)



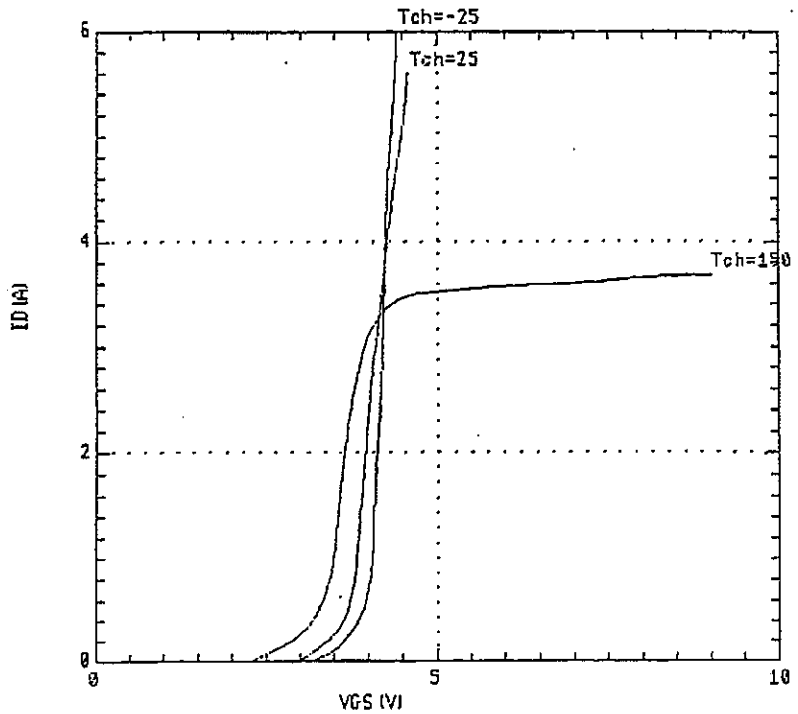
Safe oprating area
ID=f(VDS):D=0.01,Tc=25℃



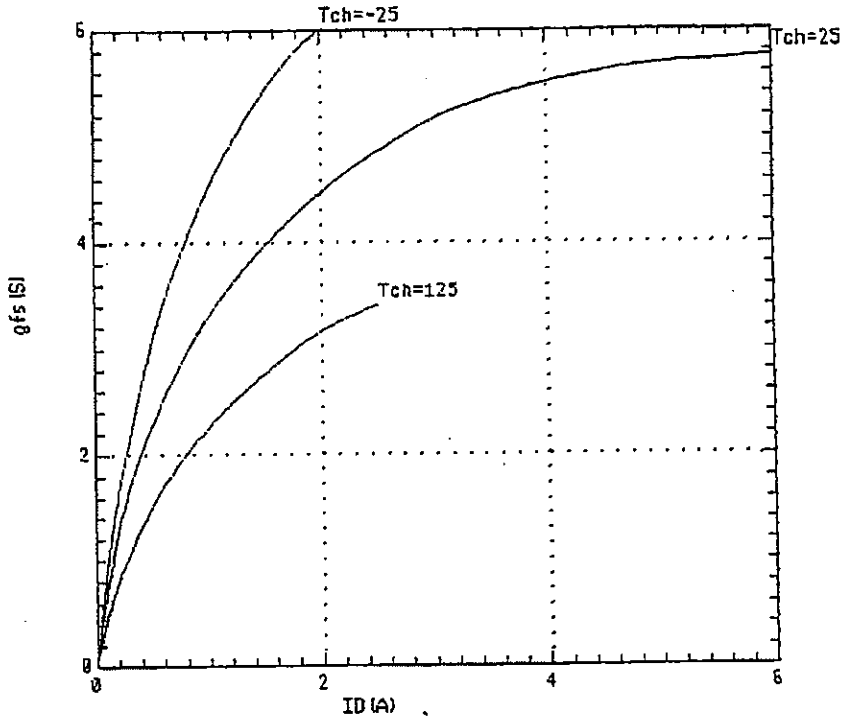
Typical output characteristics
ID=f(VDS):80μs pulse test,Tch=25°C



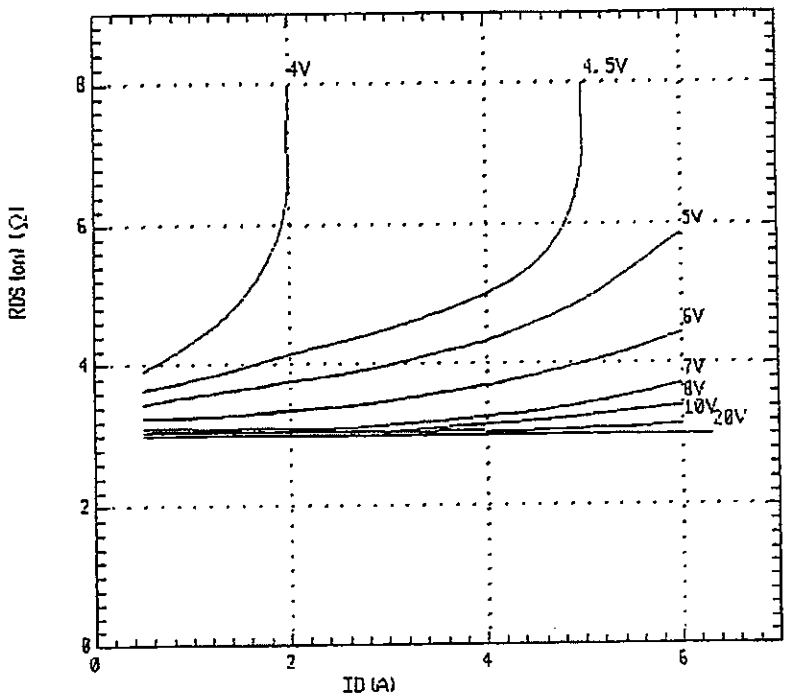
Typical Transfer Characterisic
ID=f(VGS):80μs pulse test,VDS=25V



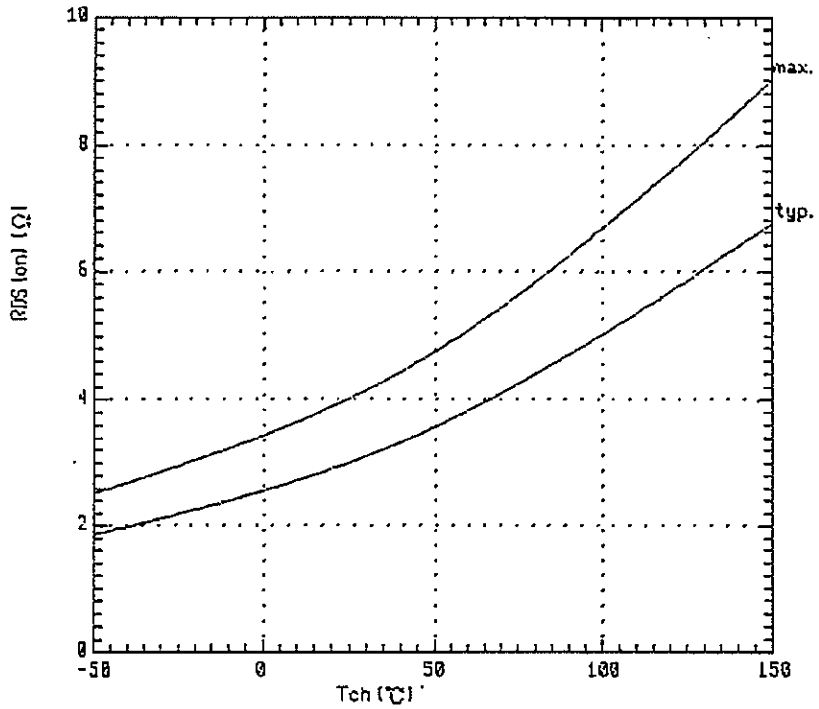
Typical Transconductance
gfs=f(ID):80μs pulse test,VDS=25V



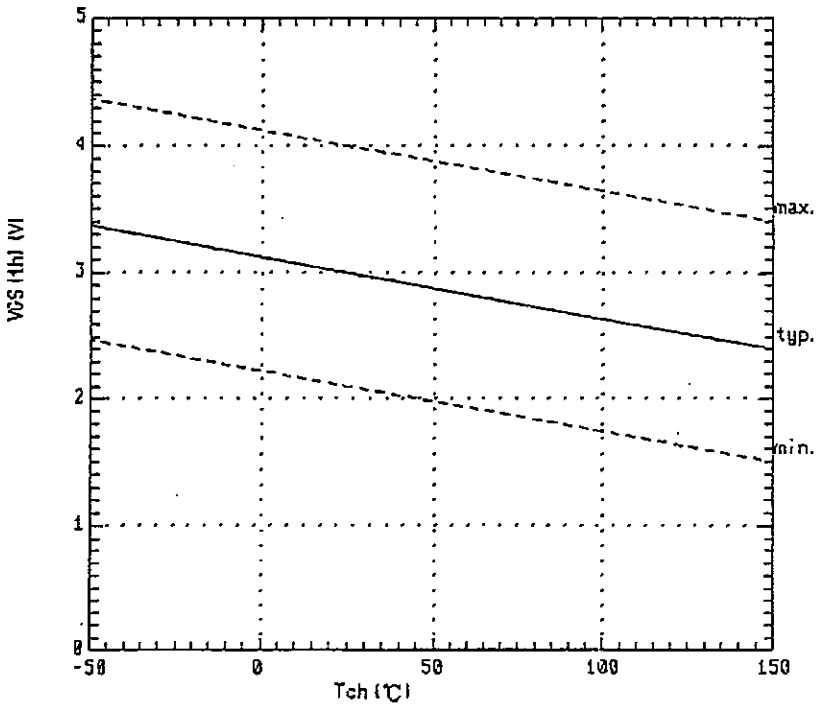
Typical Drain-source on-state resistance
RDS(on)=f(ID):80μs pulse test,Tch=25℃



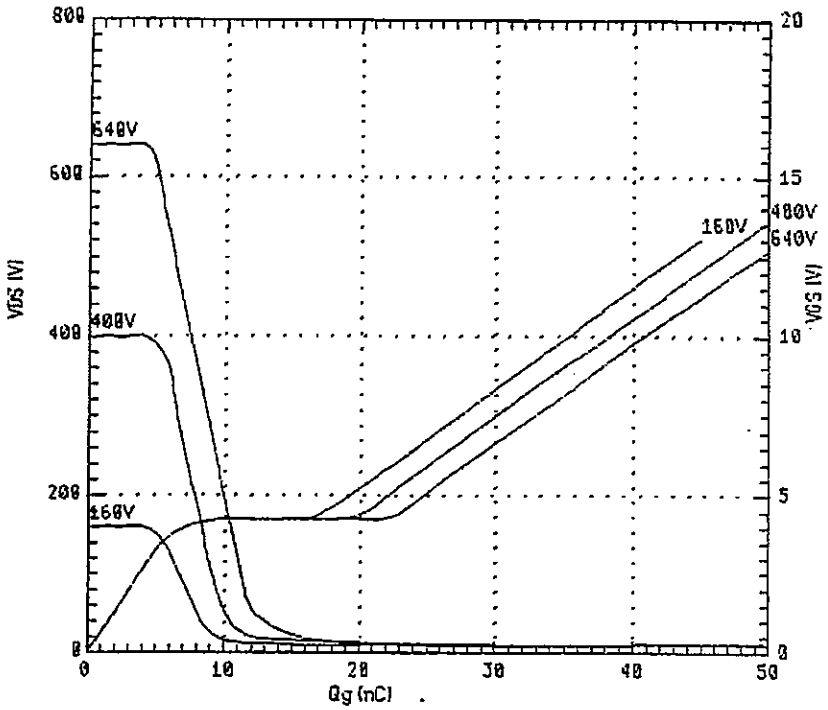
Drain-source on-state resistanse
RDS(on)=f(Tch):ID=1.5A,VGS=10V



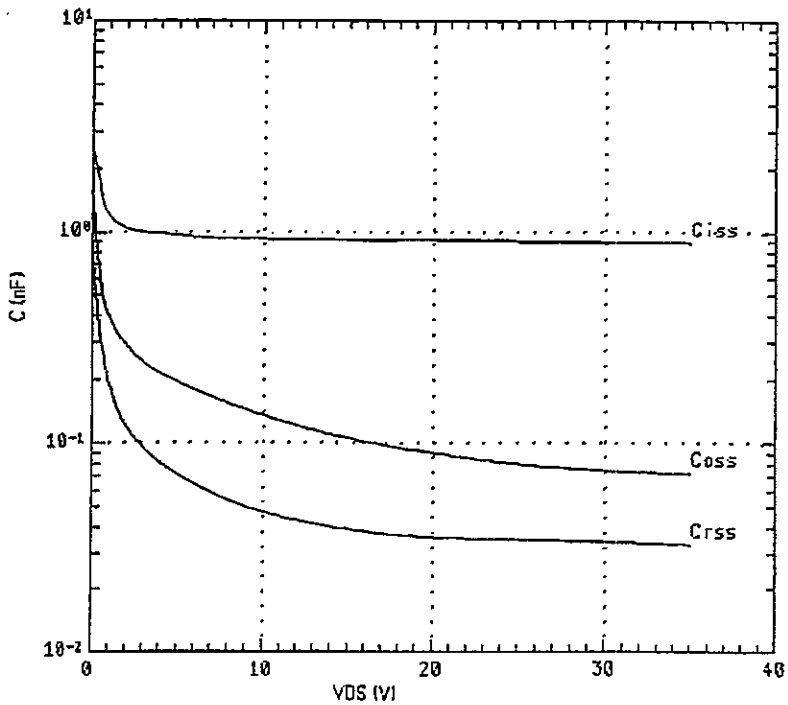
Gate threshold voltage
VGS(th)=f(Tch):VDS=VGS,ID=10mA



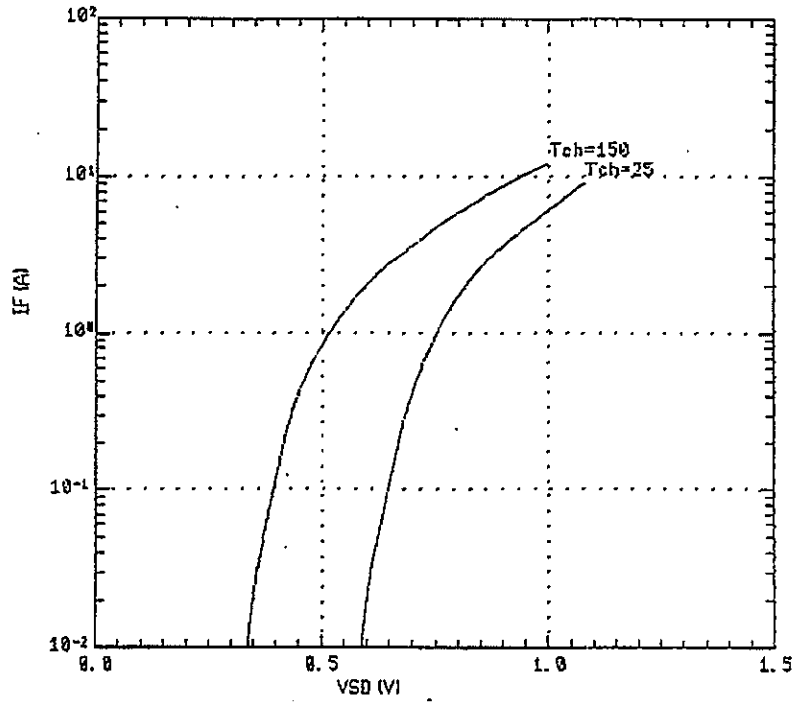
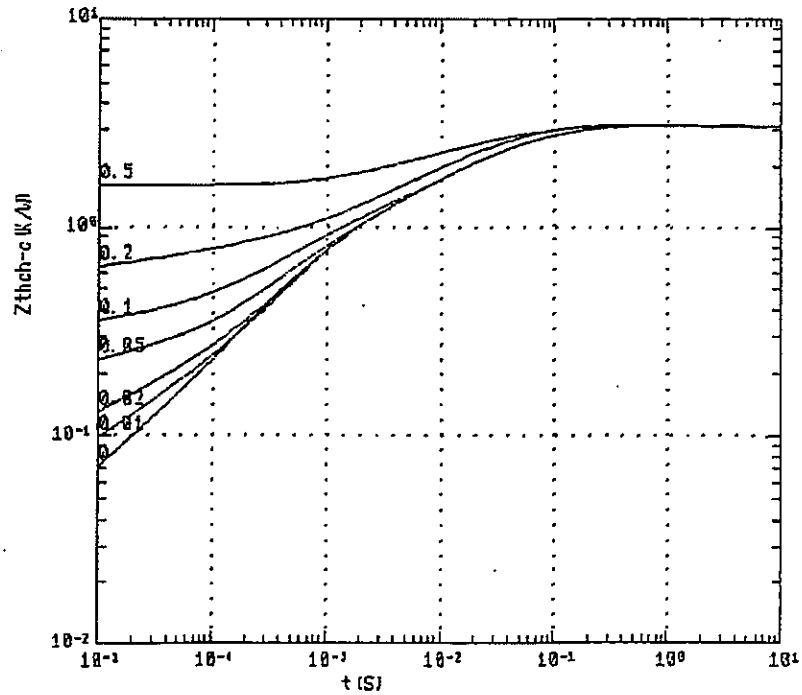
Typical gate charge characteristics
VGS=f(Qg):ID=3A,Tch=25°C



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



Farward characteristic of revese diode
IF=f(VSD):80μs pulse test,VGS=0V



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