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SPECIFICATION

DEVICE NAME : Power MOSFET

TYPE NAME : 2SK2918-01

SPEC. No. :

Fuji Electric Co., Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED		Fuji Electric Co., Ltd.	
DRAWN					DWG. NO.	1/1
CHECKED						

1. Scope
This specifies Fuji power MOSFET 2SK2918-01
2. Construction N-channel enhancement mode power MOSFET
3. Application for switching
4. Outview T0-220 Outview See to 5/11 page
5. Absolute maximum ratings at $T_c=25^\circ\text{C}$ (unless otherwise specified)

Description	Symbol	Characteristics	Unit	
Drain-source voltage	V_{DS}	200	V	
Drain-gate voltage	V_{DGR}	200	V	
Continuous Drain current	I_D	± 20	A	
Pulsed drain current	I_{DPulse}	± 80	A	
Gate-source voltage	V_{GS}	± 30	V	
Maximum power dissipation	P_D	80	W	
Operating and storage temperature range	T_{ch}	150	$^\circ\text{C}$	
	T_{sto}	$-55 \sim +150$	$^\circ\text{C}$	

6. Electrical characteristics at $T_c=25^\circ\text{C}$ (unless otherwise specified)

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	BV_{DSS}	$I_D = 1\text{mA}$ $V_{GS} = 0\text{V}$	200			V
Gate threshold voltage	$V_{GS(th)}$	$I_D = 1\text{mA}$ $V_{DS} = V_{GS}$	2.5	3.0	3.5	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 200\text{V}$ $V_{GS} = 0\text{V}$ $T_{ch} = 25^\circ\text{C}$		10	500	μA
	I_{DSS}	$T_{ch} = 125^\circ\text{C}$		0.2	1.0	mA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 30\text{V}$ $V_{DS} = 0\text{V}$		10	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$I_D = 10\text{A}$ $V_{GS} = 10\text{V}$		100	130	m Ω

Dynamic ratings

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Forward transconductance	g_{fs}	$I_D = 10A$ $V_{DS} = 25V$	7.0	15.0		S
Input capacitance	C_{iss}	$V_{DS} = 25V$ $V_{GS} = 0V$ $f = 1MHz$		1800	2700	pF
Output capacitance	C_{oss}			320	480	pF
Reverse transfer capacitance	C_{rss}			80	120	pF
Turn-on time	$t_{d(on)}$	$V_{CC} = 150V$ $V_{GS} = 10V$ $I_D = 20A$ $R_{GS} = 10\Omega$		15	25	ns
	t_r			60	90	ns
Turn-off time	$t_{d(off)}$			65	100	ns
	t_f			60	90	ns

Reverse diode

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Avalanche capability	I_{AV}	$L = 100\mu H$, $T_{ch} = 25^\circ C$ * See Fig.1 and 2	20.0			A
Diode forward on-voltage	V_{SD}	$I_F = 2 \times I_{DR}$ $V_{GS} = 0V$, $T_{ch} = 25^\circ C$		1.06	1.59	V
Reverse recovery time	t_{rr}	$I_F = I_{DR}$ $V_{GS} = 0V$ $-di_F/dt = 100A/\mu s$ $T_{ch} = 25^\circ C$		145		ns
Reverse recovery charge	Q_{rr}			900		μC

7. Thermal resistance

Description	Symbol	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	$R_{th_{ch-c}}$				1.56	$^\circ C/W$
	$R_{th_{ch-a}}$				75.0	$^\circ C/W$

Fig.1 Test circuit

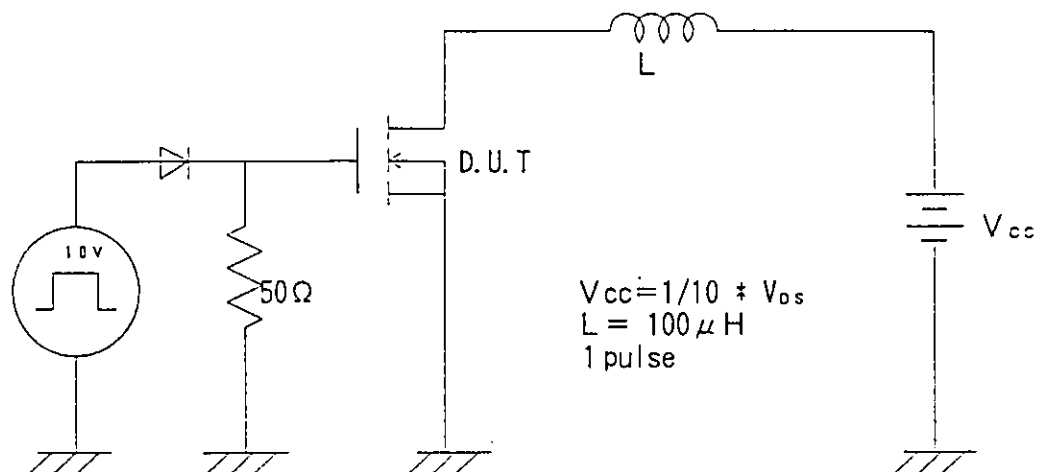
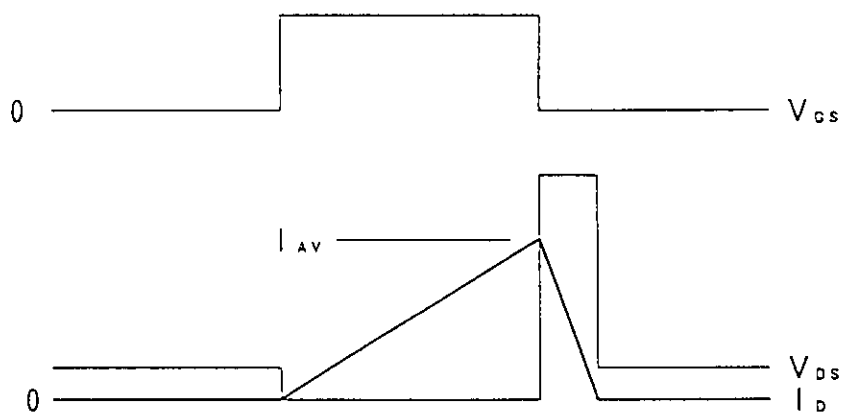
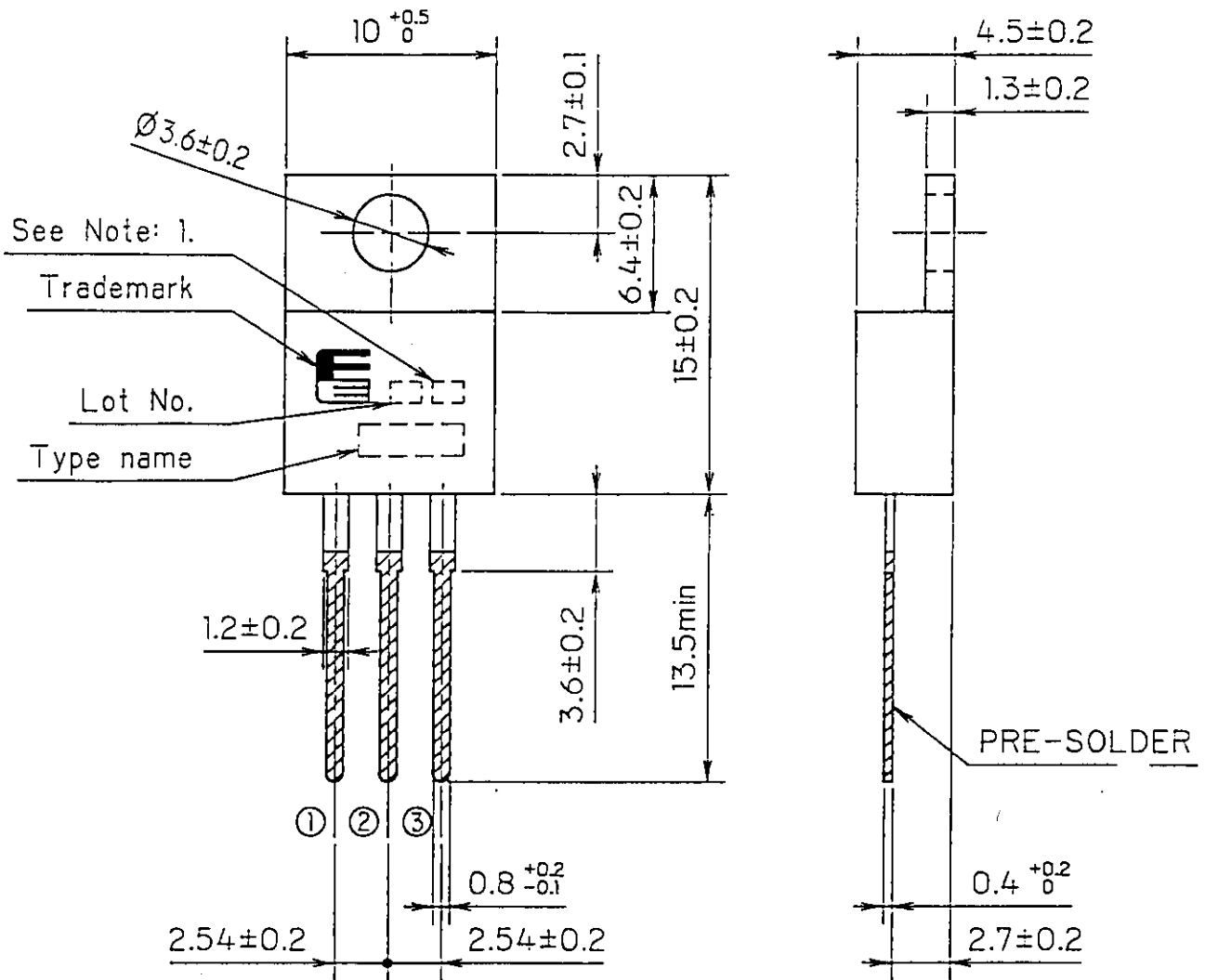


Fig.2 Operating waveforms

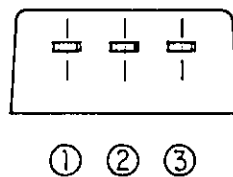


FUJI POWER MOS FET

TYPE : 2SK 2918-01



CONNECTION



- ① GATE
- ② DRAIN
- ③ SOURCE

Note: 1. $V_{GS(th)}$ selected code.

JEDEC : TO-220AB

Note: 1. Guaranteed mark of avalanche ruggedness.

DIMENSIONS ARE IN MILLIMETERS.

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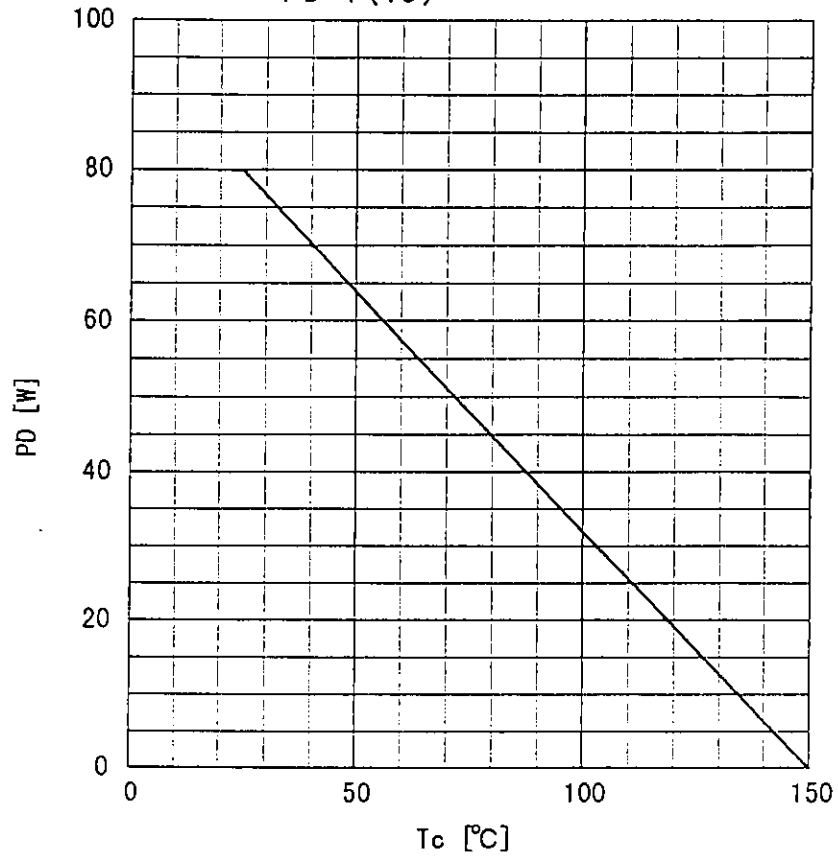
DWG. NO.

5/11

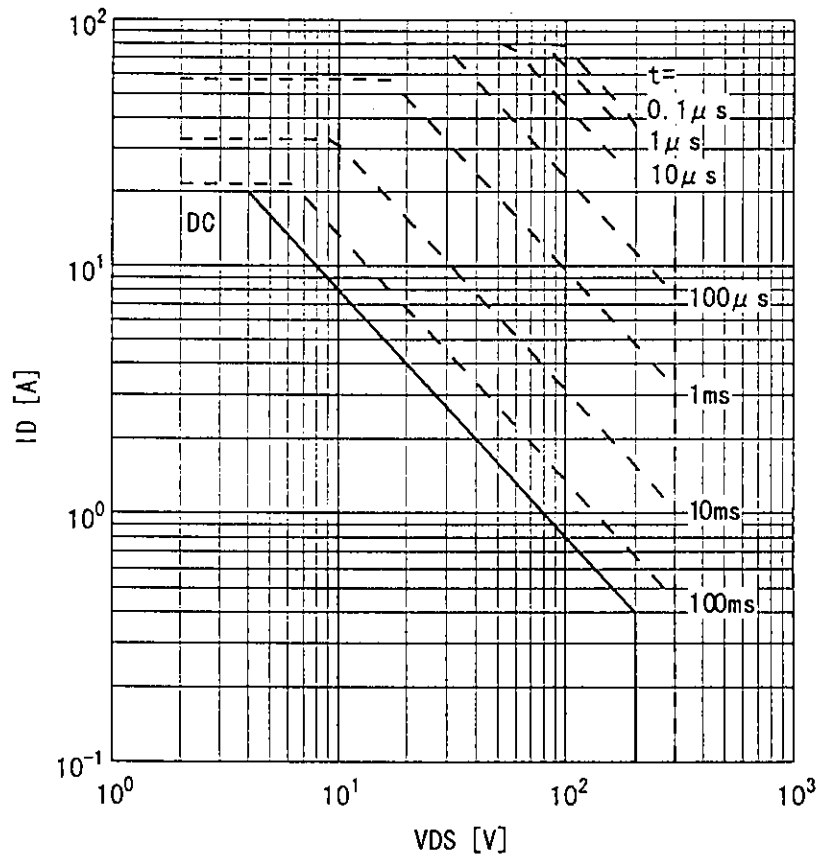
H04-004-03

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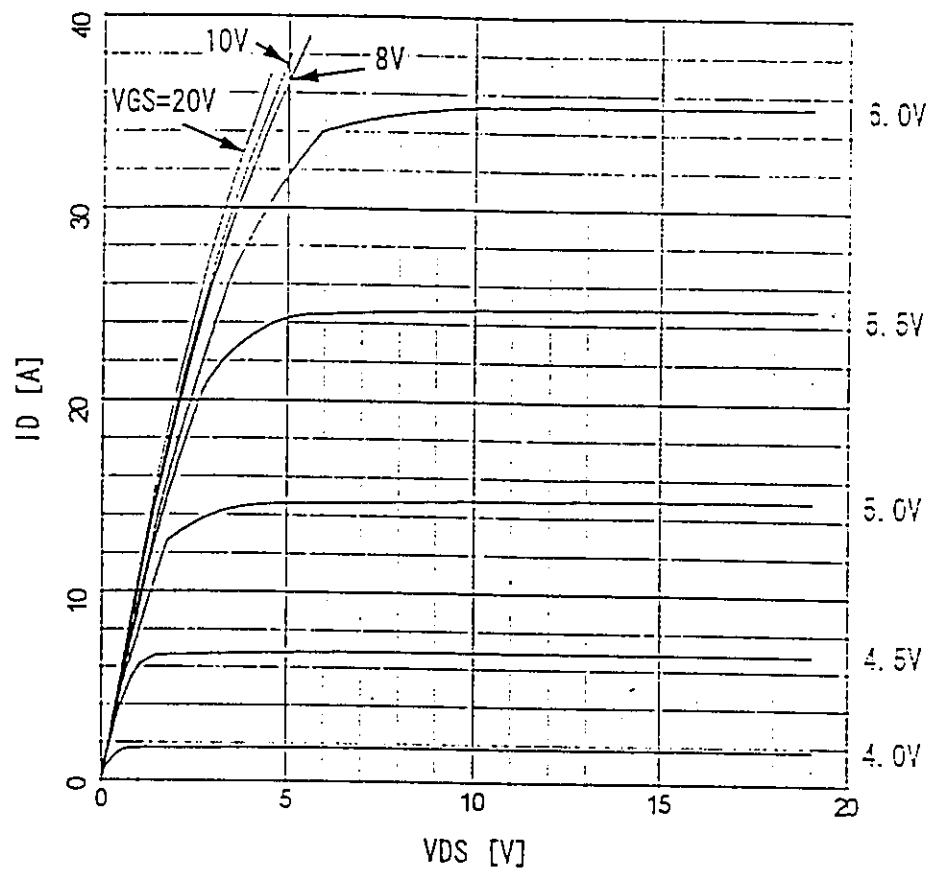
Power Dissipation $PD=f(T_c)$



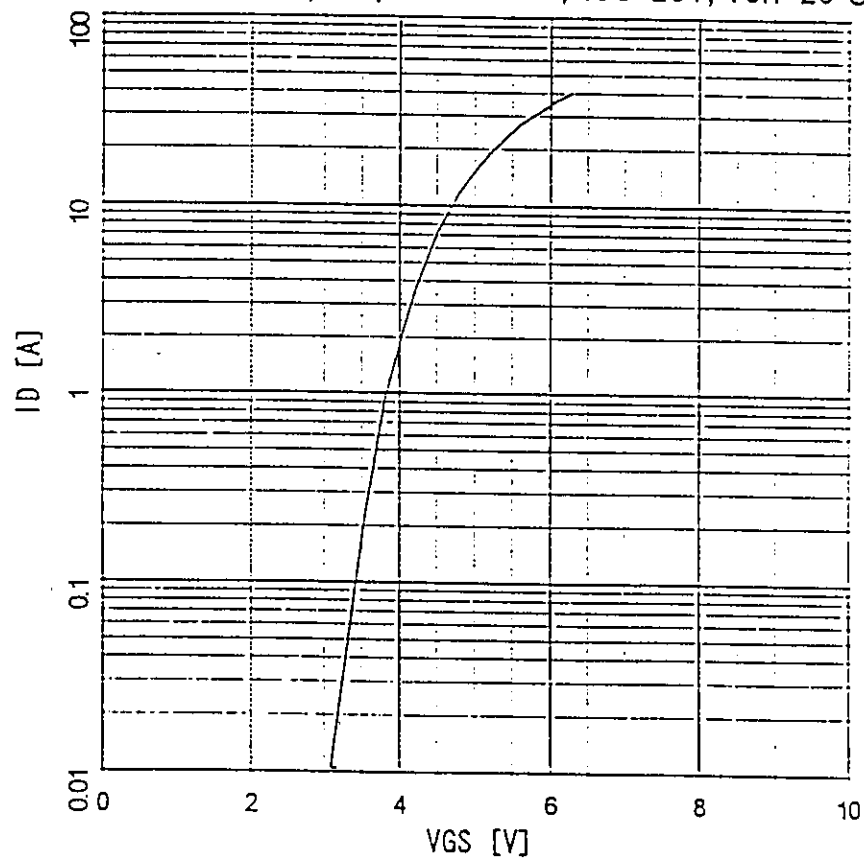
Safe operating area $ID=f(V_{DS}): D=0.01, T_c=25^\circ\text{C}$



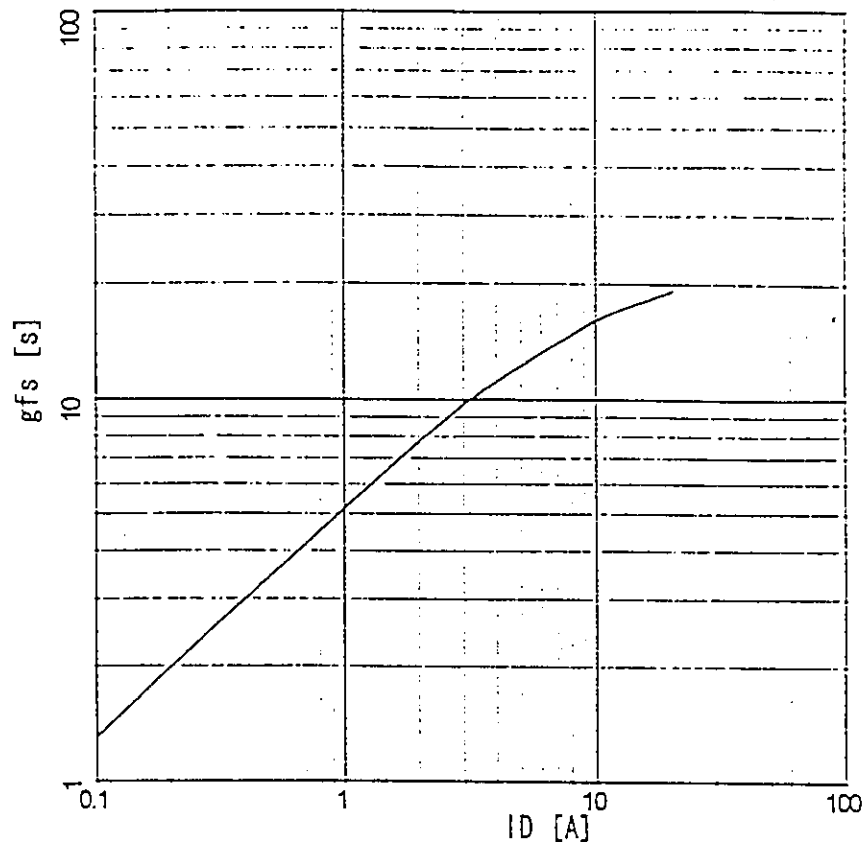
Typical output characteristics
 $I_D = f(V_{DS})$: 80 μ s pulse test, $T_{ch} = 25^\circ\text{C}$



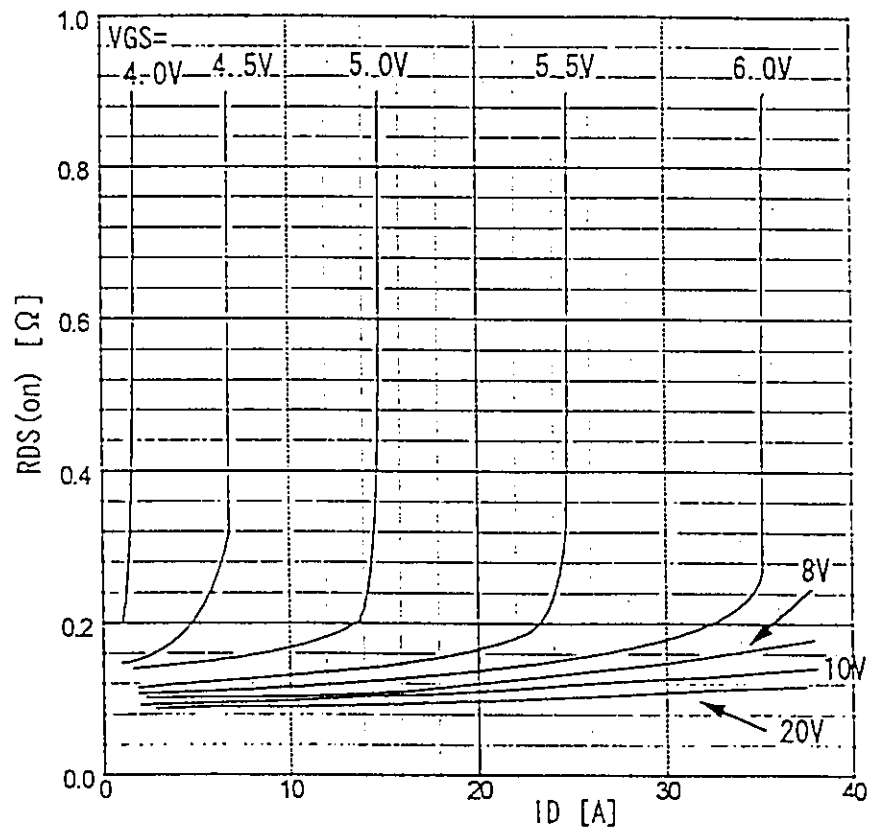
Typical transfer characteristic
 $I_D = f(V_{GS})$: 80 μ s pulse test, $V_{DS} = 25V$, $T_{ch} = 25^\circ\text{C}$



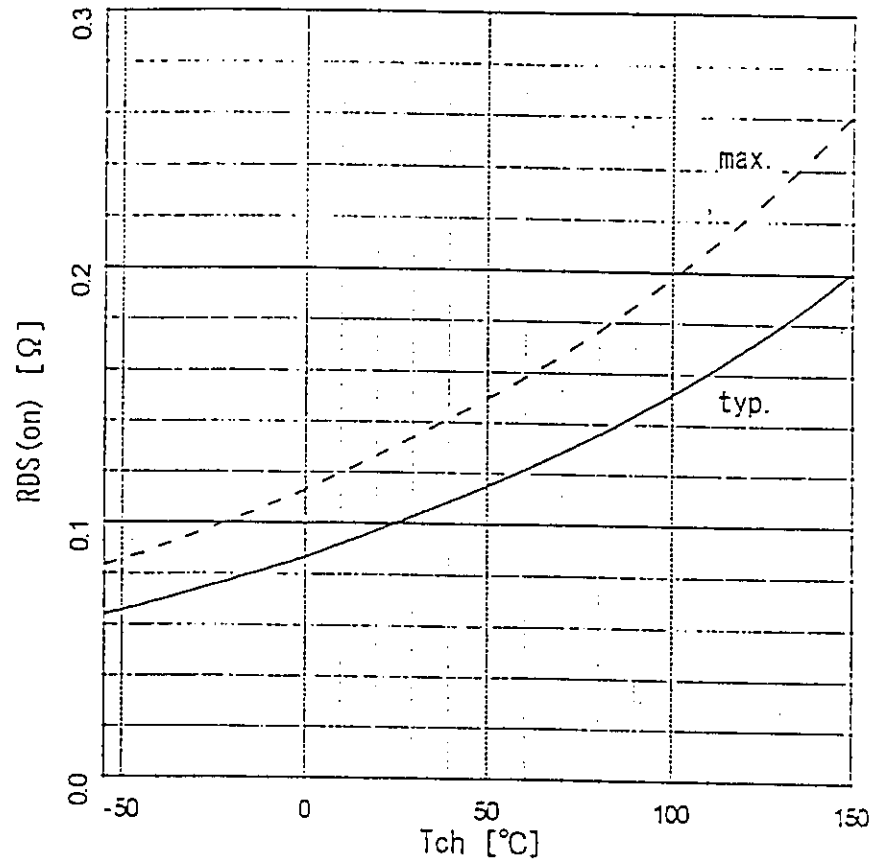
Typical transconductance
 $g_{fs} = f(I_D) : 80 \mu s \text{ pulse test, } V_{DS} = 25V, T_{ch} = 25^\circ C$



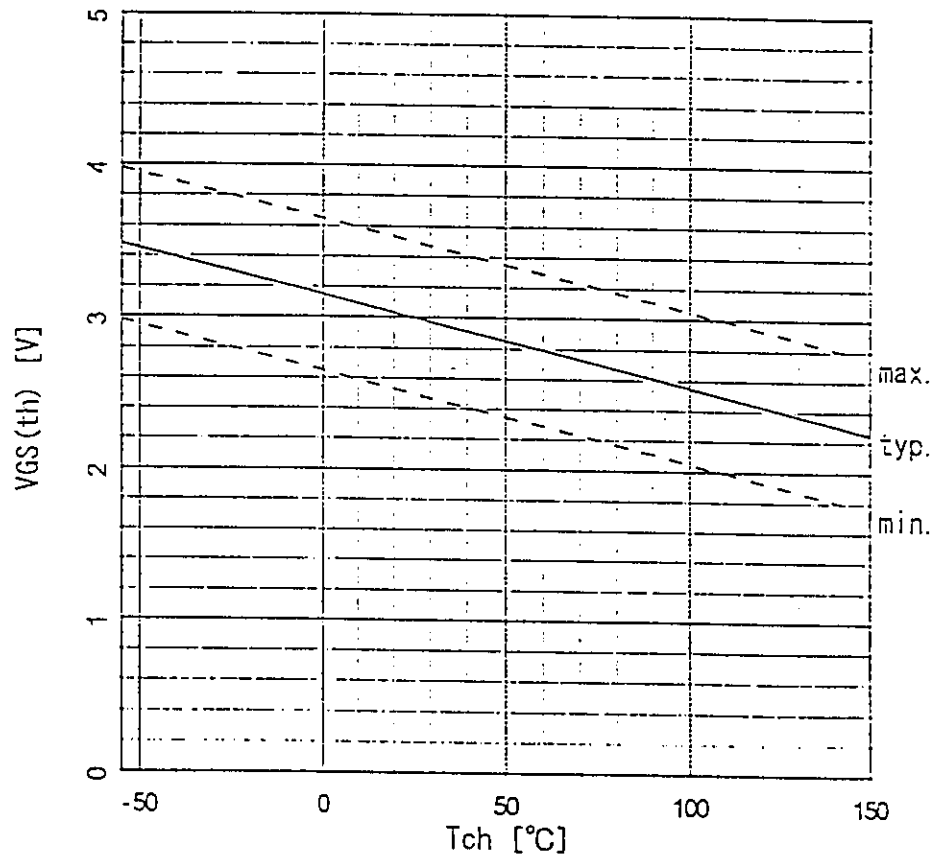
Typical drain-source on-state resistance
 $R_{DS(on)} = f(I_D) : T_{ch} = 25^\circ C$



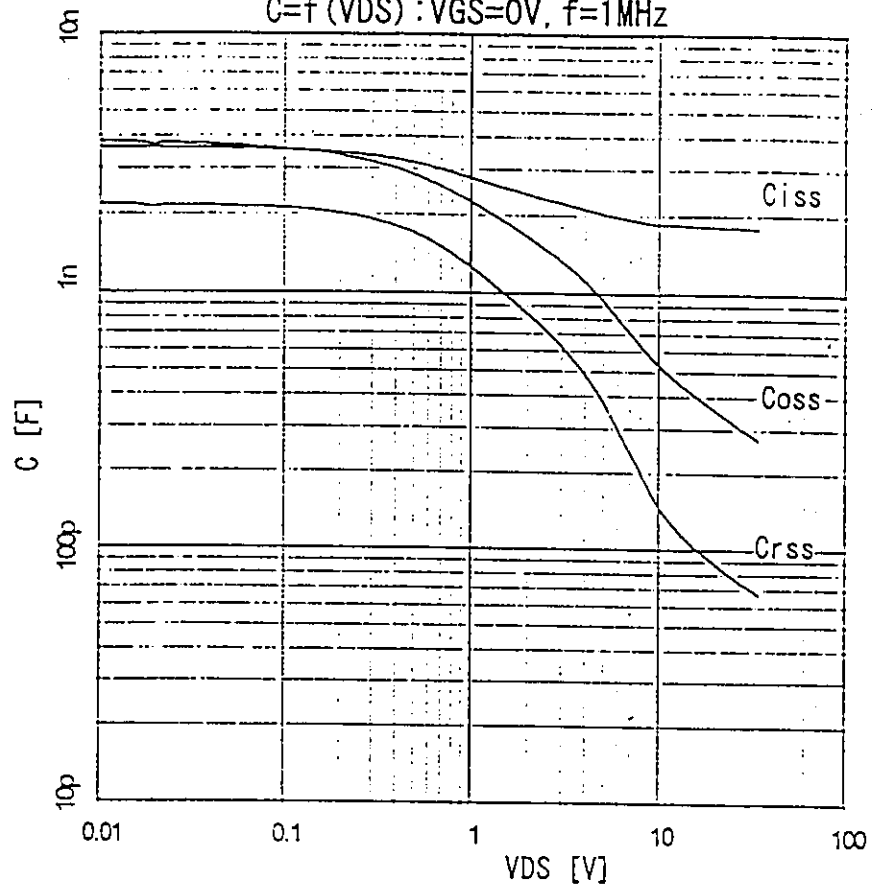
Drain-source on-state resistance
 $R_{DS(on)} = f(T_{ch}) : I_D = 10A, V_{GS} = 10V$



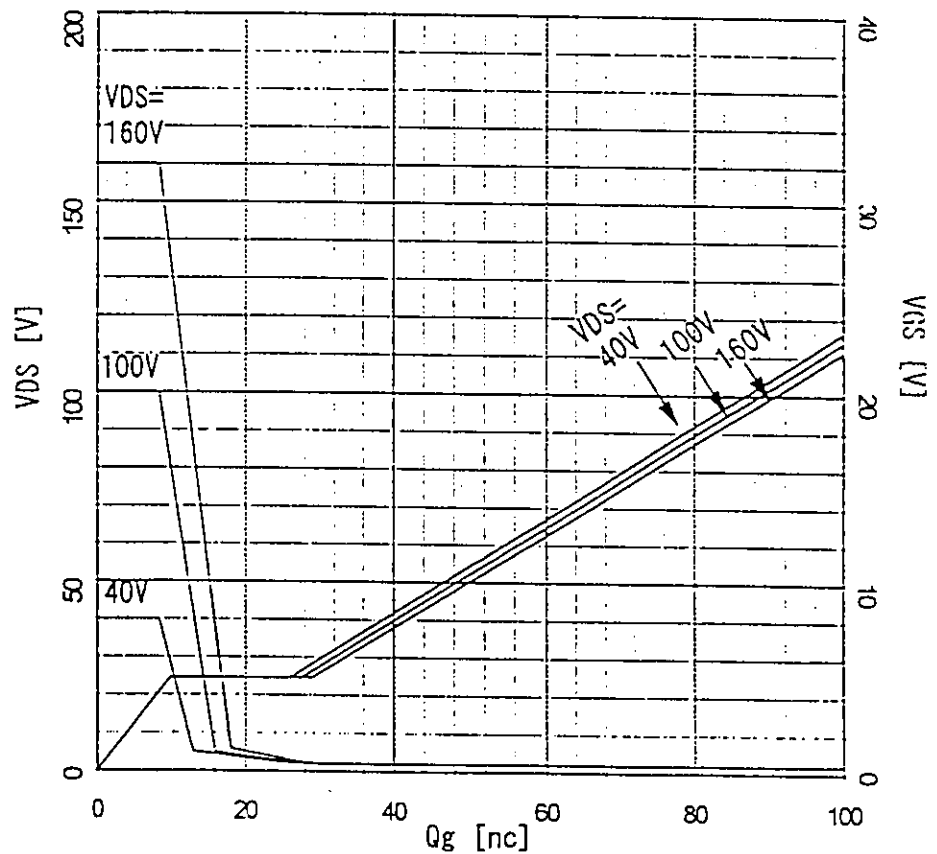
Gate threshold voltage
 $V_{GS(th)} = f(T_{ch}) : I_D = 1mA, V_{DS} = V_{GS}$



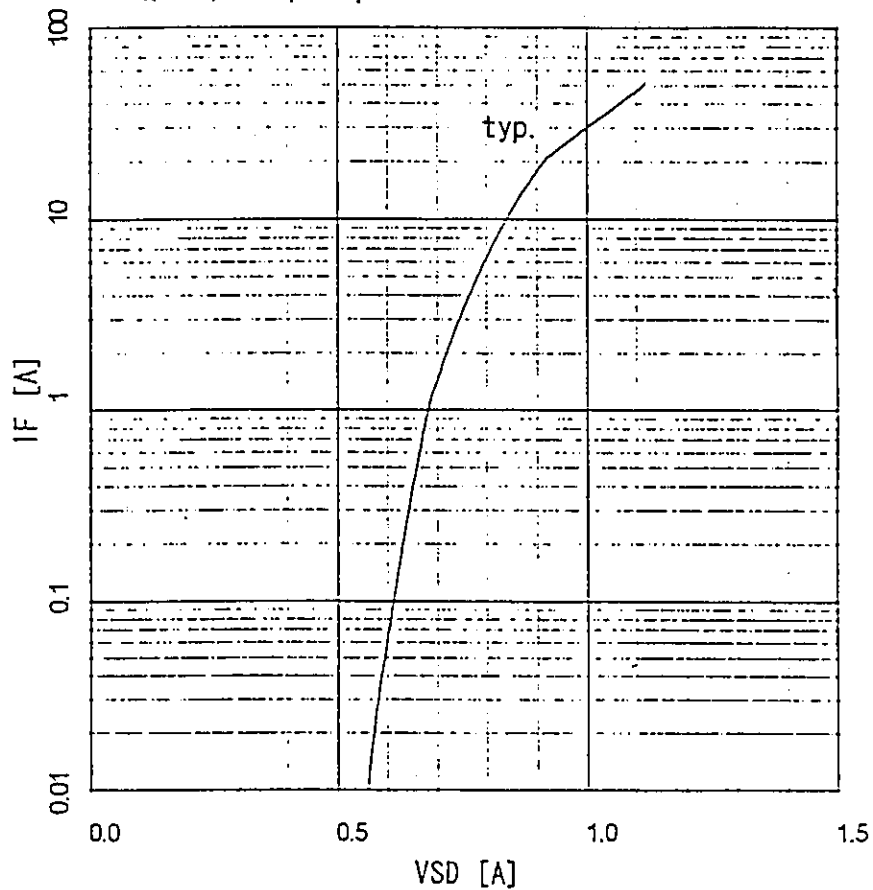
Typical capacitances
 $C=f(V_{DS}) : V_{GS}=0V, f=1MHz$



Typical gate charge characteristics
 $V_{GS}=f(Q_g) : I_D=20A$



Forward characteristic of reverse diode
 $I_F = f(V_{SD}) : 80 \mu s$ pulses test



Transient thermal impedance
 $Z_{thch} = f(t)$ parameter: $D = t/T$

