

SPECIFICATION

DEVICE NAME : Power MOSFET

TYPE NAME : 2SK2850-01

SPEC. NO. : - - - - -

Fuji Electric Co.,Ltd.

This Specification is subject to change without notice.

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

1/2

- 1.Scope This specifies Fuji Power MOSFET 2SK2850-01
- 2.Construction N-Channel enhancement mode power MOSFET
- 3.Applications for Switching
- 4.Outview TO-3P Outview See to 5/12 page

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

Description	Symbol	Characteristics	Unit	Remarks
Drain-Source Voltage	V _{DS}	900	V	
Continuous Drain Current	I _D	±6	A	
Pulsed Drain Current	I _{DP}	±24	A	
Gate-Source Voltage	V _{GS}	±30	V	
Maximum Avalanche Energy	E _{AV}	277	mJ	*1
Maximum Power Dissipation	P _D	125	W	
Operating and Storage	T _{ch}	150	°C	
Temperature range	T _{stg}	-55 to +150	°C	

*1 L=14.1mH,Vcc=90V

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	900			V
Gate Threshold Voltage	V _{GS(th)}	I _C =1mA V _{DS} =V _{GS}	2.5	3.0	3.5	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =900V V _{GS} =0V		10	500	μA
		T _{ch} =25°C				
		T _{ch} =125°C		0.2	1.0	mA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±30V V _{DS} =0V		10	100	nA
Drain-Source On-State Resistance	R _{DS(on)}	I _D =3A V _{GS} =10V		1.87	2.5	Ω

Dynamic Ratings

Description	Symbol	Conditions	min.	typ.	max.	Unit
Forward Transconductance	g_{fs}	$I_D=3A$ $V_{DS}=25V$	2.0	4.0		S
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$		950	1450	pF
Output Capacitance	C_{oss}			140	210	
Reverse Transfer Capacitance	C_{rss}			80	120	
Turn-On Time	$t_{d(on)}$	$V_{cc}=600V$		20	30	ns
	t_r	$V_{GS}=10V$		50	80	
Turn-Off Time	$t_{d(off)}$	$I_D=6A$		110	170	
	t_f	$R_{GS}=10\Omega$		60	90	

Reverse Diode

Description	Symbol	Conditions	min.	typ.	max.	Unit
Avalanche Capability	I_{AV}	$L=100\mu H$ $T_{ch}=25^\circ C$ See Fig.1 and Fig.2	6			A
Diode Forward On-Voltage	V_{SD}	$I_F=2 \times I_{DR}$ $V_{GS}=0V$ $T_{ch}=25^\circ C$		1.0	1.5	V
Reverse Recovery Time	t_{rr}	$I_F=I_{DR}$ $-di/dt=100A/\mu s$ $T_{ch}=25^\circ C$		900		ns
Reverse Recovery Charge	Q_{rr}				10	

7. Thermal Resistance

Description	Symbol	min.	typ.	max.	Unit
Channel to Case	$R_{th(ch-c)}$			1.00	$^\circ C/W$
Channel to Ambient	$R_{th(ch-a)}$			35.0	$^\circ C/W$

Fig.1 Test Circuit

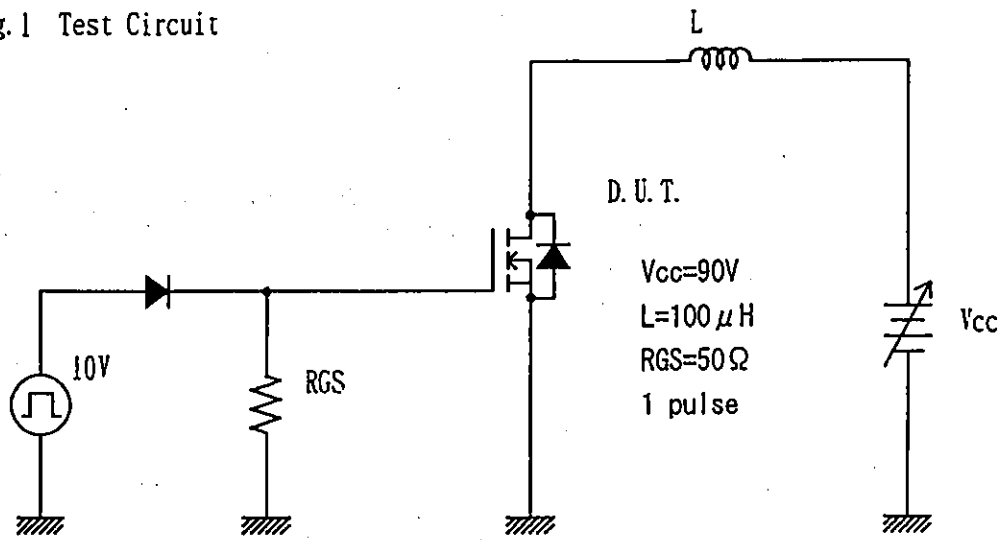
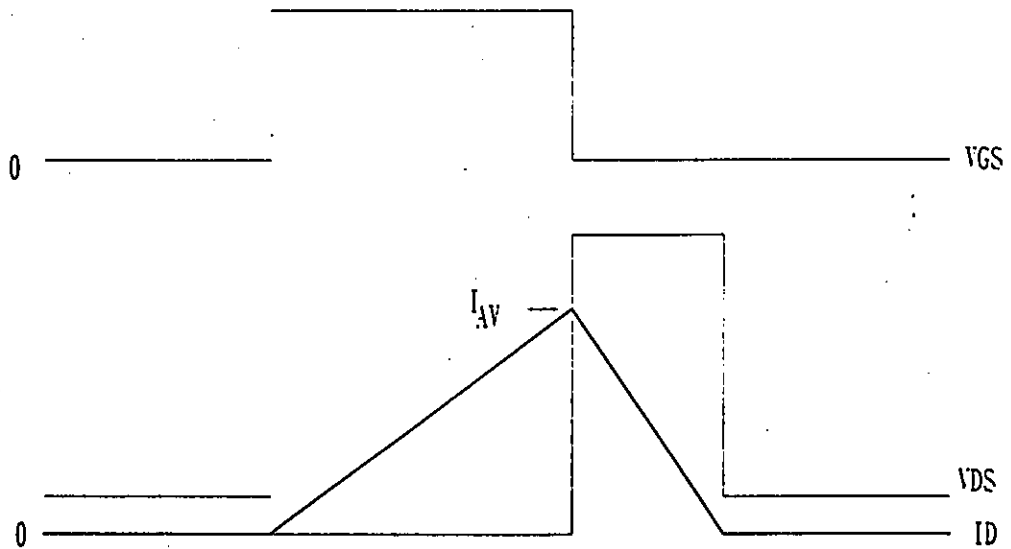
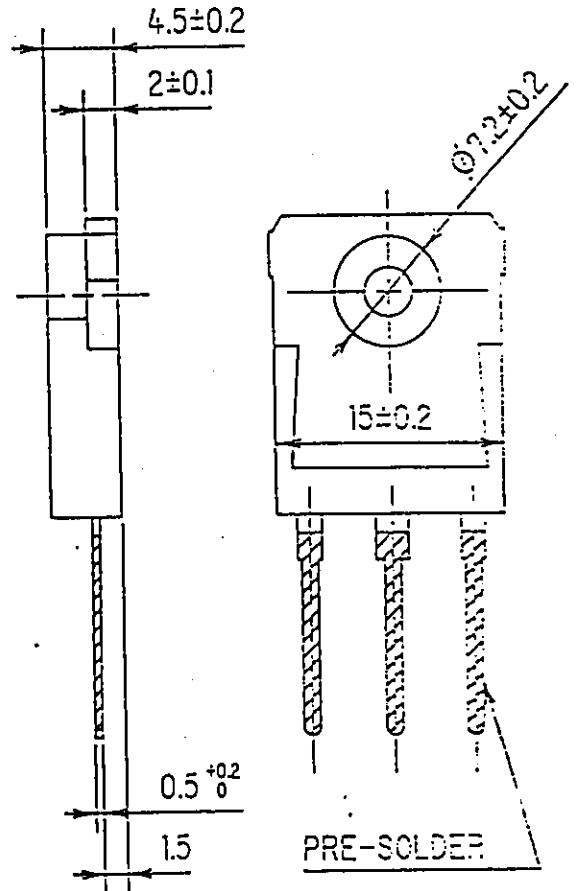
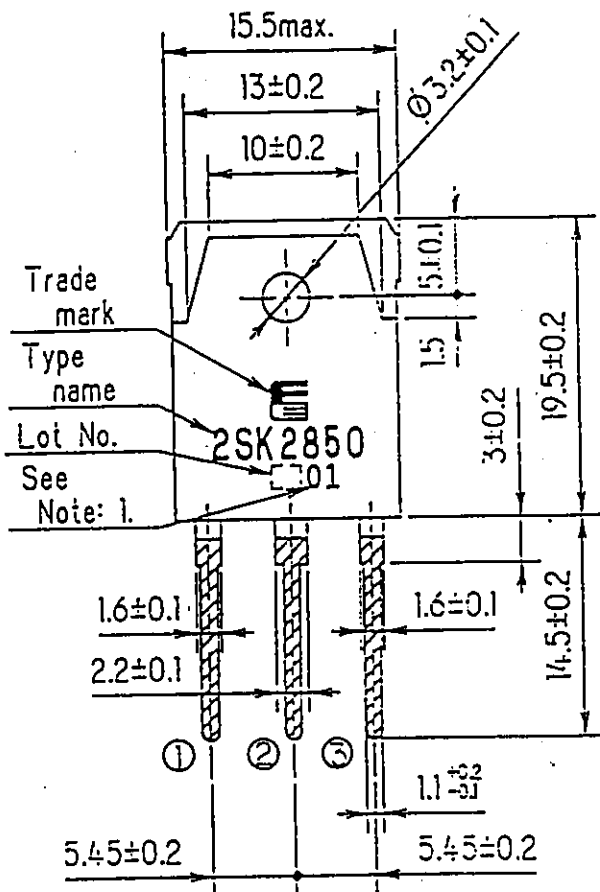


Fig.2 Operating waveforms

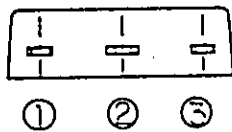


FUJI POWER MOS FET

TYPE : 2SK2850-01



DIMENSIONS ARE IN MILLIMETERS.



CONNECTION

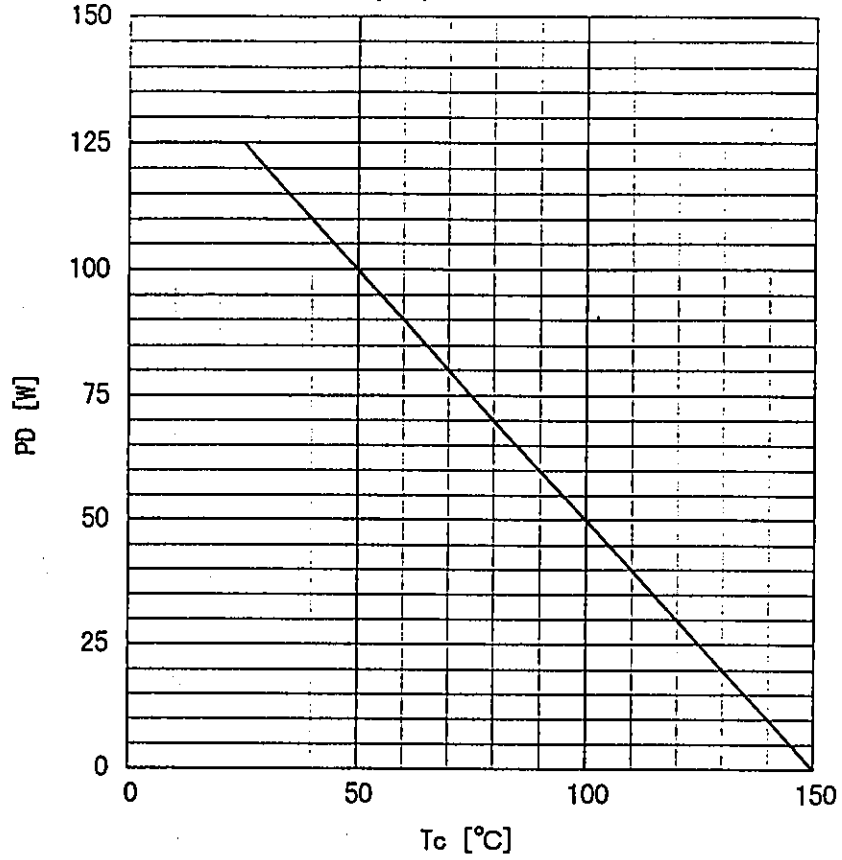
- ① GATE
- ② DRAIN
- ③ SOURCE

Note: 1. Guaranteed mark of avalanche ruggedness.

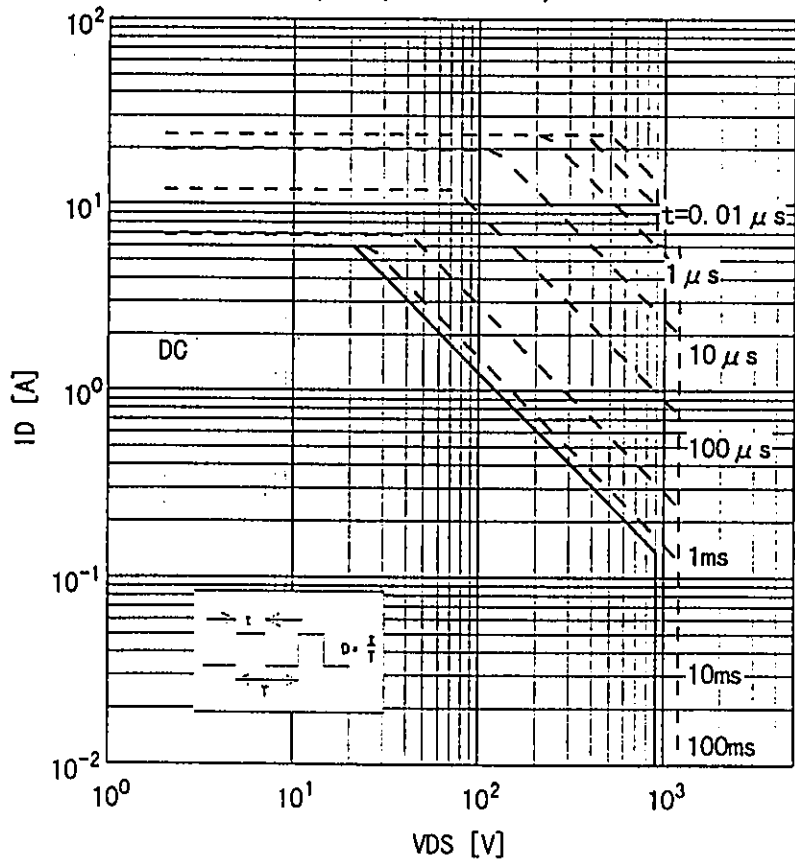
JEDEC : TO-247
EIAJ : SC-65

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Power Dissipation $PD=f(T_c)$

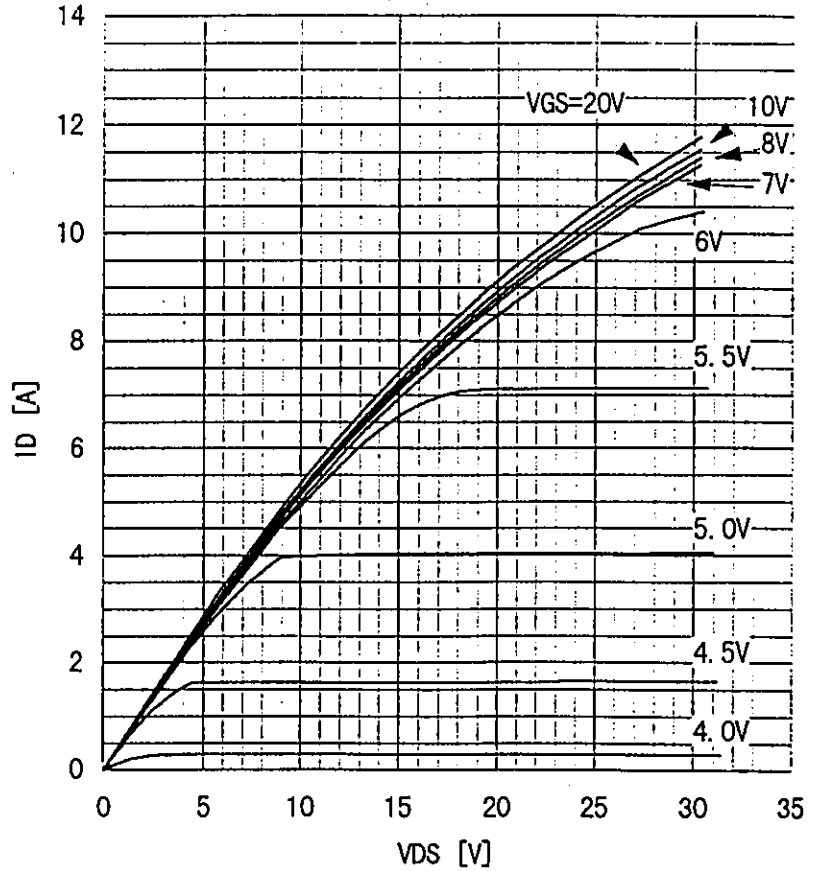


Safe operating area $ID=f(V_{DS}) : D=0.01, T_c=25^\circ\text{C}$

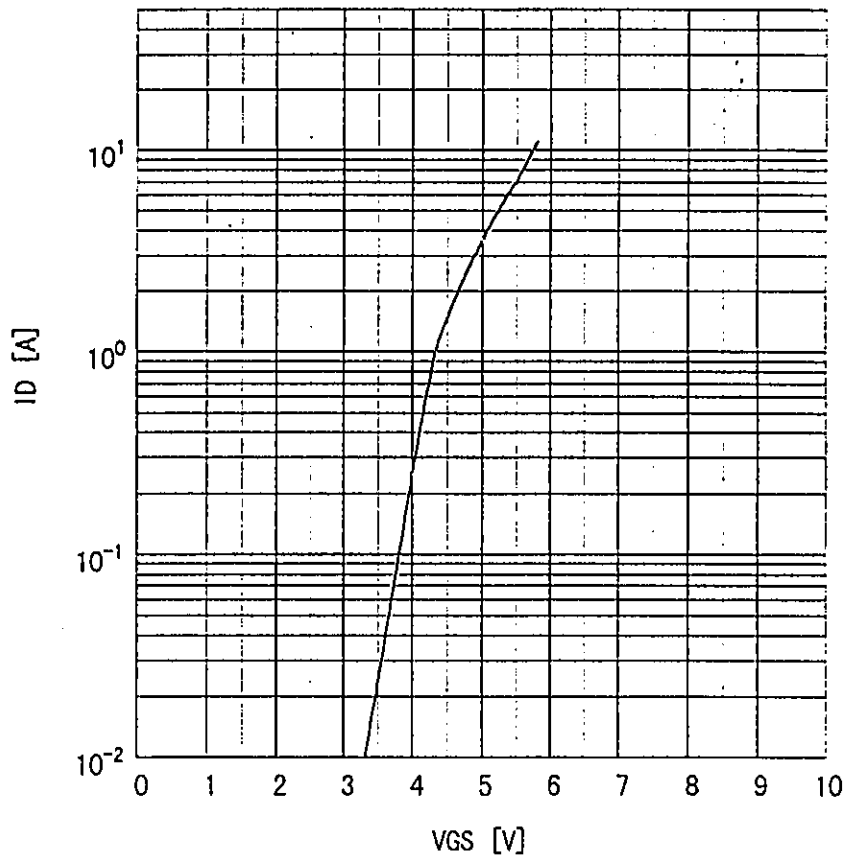


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Typical output characteristics
 $I_D = f(V_{DS}) : 80 \mu s$ pulse test, $T_c = 25^\circ C$

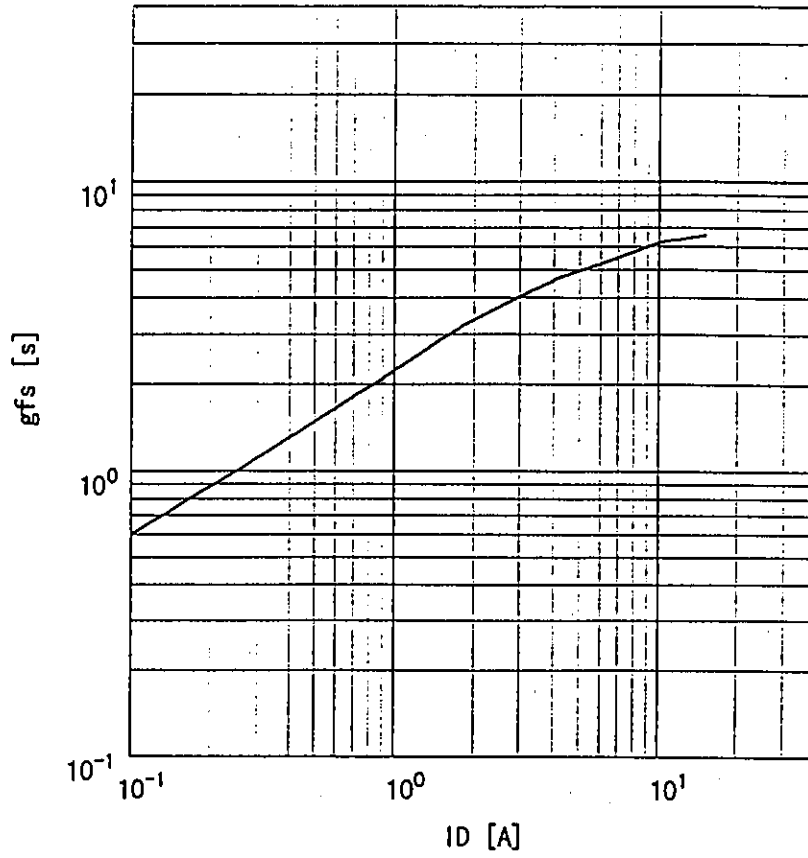


Typical transfer characteristic
 $I_D = f(V_{GS}) : 80 \mu s$ pulse test, $V_{DS} = 25V$, $T_{ch} = 25^\circ C$

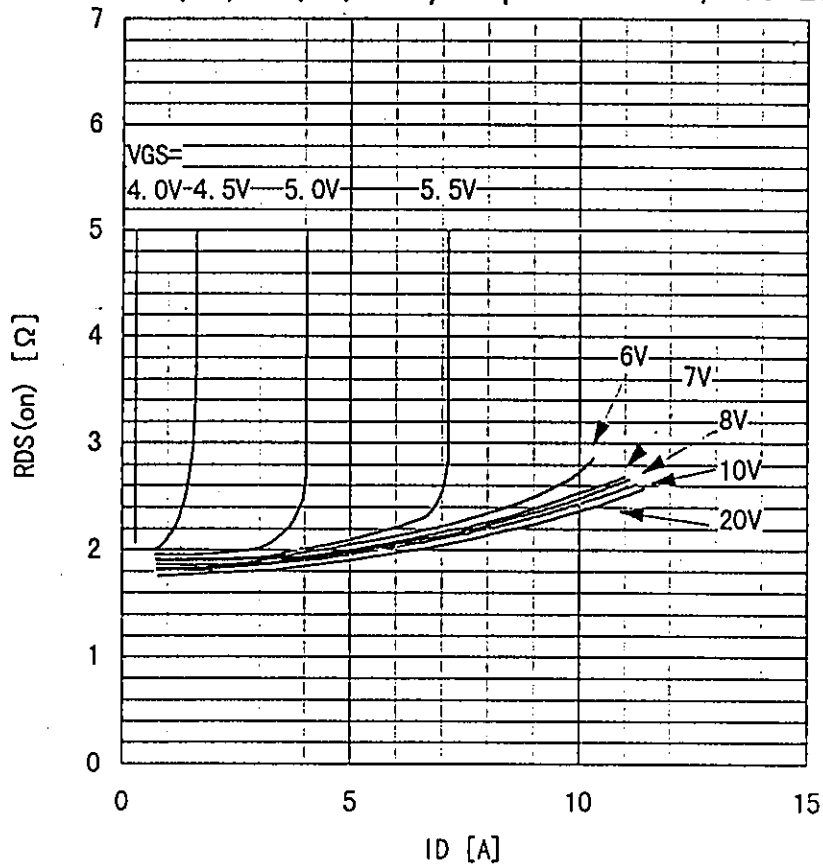


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Typical forward transconductance
 $g_{fs} = f(I_D) : 80 \mu s$ pulse test, $V_{DS} = 25V$, $T_{ch} = 25^\circ C$



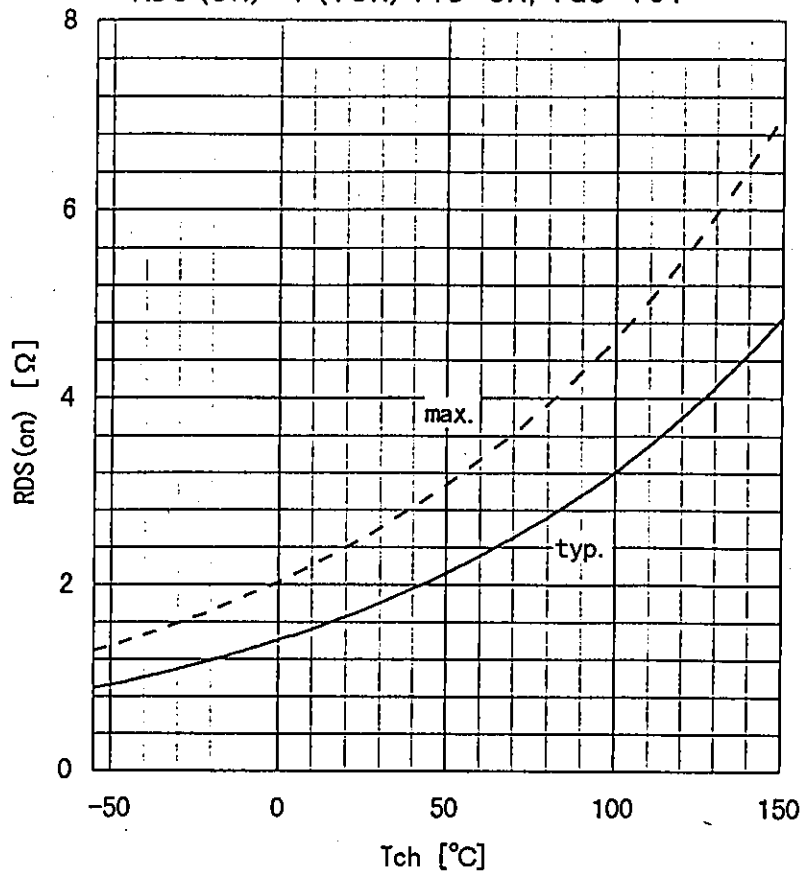
Typical drain-source on-state resistance
 $R_{DS(on)} = f(I_D) : 80 \mu s$ pulse test, $T_c = 25^\circ C$



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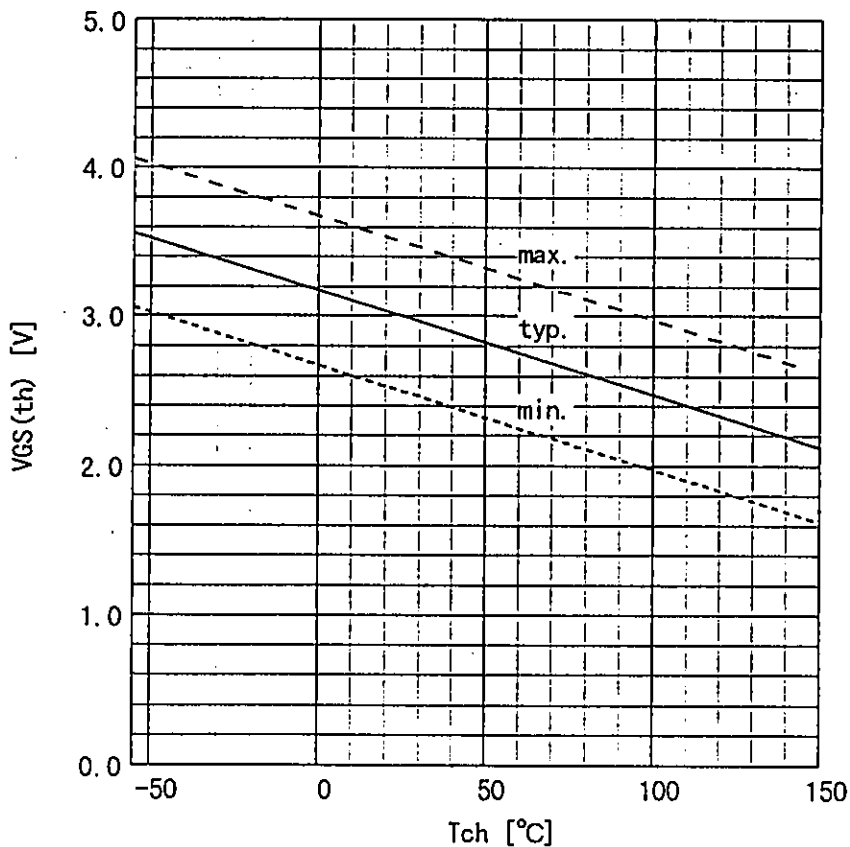
Drain-source on-state resistance

$$RDS(on) = f(T_{ch}) : I_D = 3A, V_{GS} = 10V$$



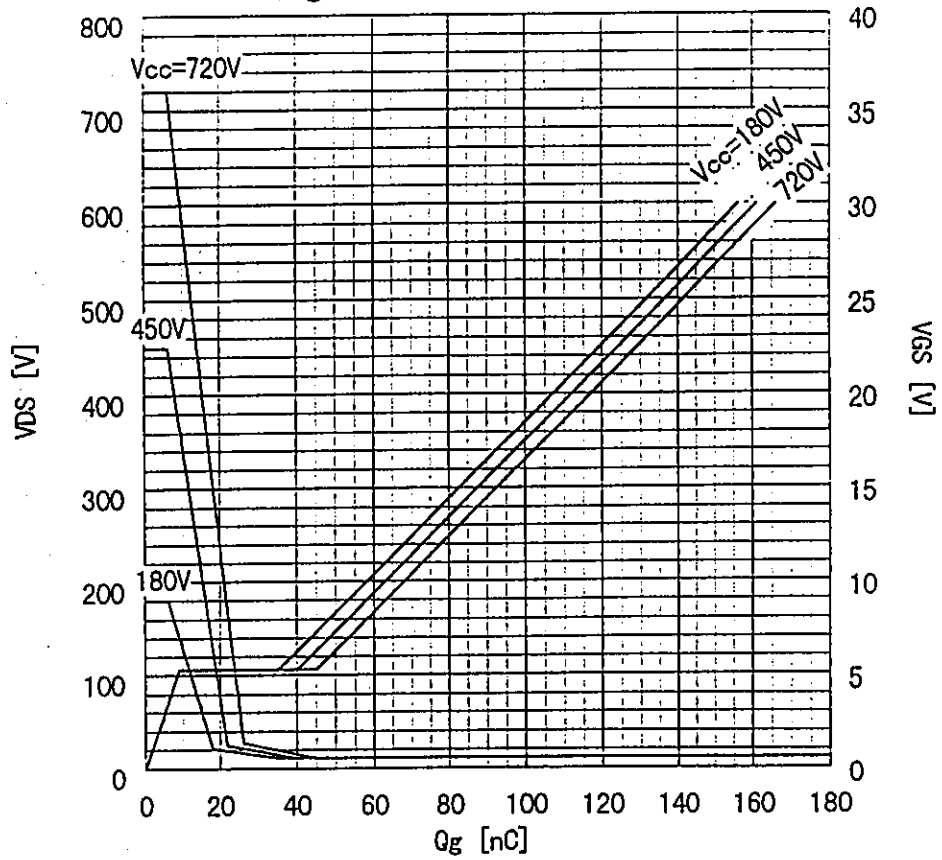
Gate threshold voltage

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

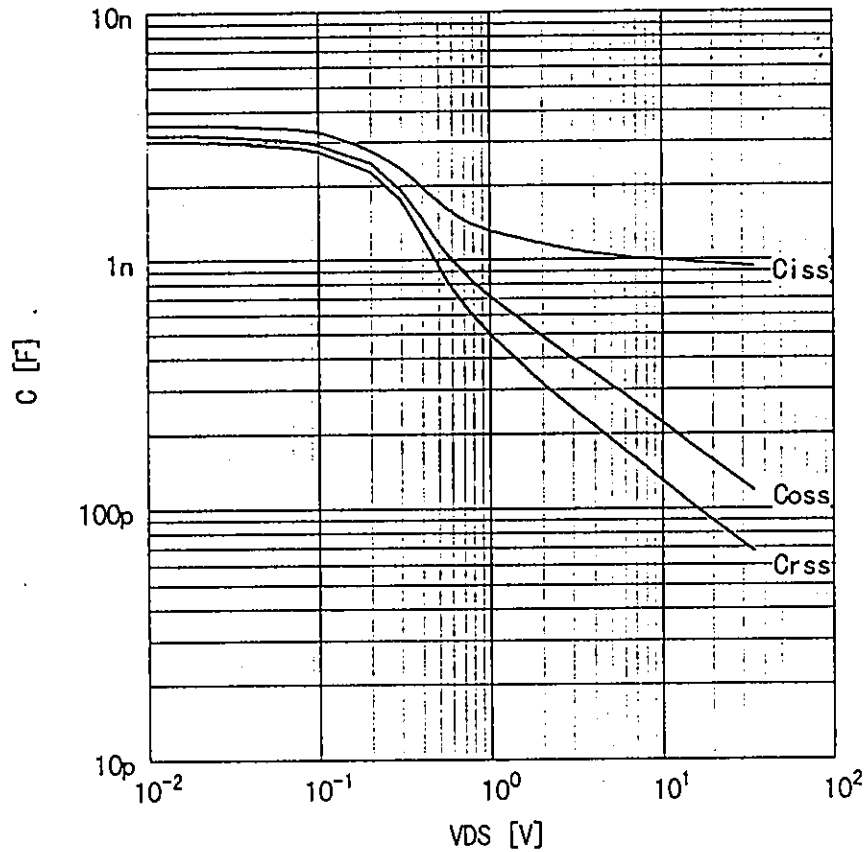


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Typical gate charge characteristic
 $V_{GS} = f(Q_g) : I_D = 6A, T_c = 25^\circ C$

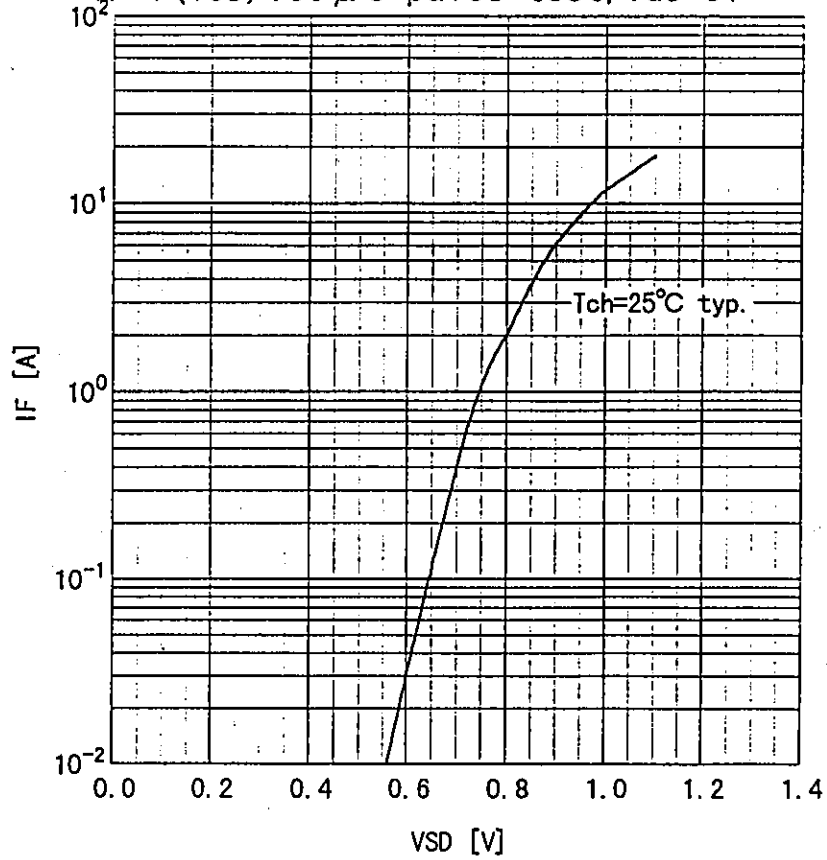


Typical capacitances
 $C = f(V_{DS}) : V_{GS} = 0V, f = 1MHz$

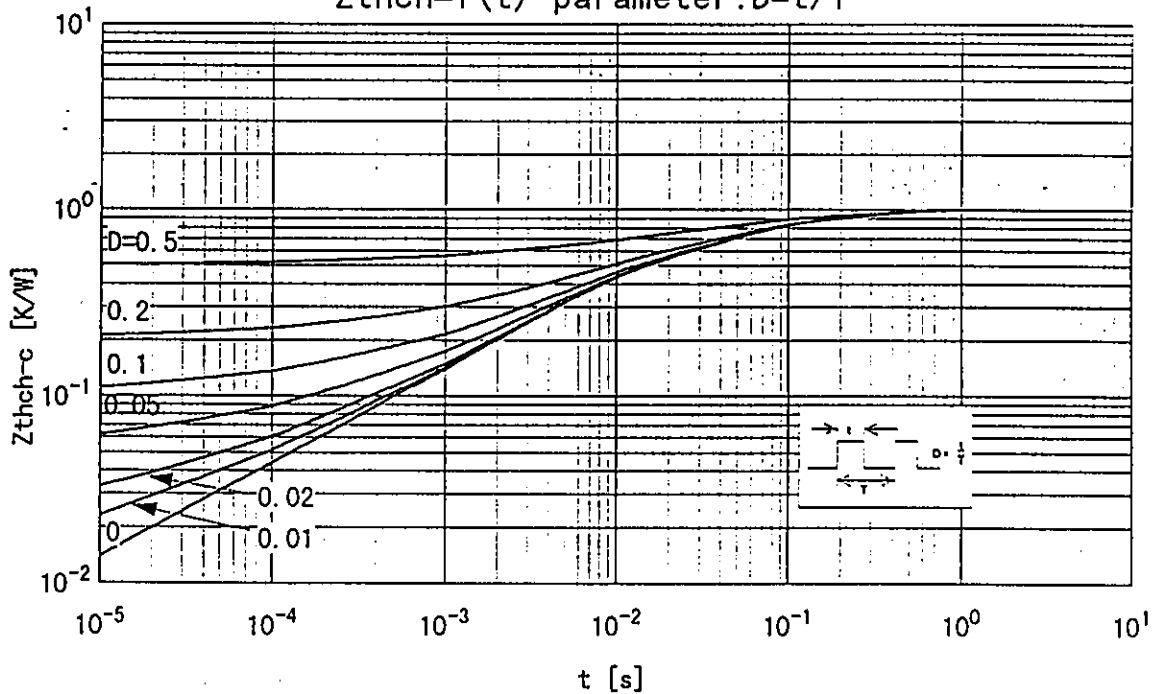


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Forward characteristic of reverse of diode
 $I_F = f(V_{SD}) : 80 \mu s$ pulses test, $V_{GS} = 0V$



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



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Avalanche energy derating

$E_{as}=f(\text{starting } T_{ch}) : V_{CC}=90V, I_{AV}=6A$

