

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		Fuji Electric Co.,Ltd.
DRAWN					
CHECKED					
					DWG. NO. 1/12

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	$V_{GS(th)}$	$I_D=1mA$ $V_{DS}=V_{GS}$	2.5	3.0	3.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=900V$ $V_{GS}=0V$	$T_{ch}=25^\circ C$	10	500	μA
			$T_{ch}=125^\circ C$	0.2	1.0	mA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$		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		μC

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

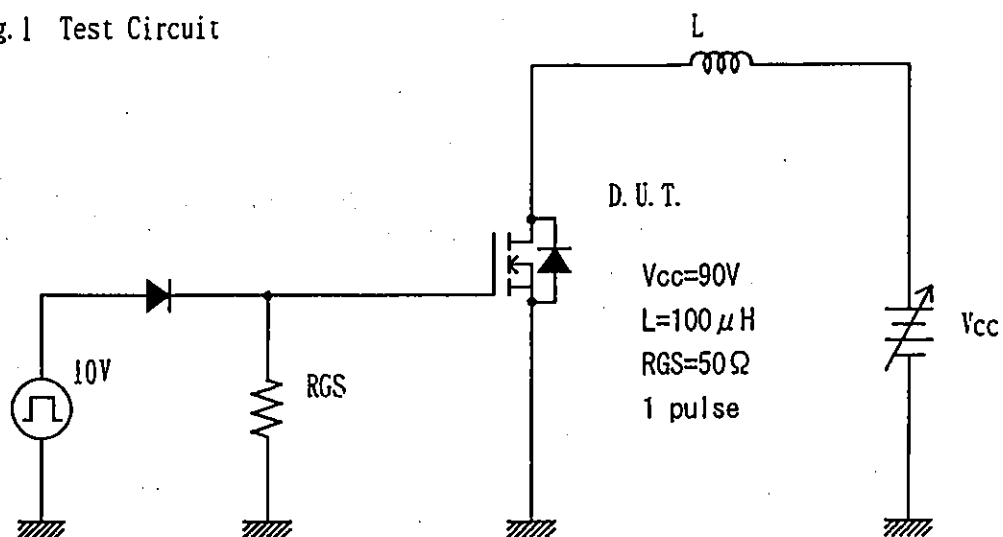
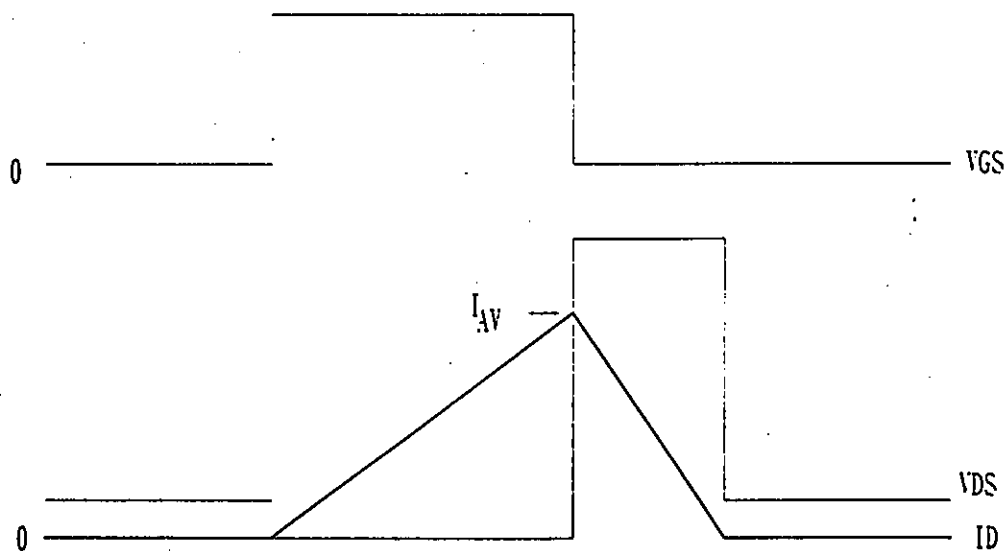
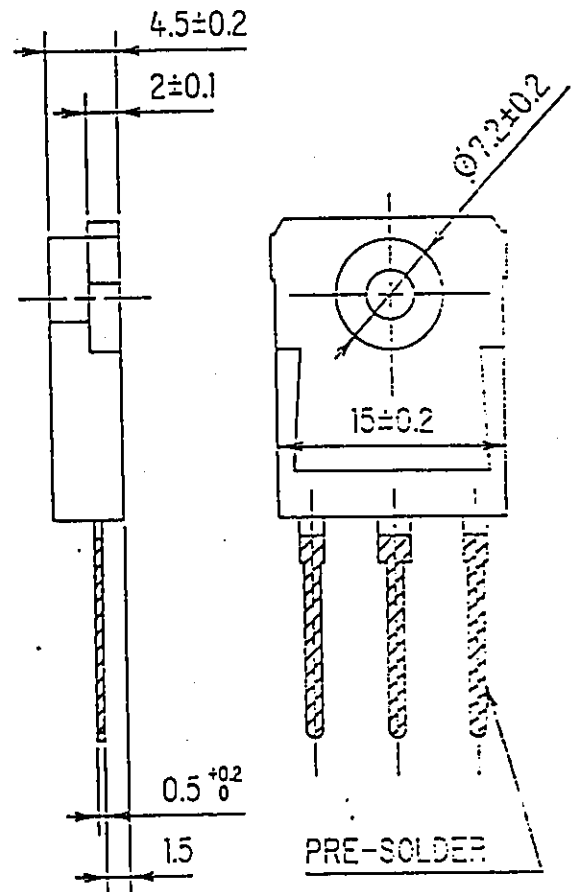
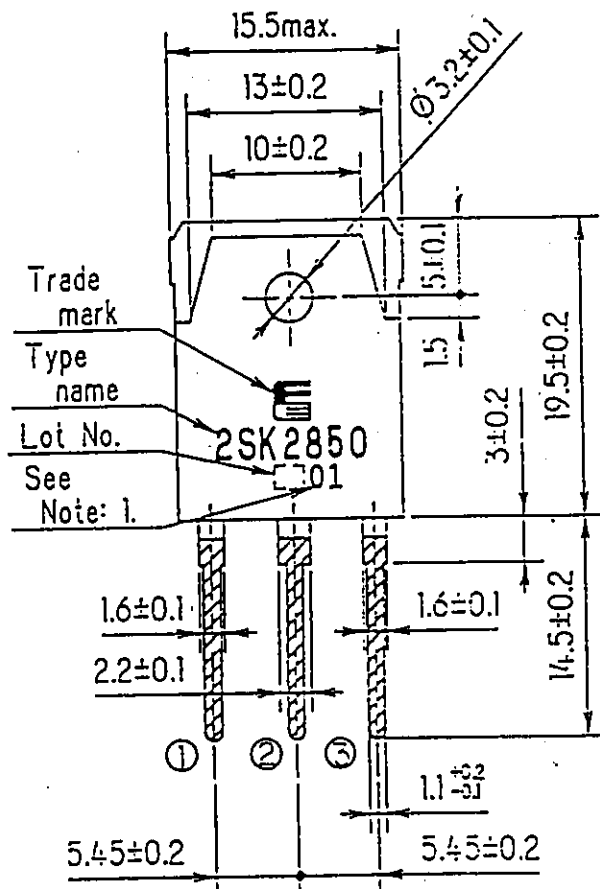


Fig.2 Operating waveforms

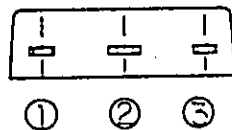


FUJI POWER MOS FET

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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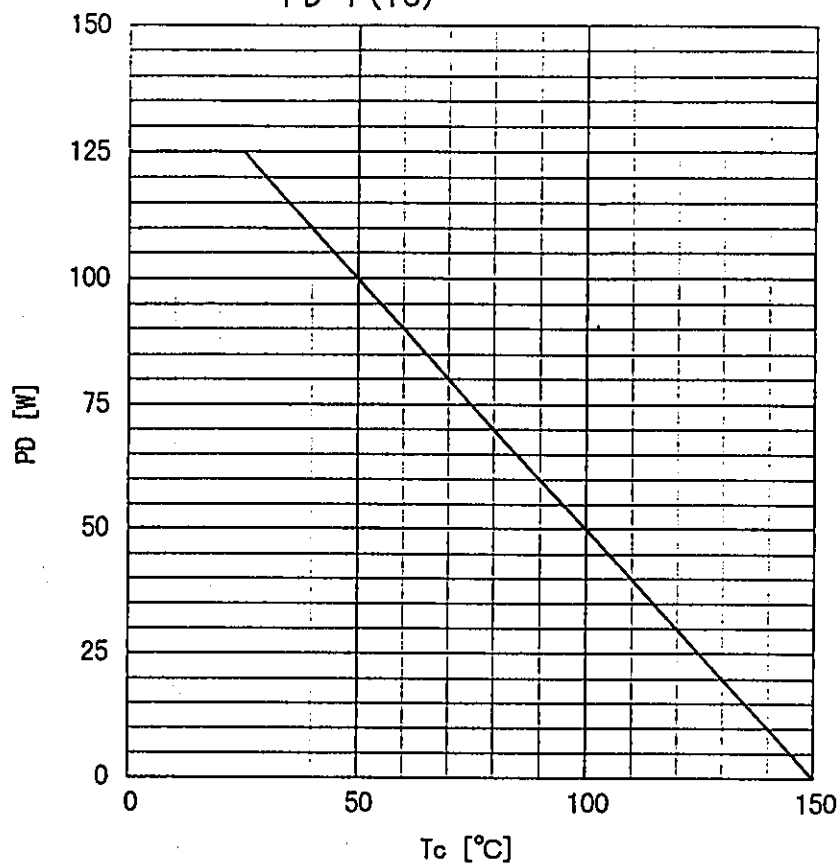
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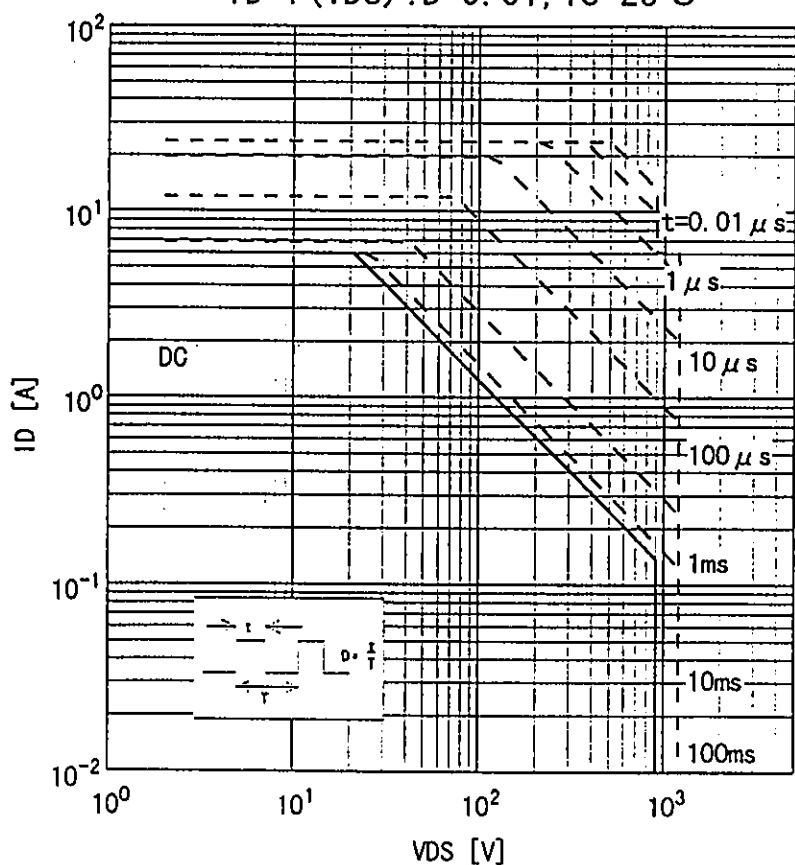
Power Dissipation

$$PD=f(T_c)$$



Safe operating area

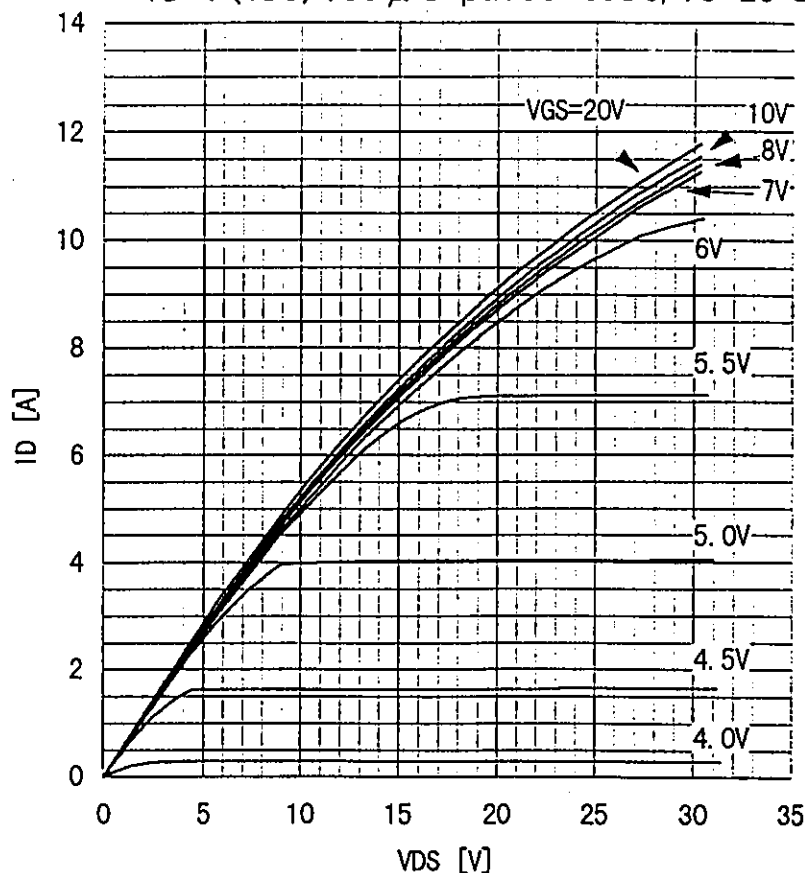
$$ID=f(V_{DS}):D=0.01, T_c=25^{\circ}C$$



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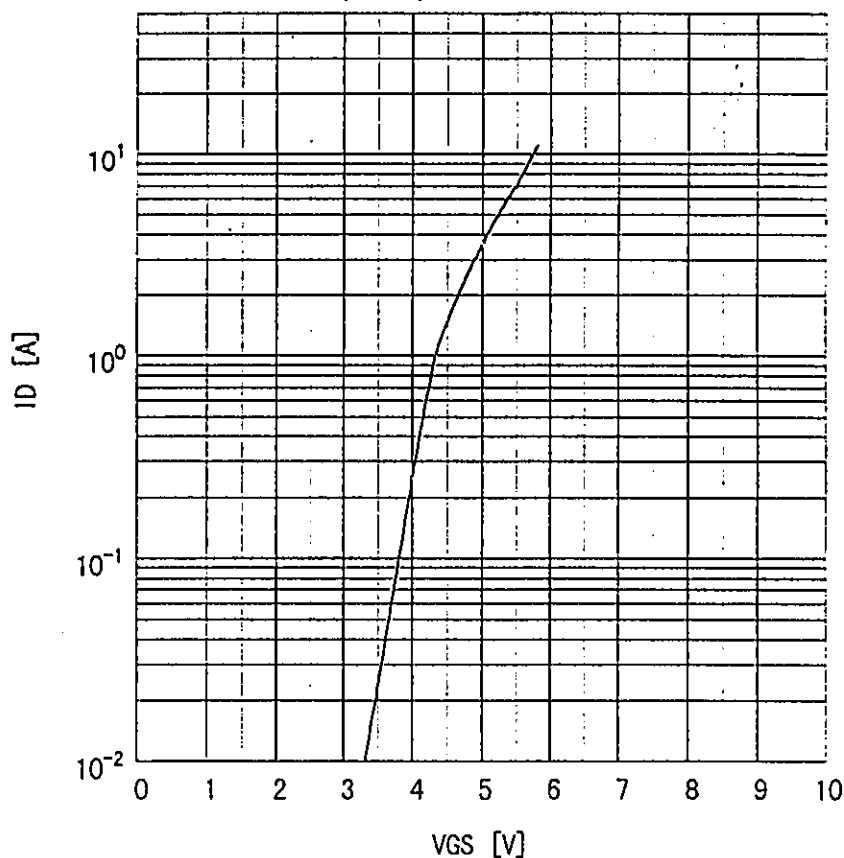
Typical output characteristics

$I_D = f(V_{DS})$: 80 μ s pulse test, $T_c = 25^\circ\text{C}$

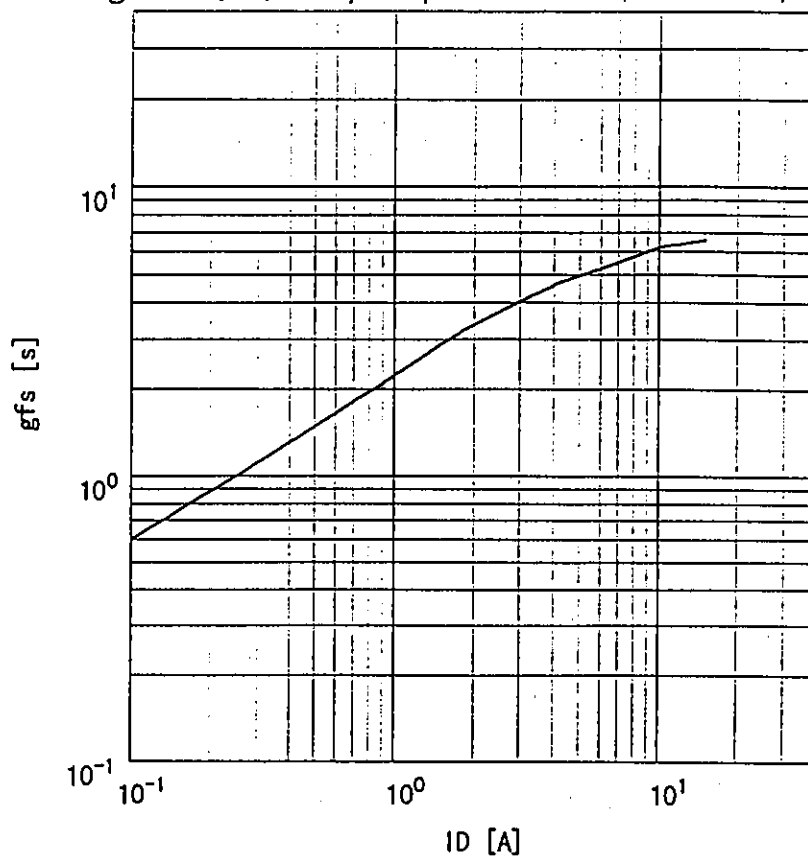


Typical transfer characteristic

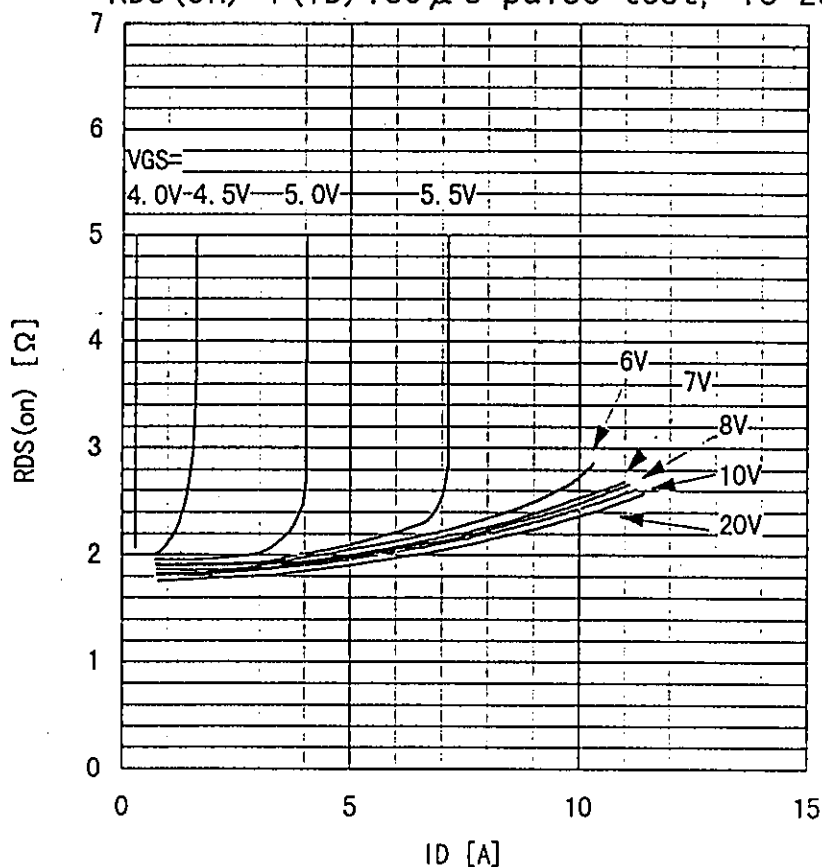
$I_D = f(V_{GS})$: 80 μ s pulse test, $V_{DS} = 25\text{V}$, $T_{ch} = 25^\circ\text{C}$



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

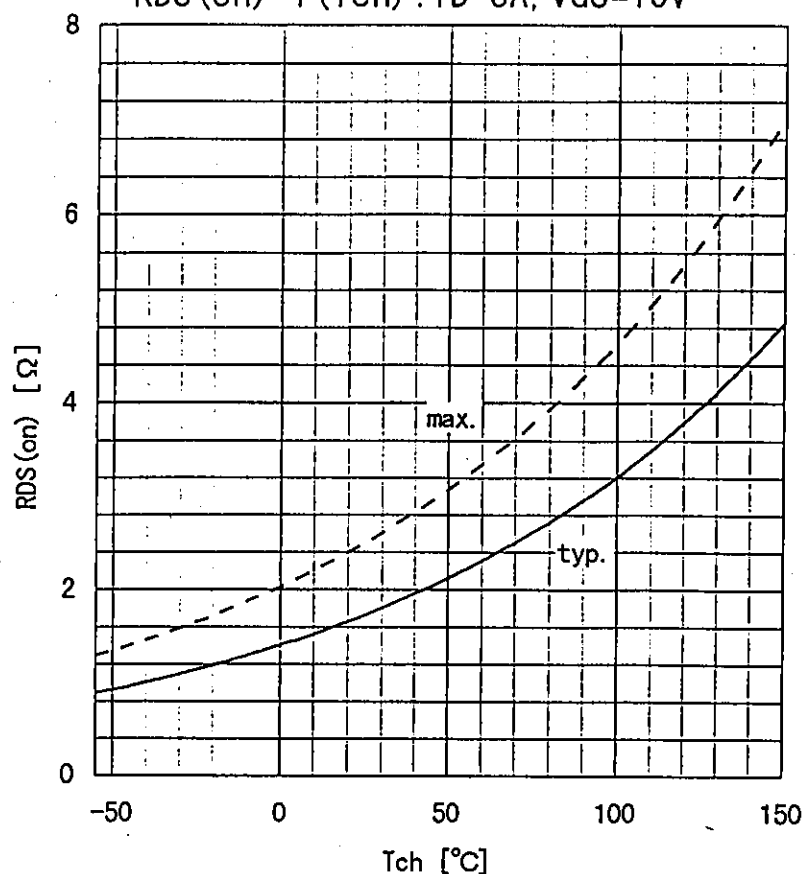


Typical drain-source on-state resistance
 $R_{DS(on)}=f(I_D):80\mu s$ pulse test, $T_c=25^\circ C$



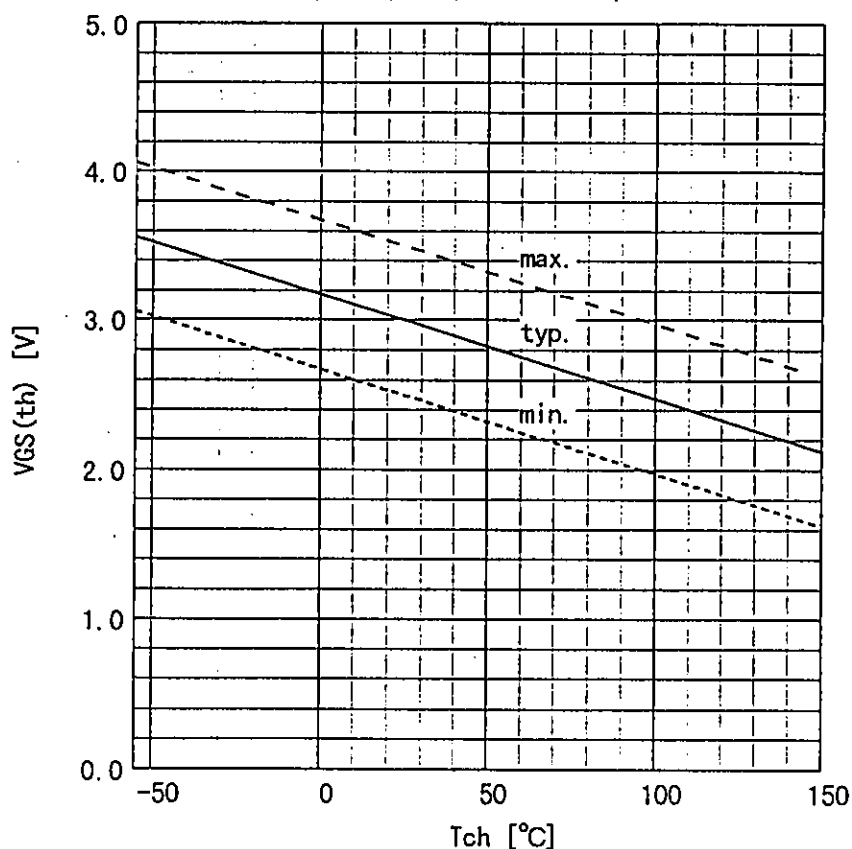
Drain-source on-state resistance

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



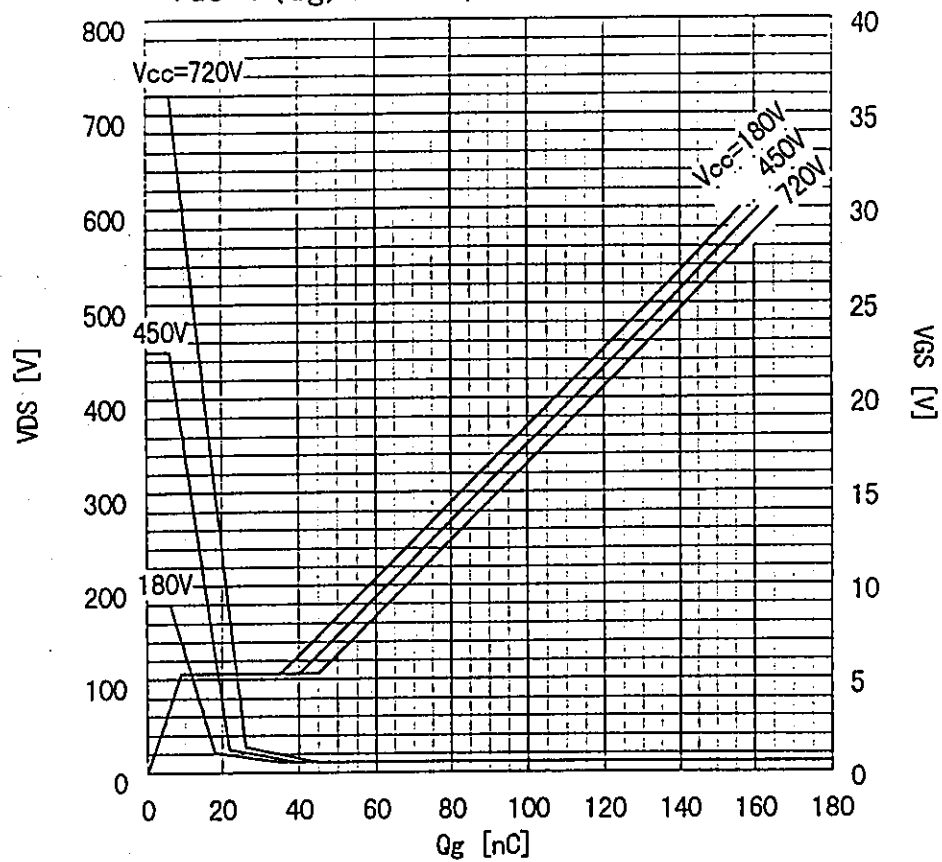
Gate threshold voltage

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

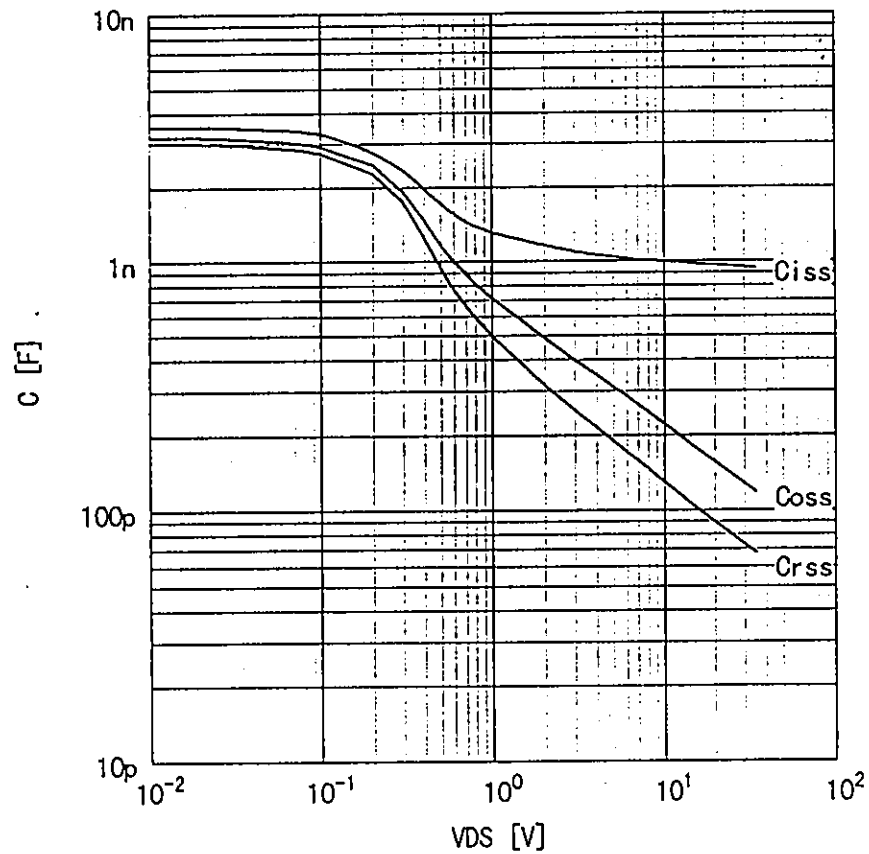


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Typical gate charge characteristic
 $V_{GS} = f(Q_g) : I_D = 6A, T_c = 25^\circ C$

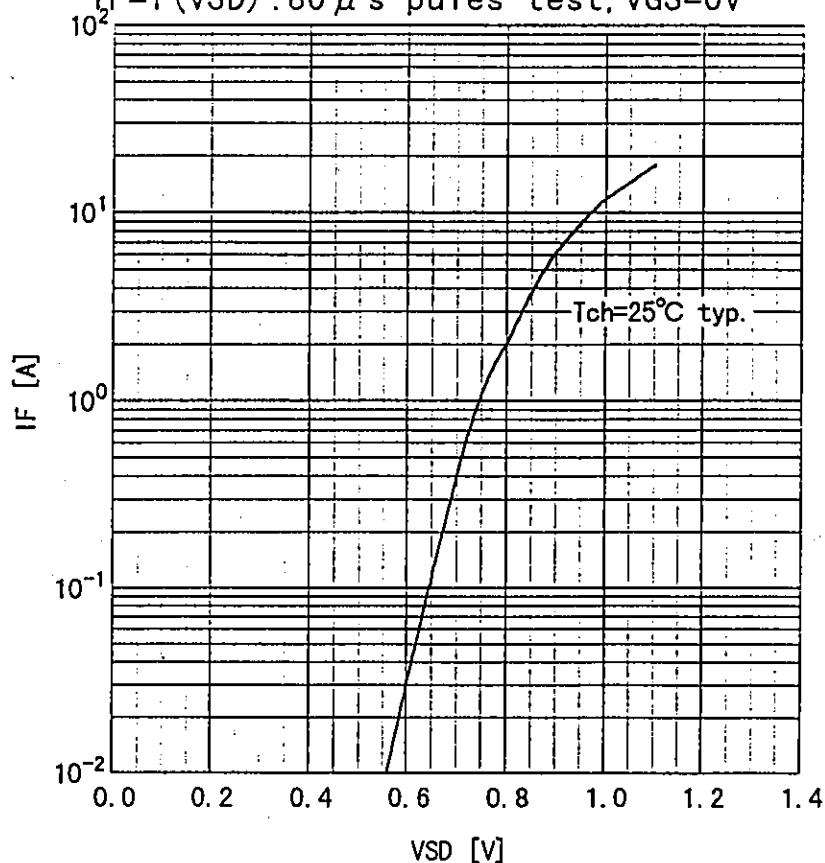


Typical capacitances
 $C = f(V_{DS}) : V_{GS} = 0V, f = 1MHz$

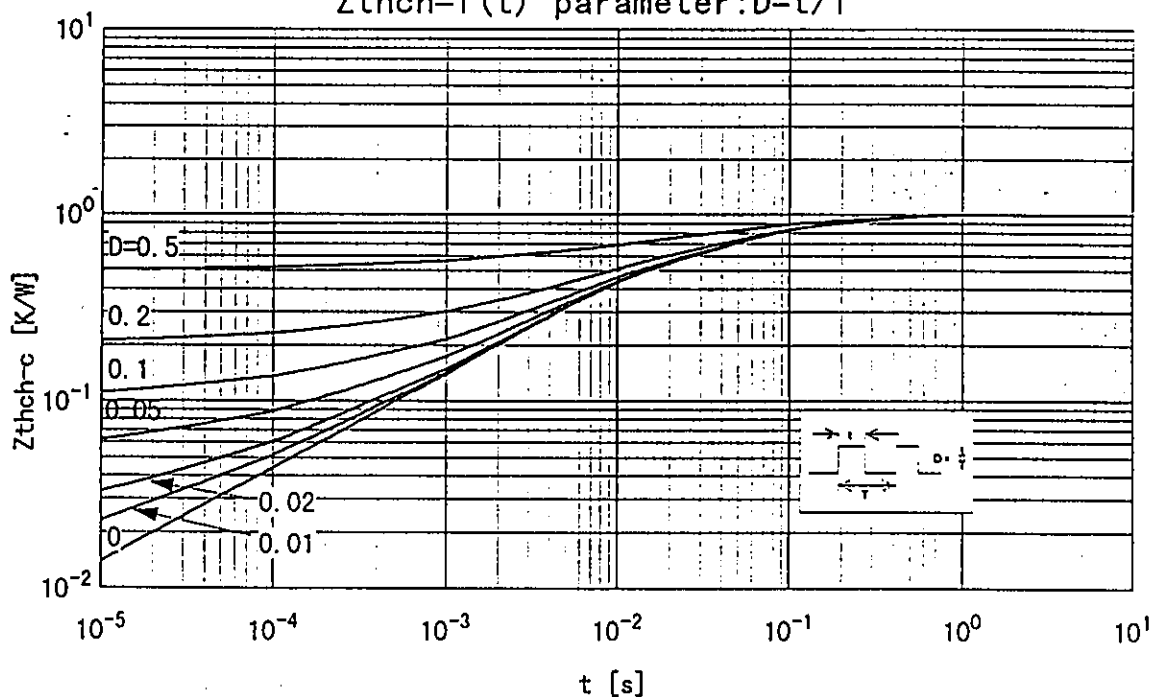


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Forward characteristic of reverse of diode
 $I_F = f(V_{SD}) : 80 \mu s$ pulses test, $V_{GS} = 0V$



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



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Avalanche energy derating

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

