

## Transistor

## ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I <sub>GSS</sub>	-	-	±10	μA	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	-45	-	-	V	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V
Zero gate voltage drain current	I <sub>DSS</sub>	-	-	-1	μA	V <sub>DS</sub> =-45V, V <sub>GS</sub> =0V
Gate threshold voltage	V <sub>GS(th)</sub>	-1.0	-	-2.5	V	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA
Static drain-source on-state resistance	R <sub>DS(on)</sub> <sup>1)</sup>	-	19	27	mΩ	I <sub>D</sub> =-7A, V <sub>GS</sub> =-10V
		-	25	35	mΩ	I <sub>D</sub> =-7A, V <sub>GS</sub> =-4.5V
		-	28	39	mΩ	I <sub>D</sub> =-7A, V <sub>GS</sub> =-4.0V
Forward transfer admittance	Y <sub>fs</sub>   <sup>2)</sup>	10.0	-	-	S	V <sub>DS</sub> =-10V, I <sub>D</sub> =-7A
Input capacitance	C <sub>iss</sub>	-	4100	-	pF	V <sub>DS</sub> =-10V
Output capacitance	C <sub>oss</sub>	-	510	-	pF	V <sub>GS</sub> =0V
Reverse transfer capacitance	C <sub>rss</sub>	-	330	-	pF	f=1MHz
Turn-on delay time	t <sub>d(on)</sub> <sup>3)</sup>	-	31	-	ns	V <sub>DD</sub> =-25V
Rise time	t <sub>r</sub> <sup>4)</sup>	-	35	-	ns	I <sub>D</sub> =-3.5A
Turn-off delay time	t <sub>d(off)</sub> <sup>5)</sup>	-	135	-	ns	V <sub>GS</sub> =-10V
Fall time	t <sub>f</sub> <sup>6)</sup>	-	50	-	ns	R <sub>L</sub> =7Ω
Total gate charge	Q <sub>g</sub> <sup>7)</sup>	-	34.0	47.6	nC	R <sub>L</sub> =10Ω
Gate-source charge	Q <sub>gs</sub> <sup>8)</sup>	-	9.5	-	nC	V <sub>DD</sub> =-25V V <sub>GS</sub> =-5V
Gate-drain charge	Q <sub>gd</sub> <sup>9)</sup>	-	12	-	nC	I <sub>D</sub> =-7A
						R <sub>L</sub> =3.5Ω R <sub>G</sub> =10Ω

<sup>1)</sup>Pulsed

## Body diode characteristics (Source-Drain)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>SD</sub> <sup>*</sup>	-	-	-1.2	V	I <sub>S</sub> =-7A, V <sub>GS</sub> =0V

<sup>\*</sup>Pulsed

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●Electrical characteristic curves

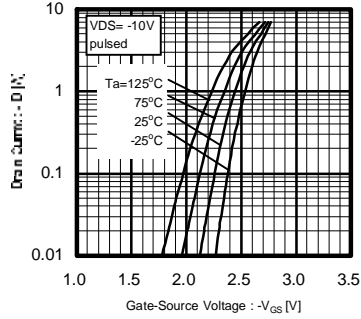


Fig.1 Typical Transfer Characteristics

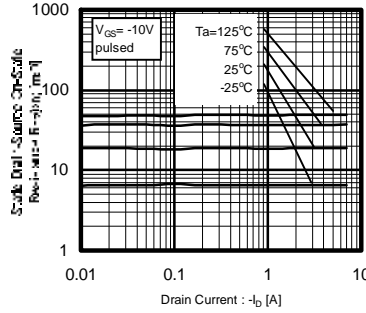


Fig.2 Static Drain-Source On-State Resistance vs. Drain Current (1)

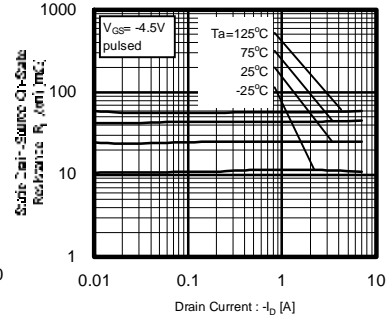


Fig.3 Static Drain-Source On-State Resistance vs. Drain Current (2)

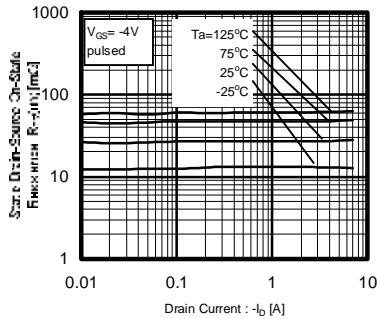


Fig.4 Static Drain-Source On-State Resistance vs. Drain Current (3)

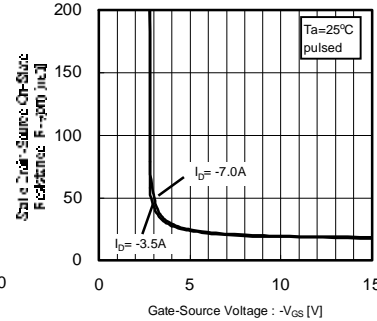


Fig.5 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

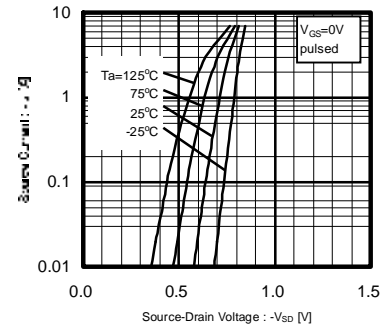


Fig.6 Source-Current vs. Source-Drain Voltage

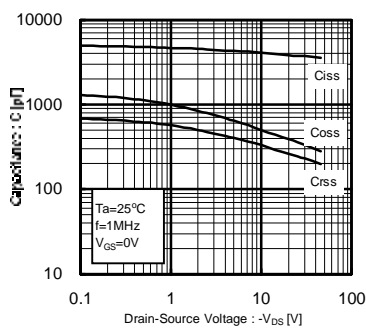


Fig.7 Typical capacitance vs. Source-Drain Voltage

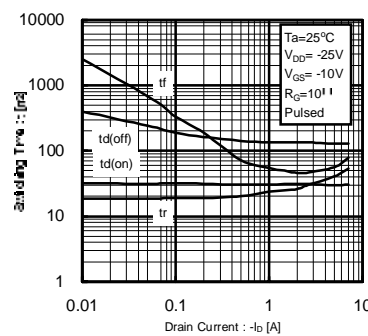


Fig.8 Switching Characteristics

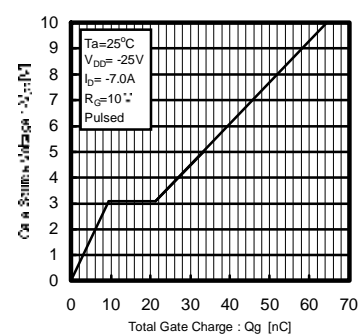


Fig.9 Dynamic Input Characteristics

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●Measurement circuits

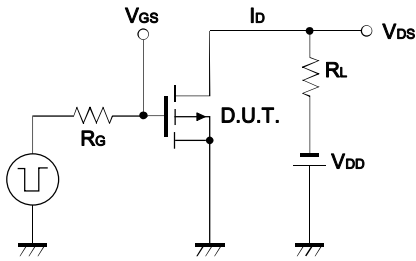


Fig.10 Switching Time Test Circuit

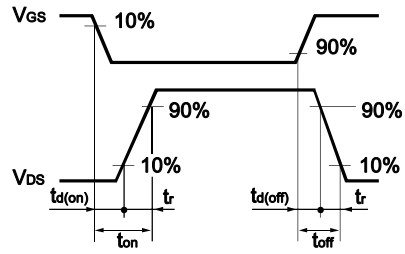


Fig.11 Switching Time Waveforms

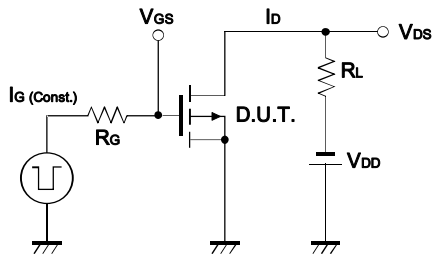


Fig.12 Gate Charge Test Circuit

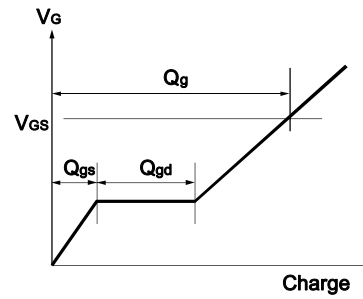


Fig.13 Gate Charge Waveform

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