200V N-Ch Power MOSFET

V_{DS}		200	V
$R_{DS(on),typ}$	V_{GS}=10V	95	
$R_{DS(on),typ}$	V_{GS}=4.5V		m

GD1K2N20ML

Absolute Maximum Ratings at T_j=25 (unless otherwise specified)

	Conditions	Value	Unit

Electrical Characteristics at T_j=25 (unless otherwise specified)

Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250 A	200	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	1	2.1	3	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=200V, T_j=25	-	-	1	A
		V_{GS}=0V, V_{DS}=200V, T_j=100	-	-	100	
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=5A	-	95	120	m
	$R_{DS(on)}$	V_{GS}=4.5V, I_D=3A	-	106	140	m
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A	-	15	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	5.5	-	

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=100V, f=1MHz	-	491	-	pF
Output Capacitance	C_{oss}		-	22	-	
Reverse Transfer Capacitance	C_{rss}		-	5.5	-	
Total Gate Charge	Q_g (10V)	V_{DD}=100V, I_D=5A, V_{GS}=10V	-	9.8	-	nC
Total Gate Charge	Q_g (4.5V)		-	5.8	-	
Gate to Source Charge	Q_{gs}		-	1.6	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3.2	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=100V, I_D=5A, V_{GS}=10V, R_G=10 ,	-	9	-	ns
Rise time	t_r		-	5	-	
Turn off Delay Time	$t_{d(off)}$		-	13	-	
Fall Time	t_f		-	4	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=20A				
Reverse Recovery Time	t_{rr}	V_R=100V, I_F=				
Reverse Recovery Charge	Q_{rr}					

Fig 1. Typical Output Characteristics	Figure 2. On-Resistance vs. Gate-Source Voltage

Figure 3. On-Resistance vs. Drain Current and Gate Voltage	Figure 4. Normalized On-Resistance vs. Junction Temperature

Figure 5. Typical Transfer Characteristics	Figure 6. Typical Source-Drain Diode Forward Voltage

Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

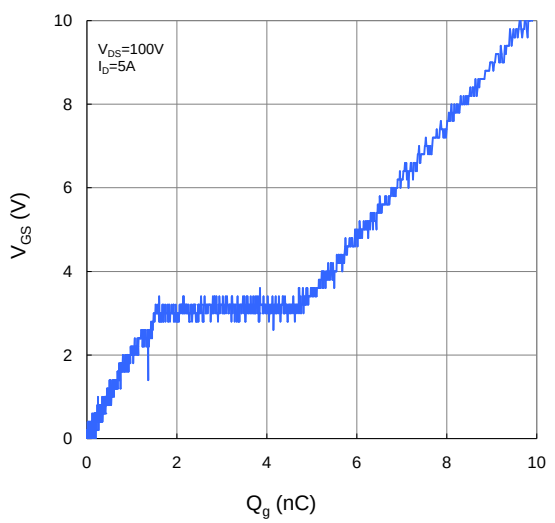


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

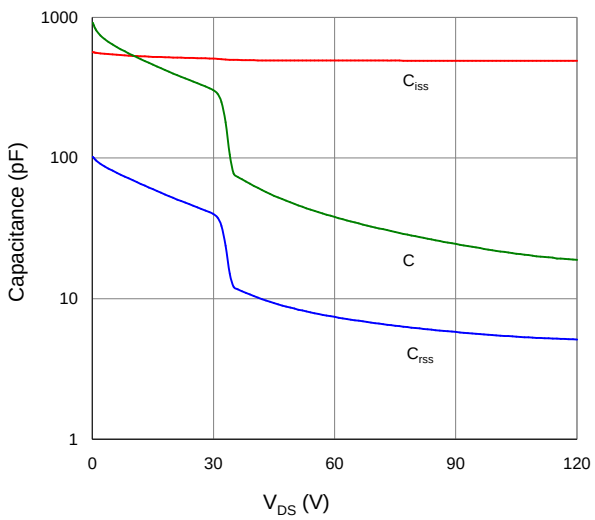
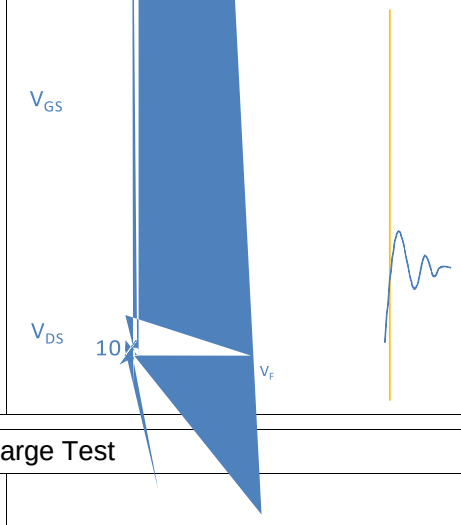


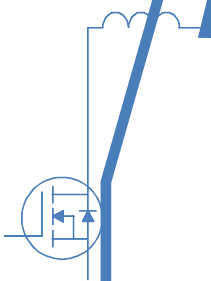
Figure 9. Maximum Safe Operating Area

Figure 10. Maximun Drain Current vs. Case Temperature

Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case

Inductive switching Test


Gate Charge Test

Uclamped Inductive Switching (UIS) Test


Diode Recovery Test