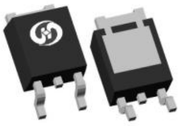
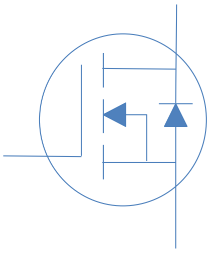
65V N-Ch Power MOSFET

V_{DS}		65	V
$R_{DS(on),typ}$	V_{GS}=10V	2.4	m
$R_{DS(on),typ}$	V_{GS}=4.5V	3.4	m
I_D (Sillicon Limited)		168	A
I_D (Package Limited)		120	A





Part Number	Package	Marking
HGD028NE6AL	TO-252	GD028NE6AL

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

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C=25℃	168	A
		T_C=100℃	119	
Continuous Drain Current (Package Limited)		T_C=25℃	120	
Drain to Source Voltage	V_{DS}	-	65	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	400	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C=25℃	80	mJ
Power Dissipation	P_D	T_C=25℃	150	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	℃

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	R_{JA}	46	℃/W
Thermal Resistance Junction-Case	R_{JC}	1	℃/W

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	65	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	1.0	1.6	2.4	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=60V, T_j=25℃	-	-	1	A
		V_{GS}=0V, V_{DS}=60V, 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=20A	-	2.4	2.8	m
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=20A	-	3.4	4.2	m
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A	-	70	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	1.30	-	

Dynamic Characteristics

Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=30V, f=1MHz	-	4021	-	pF
Output Capacitance	C_{oss}		-	1625	-	
Reverse Transfer Capacitance	C_{rss}		-	90	-	
Total Gate Charge	Q_g(10V)	V_{DD}=30V, I_D=20A, V_{GS}=10V	-	68	-	nC
Total Gate Charge	Q_g(4.5V)		-	34	-	
Gate to Source Charge	Q_{gs}		-	8	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	14	-	
Turn on Delay Time	$t_{d(on)}$	V_{DD}=30V, I_D=20A, V_{GS}=10V, R_G=10 ,	-	14	-	ns
Rise time	t_r		-	13	-	
Turn off Delay Time	$t_{d(off)}$		-	49	-	
Fall Time	t_f		-	19	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_F=20A	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	V_R=30V, I_F=20A, dI_F/dt=100A/ s	-	50	-	ns
Reverse Recovery Charge	Q_{rr}		-	45	-	nC

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-Ambient

Inductive switching Test

Gate Charge Test

Uclamped Inductive Switching (UIS) Test