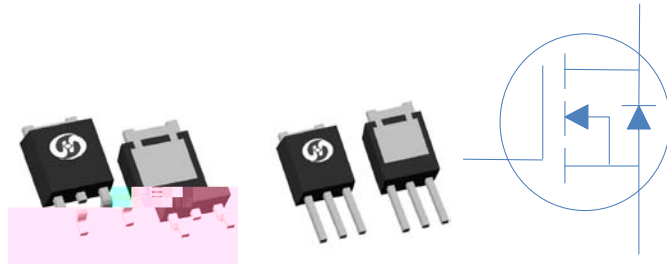


60V N-Ch Power MOSFET

V_{DS}		60	V
$R_{DS(on),typ}$	$V_{GS}=10V$	8.5	$m\Omega$
$R_{DS(on),typ}$	$V_{GS}=4.5V$	12	$m\Omega$
I_D (Silicon Limited)		47	A
I_D (Package Limited)		35	A



Part Number	Package	Marking
HGD120N06SL	TO-252	GD120N06SL
HGI120N06SL	TO-251	GI120N06SL

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

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	$T_C=25$	47	A
		$T_C=100$	30	
		Continuous Drain Current (Package Limited)	$T_C=25$	
Drain to Source Voltage	V_{DS}	-	60	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	150	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.4mH, T_C=25$	20	mJ
Power Dissipation	P_D	$T_C=25$	62.5	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	50	$^{\circ}W$
Thermal Resistance Junction-Case	$R_{\theta JC}$	2.4	$^{\circ}W$

Electrical Characteristics at $T_J=25$ (unless otherwise specified)
Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.9	2.4	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=60V, T_J=25$	-	-	1	μA
		$V_{GS}=0V, V_{DS}=60V, T_J=100$	-	-	100	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	-	8.5	11.5	m Ω
		$V_{GS}=4.5V, I_D=8A$	-	12	16	
Transconductance	g_{fs}	$V_{DS}=5V, I_D=10A$	-	25	-	S
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}$ Open, $f=1MHz$	-	1.5	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=30V, f=1MHz$	-	1040	-	pF
Output Capacitance	C_{oss}		-	318	-	
Reverse Transfer Capacitance	C_{rss}		-	15	-	
Total Gate Charge	$Q_g(10V)$	$V_{DD}=30V, I_D=10A, V_{GS}=10V$	-	18.5	-	nC
Total Gate Charge	$Q_g(4.5V)$		-	9	-	
Gate to Source Charge	Q_{gs}		-	4.5	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3.5	-	
Turn on Delay Time	$t_{d(on)}$	$V_{DD}=30V, I_D=10A, V_{GS}=10V,$ $R_G=10\Omega,$	-	6	-	ns
Rise time	t_r		-	3	-	
Turn off Delay Time	$t_{d(off)}$		-	25	-	
Fall Time	t_f		-	3	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=20A$	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R=30V, I_F=10A, di_F/dt=300A/\mu s$	-	25	-	ns
Reverse Recovery Charge	Q_{rr}		-	33	-	nC

Fig 1. Typical Output Characteristics

Figure 2. On-Resistance vs. Gate-Source Voltage

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

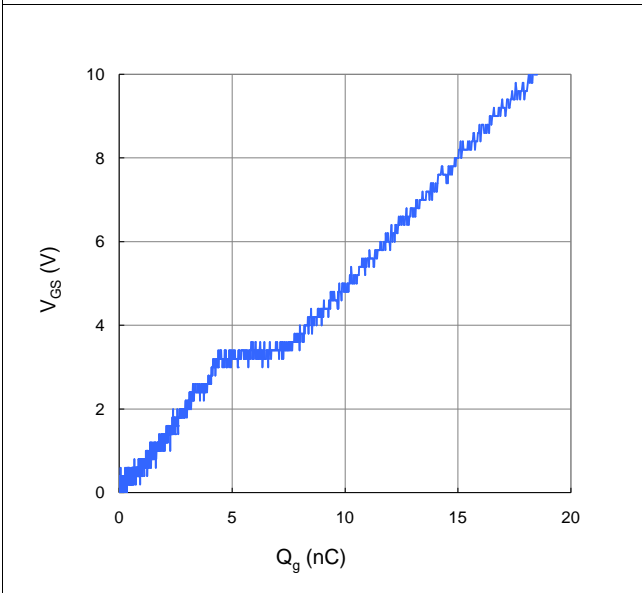


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

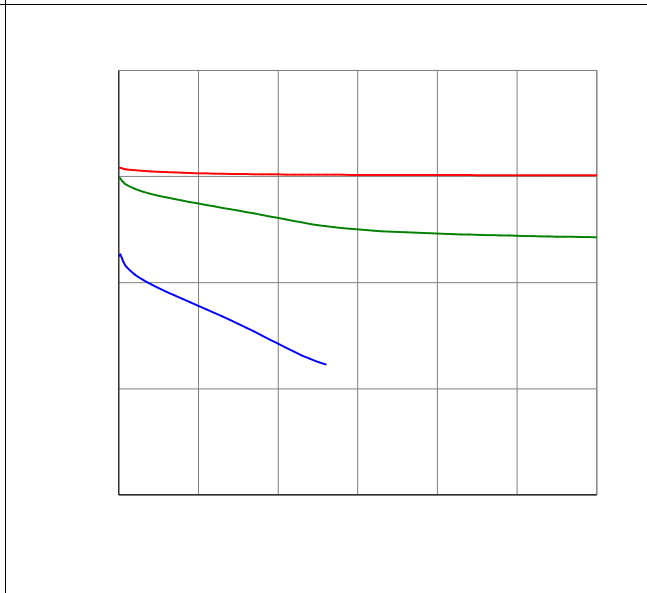


Figure 9. Maximum Safe Operating Area

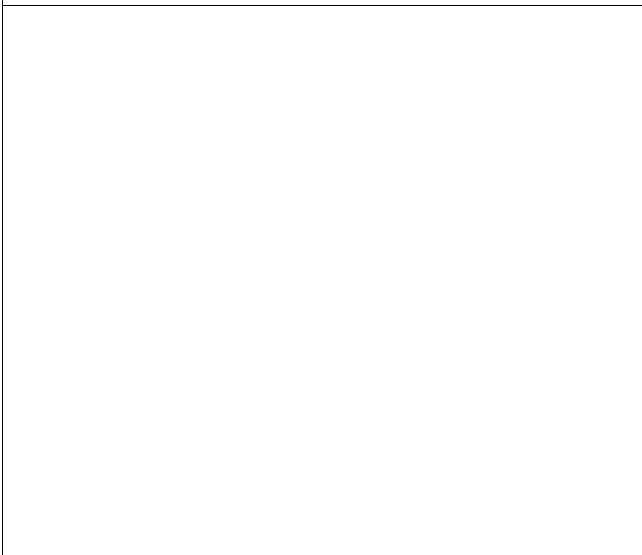


Figure 10. Maximun Drain Current vs. Case Temperature

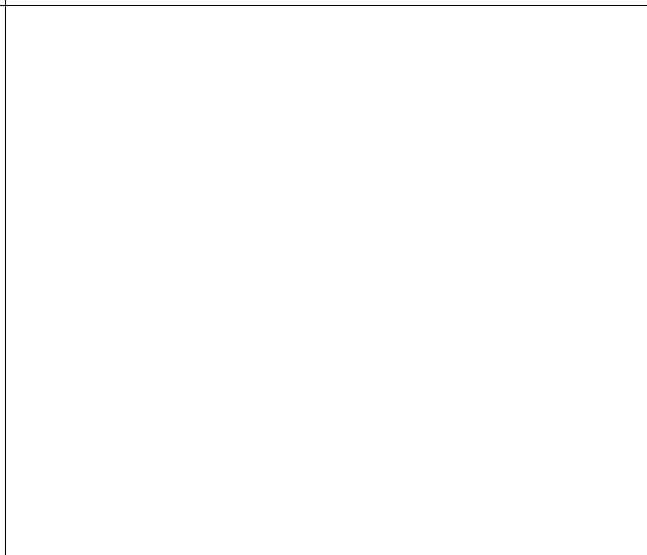
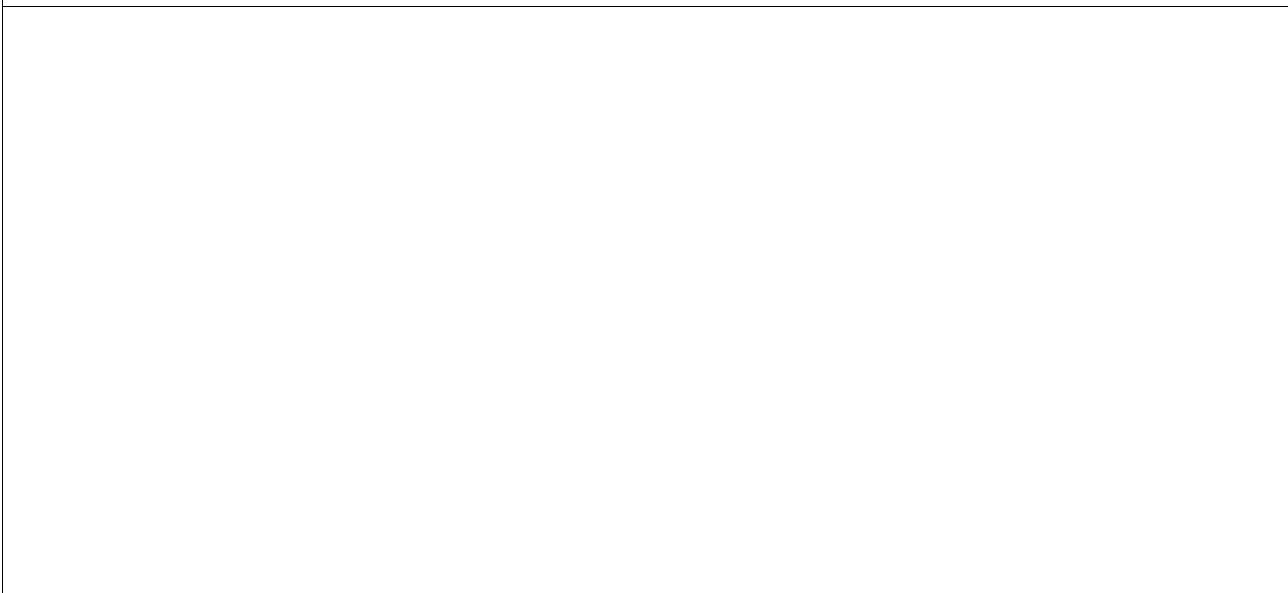
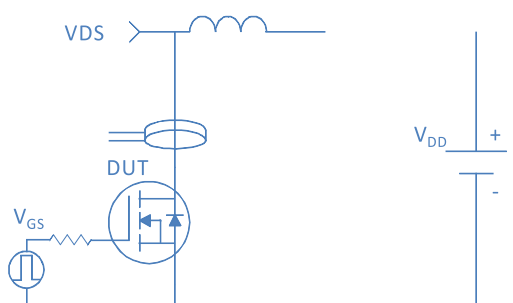


Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



Inductive switching Test	

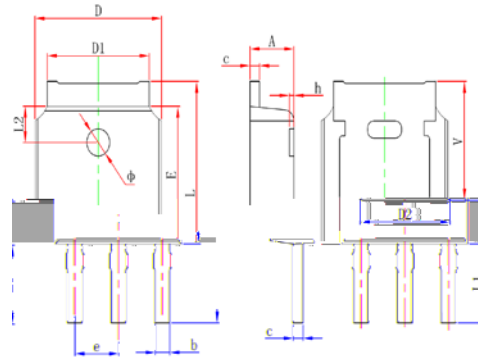
Gate Charge Test	

Uclamped Inductive Switching (UIS) Test	
	

Diode Recovery Test	

Package Outline

TO-251, 3 leads



	Dimensions In Millimeters	Dimensions In Inches

TO-252, 2 leads

