60V N-Ch Power MOSFET

Feature

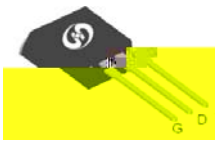
- High Speed Power Switching, Logic Level
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

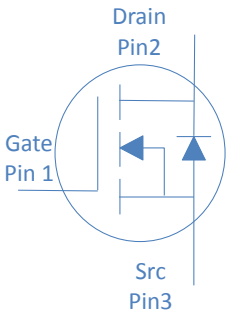
V_{DS}		60	V
$R_{DS(on),typ}$	V_{GS}=10V	4.1	mΩ
$R_{DS(on),typ}$	V_{GS}=4.5V	5.6	mΩ
$I_{D\ (Sillicon\ Limited)}$		105	A

Application

- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit
- DC/DC in Telecoms and Inductrial

TO-262





Part Number	Package	Marking
HGW053N06SL	TO-262	GW053N06SL

Absolute Maximum Ratings at T_j

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C	105	A
		T_C	74	
Drain to Source Voltage	V_{DS}	-	60	V
Gate to Source Voltage	V_{GS}	-	±20	V
Pulsed Drain Current	I_{DM}	-	250	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.4mH, T_C	80	mJ
Power Dissipation	P_D	T_C	125	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to175	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	46	
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.2	

Electrical Characteristics at T_j

Static Characteristics

Parameter	Symbol	Conditions		Value min	Value typ	Value max	Unit
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250µA		60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250µA		1.0	1.6	2.4	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=60V, T_j		-	-	1	µA
		V_{GS}=0V, V_{DS}=60V, T_j		-	-	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	TO-262	-	4.1	5.3	mΩ
		V_{GS}=4.5V, I_D=20A	TO-262	-	5.6	7.5	mΩ
Transconductance	g	V_{DS}=5V, I_D=20A		-	48	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS}		-	1.5	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}		-	2274	-	
Output Capacitance	C_{oss}	V_{GS}=0V, V_{DS}	-	793	-	pF
	C_{rss}		-	35	-	
Total Gate Charge	Q_g(10V)		-	36	-	
Total Gate Charge	Q_g(4.5V)	V_{DD}=30V, I_D=20A, V_{GS}=10V	-	18		nC
Gate to Source Charge	Q_{gs}		-	4.5	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	7.5		

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

Figure 3. On-Resistance vs. Drain Current and Gate Voltage	

	Figure 6. Typical Source-Drain Diode Forward Voltage

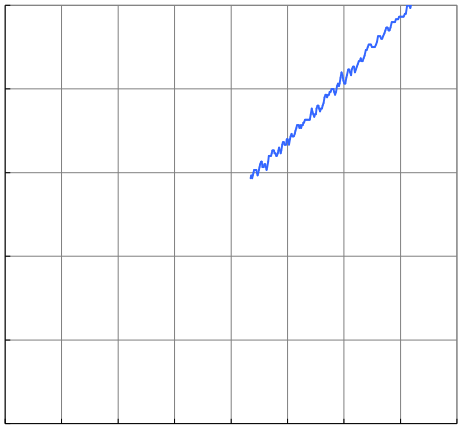
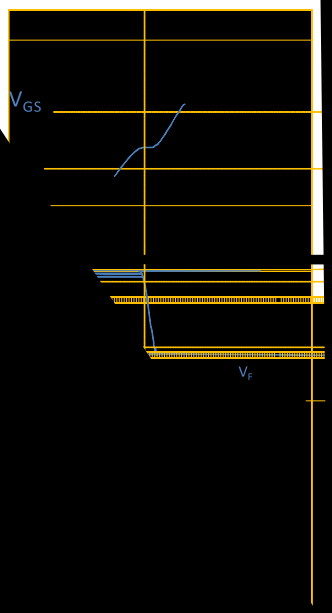
Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage
	

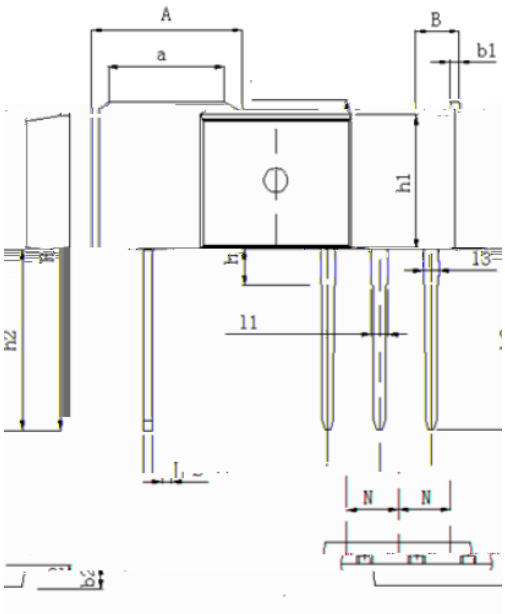
	Figure 10. Maximun Drain Current vs. Case Temperature

ctive switching Test



Package Outline

TO-262, 3 leads



Unit: mm

DIM	MILLIMETERS
A	9.98±0.2
a	7.4±0.4
B	4.5±0.2
b1	1.3±0.05
b2	2.4±0.2
H	23.9±0.3
h	3.1±0.2
h1	9.16±0.2
h2	13.2±0.2
L	0.5±0.1
l1	1.3±0.1
l2	0.8±0.1
N	2.45±0.1