100V N-Ch Power MOSFET

Feature

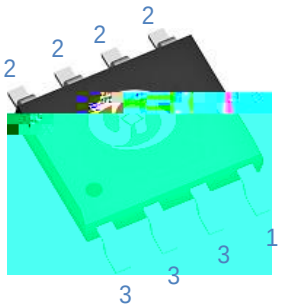
- High Speed Power Switching
- Enhanced Body diode dv/dt capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

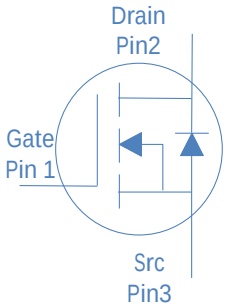
V_{DS}		100	V
$R_{DS(on),typ}$	V_{GS}=10V	8.8	m
I_D		13	A

Application

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

SOIC-8





Part Number	Package	Marking
HGS098N10A	SOIC-8	GS098N10A

Absolute Maximum Ratings at T_j , / " b

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C , /	13	A
		T_C	8	
Drain to Source Voltage	V_{DS}	-	100	V
Gate to Source Voltage	V_{GS}	-	20	V
Pulsed Drain Current	I_{DM}	-	120	A
Avalanche Energy, Single Pulse	E_{AS}	L=0.1mH, T_C , /	31	mJ
Power Dissipation	P_D	T_C , /	3.1	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Lead	R_{JL}	25	
b "	R_{JA}	40	
Thermal Resistance Junction-Ambient (steady state)		75	

Electrical Characteristics at T_j , / " b

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=250 A	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250 A	2.0	3.0	4.0	
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V, V_{DS}=100V, T_j , /	-	-	1	A
		V_{GS}=0V, V_{DS}=100V, T_j	-	-	100	
Gate to Source Leakage Current	I_{GSS}	V_{GS} , $_{DS}$=0V	-	-	100	nA
Drain to Source on Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=20A	-	8.8	9.8	m
Transconductance	g_{fs}	V_{DS}=5V, I_D=20A	-	39	-	S
Gate Resistance	R_G	V_{GS}=0V, V_{DS} Open, f=1MHz	-	1.5	-	

Dynamic Characteristics

Input Capacitance	C_{iss}		-	1326	-	
Output Capacitance	C_{oss}	V_{GS}=0V, V_{DS}=50V, f=1MHz	-	262	-	pF
Reverse Transfer Capacitance	C_{rss}		-	7.7	-	
			-	23	-	
Gate to Source Charge	Q_{gs}	V_{DD}=50V, I_D=20A, V_{GS}=10V		5.5	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	6.5		

Reverse Recovery Time ns

Fig 1. Typical Output Characteristics

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

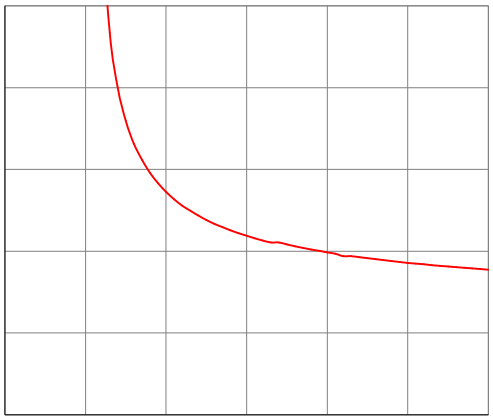


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

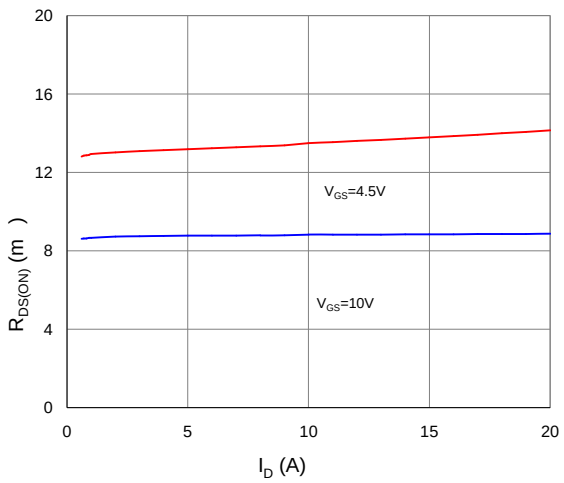


Figure 4. Normalized On-Resistance vs. Junction Temperature

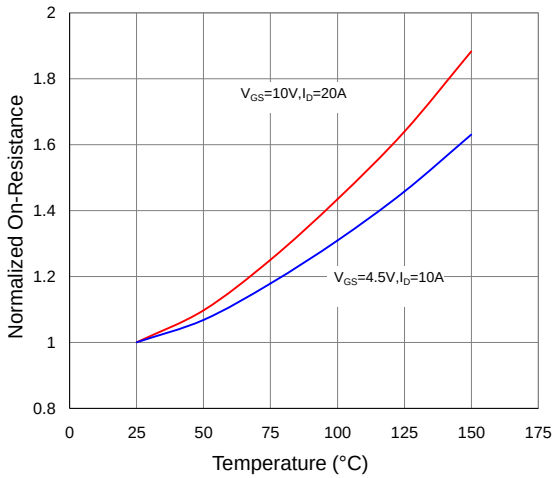


Figure 5. Typical Transfer Characteristics

Figure 6. Typical Source-Drain Diode Forward Voltage

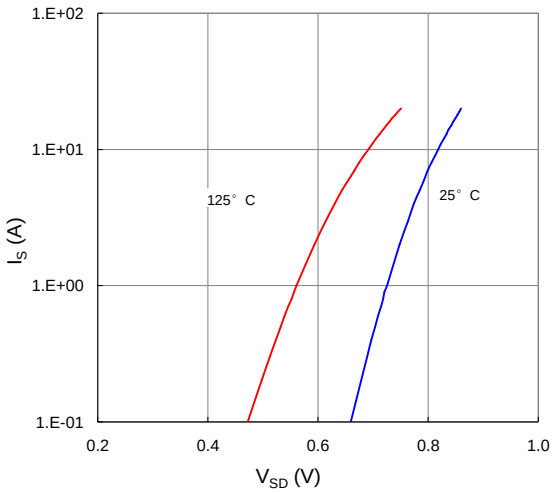


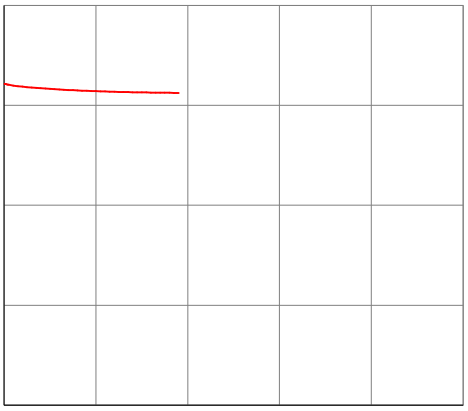
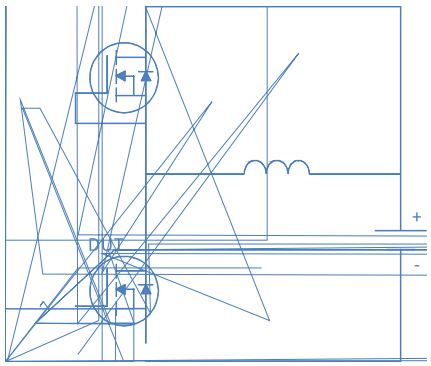
Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage	Figure 8. Typical Capacitance vs. Drain-to-Source Voltage
	

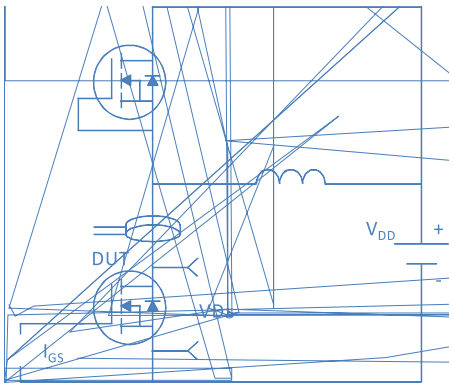
Figure 9. Maximum Safe Operating Area	Figure 10. Maximun Drain Current vs. Case Temperature

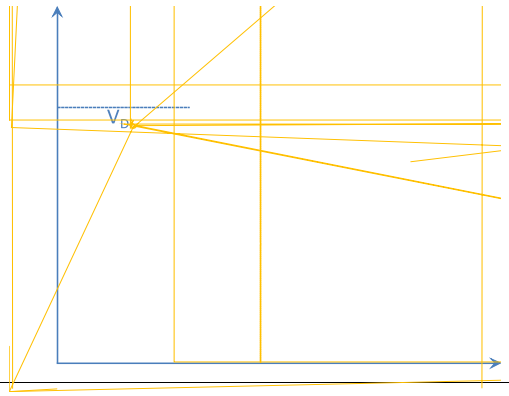
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Case

Inductive switching Test

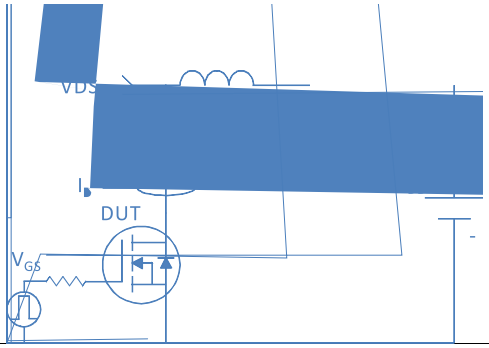


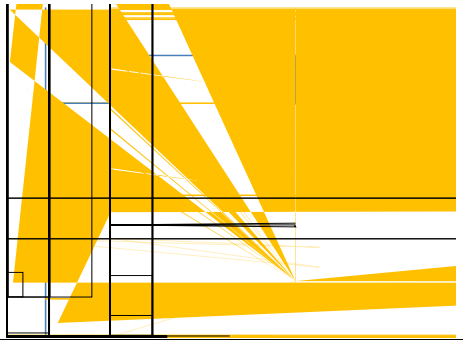
Gate Charge Test



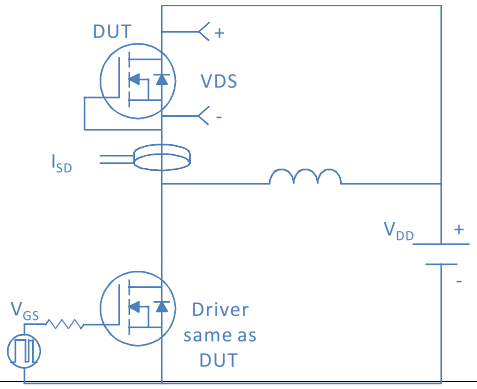


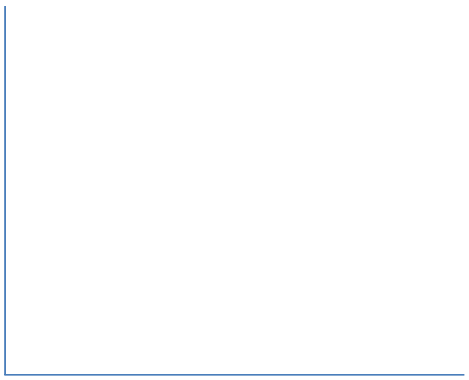
Uclamped Inductive Switching (UIS) Test





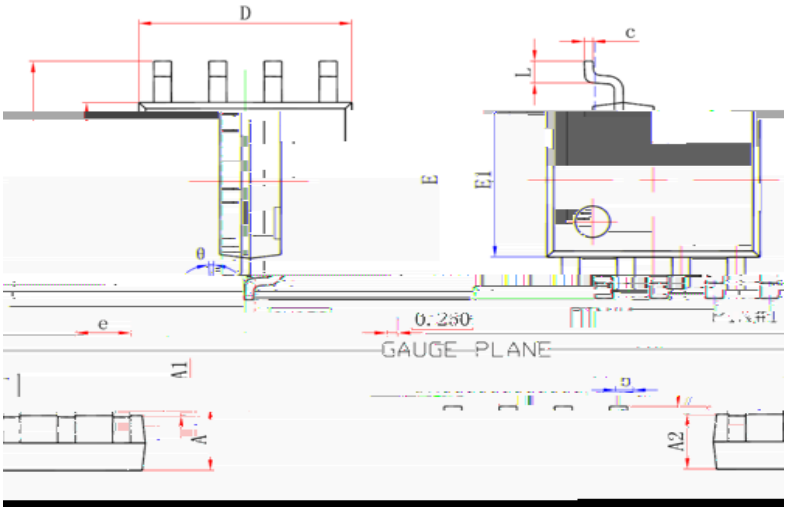
Diode Recovery Test





Package Outline

SOIC-8, 8 leads



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.250	1.650	0.049	0.065
b	0.310	0.510	0.012	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (SBC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.031
θ	0°	8°	0°	8°