

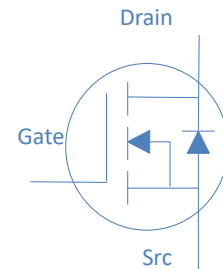
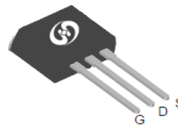
150V N-Ch Power MOSFET
Feature

- ◇ 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}	150	V
$R_{DS(on),typ}$ $V_{GS}=10V$	16	m Ω
I_D (Silicon Limited)	59	A

Application

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

TO-262


Part Number	Package	Marking
HGW195N15S	TO-262	GW195N15S

Absolute Maximum Ratings at $T_J=25^{\circ}C$ (unless otherwise specified)

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	$T_C=25^{\circ}C$	59	A
		$T_C=100^{\circ}C$	42	
Drain to Source Voltage	V_{DS}	-	150	V
Gate to Source Voltage	V_{GS}	-	± 20	V
Pulsed Drain Current	I_{DM}	-	180	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.4mH, T_C=25^{\circ}C$	80	mJ
Power Dissipation	P_D	$T_C=25^{\circ}C$	96	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	$^{\circ}C$

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	46	$^{\circ}C/W$
Thermal Resistance Junction-Case	$R_{\theta JC}$	1	$^{\circ}C/W$

Electrical Characteristics at $T_j=25^\circ\text{C}$ (unless otherwise specified)
Static Characteristics

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2	3	4	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=150V, T_j=25^\circ\text{C}$	-	-	1	μA
		$V_{GS}=0V, V_{DS}=150V, T_j=100^\circ\text{C}$	-	-	100	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	16	19.5	$m\Omega$
Transconductance	g_{fs}	$V_{DS}=5V, I_D=20A$	-	55	-	S
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}$ Open, $f=1\text{MHz}$	-	2.2	-	Ω

Dynamic Characteristics

Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=75V, f=1\text{MHz}$	-	1960	-	μF
Output Capacitance	C_{oss}		-	130	-	
Reverse Transfer Capacitance	C_{rss}		-	8	-	
Total Gate Charge	$Q_g(10V)$	$V_{DD}=75V, I_D=20A, V_{GS}=10V$	-	25	-	nC
Gate to Source Charge	Q_{gs}		-	9	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3	-	
Turn on Delay Time	$t_{d(on)}$	$V_{DD}=75V, I_D=20A, V_{GS}=10V,$ $R_G=10\Omega,$	-	9	-	ns
Rise time	t_r		-	8	-	
Turn off Delay Time	$t_{d(off)}$		-	15	-	
Fall Time	t_f		-	9	-	

Reverse Diode Characteristics

Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_F=20A$	-	0.9	1.2	V
Reverse Recovery Time	t_{rr}	$V_R=75V, I_F=20A, di_F/dt=100A/\mu s$	-	60	-	ns
Reverse Recovery Charge	Q_{rr}		-	120	-	nC

Fig 1. Typical Output Characteristics

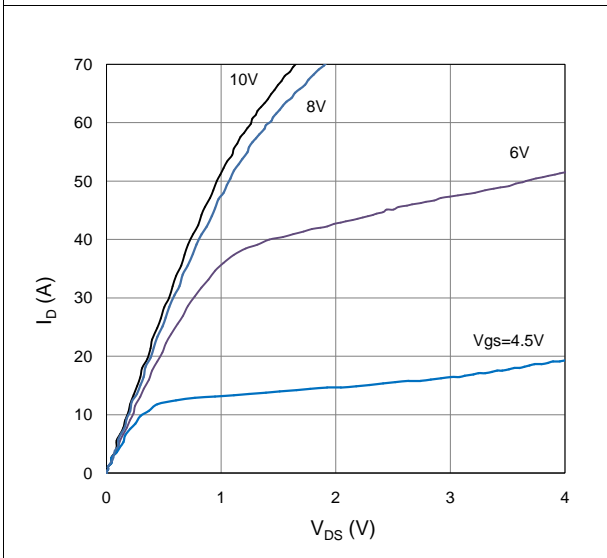


Figure 2. On-Resistance vs. Gate-Source Voltage

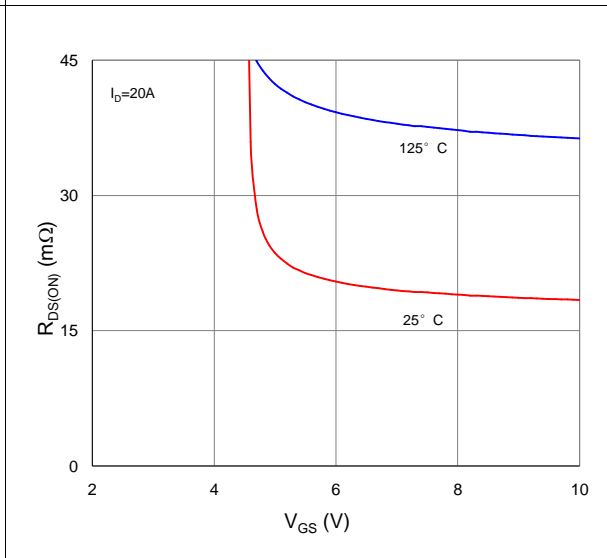


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

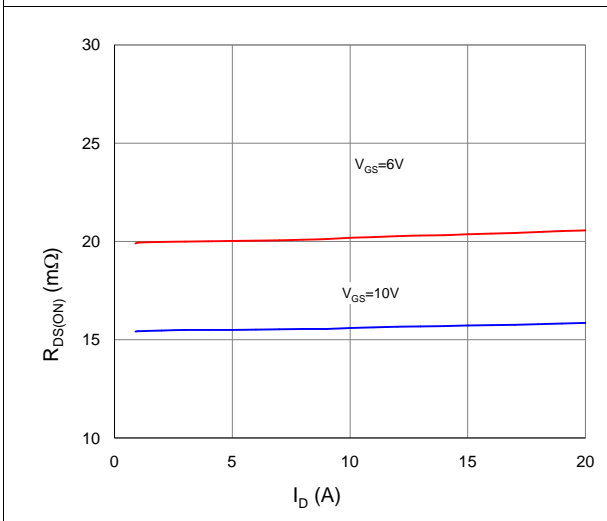


Figure 4. Normalized On-Resistance vs. Junction Temperature

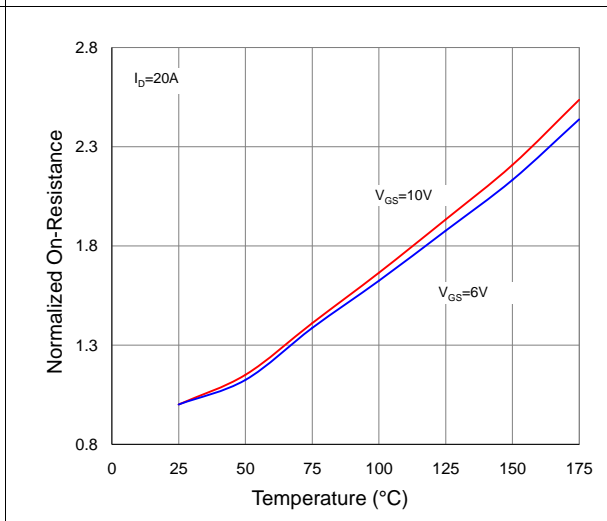


Figure 5. Typical Transfer Characteristics

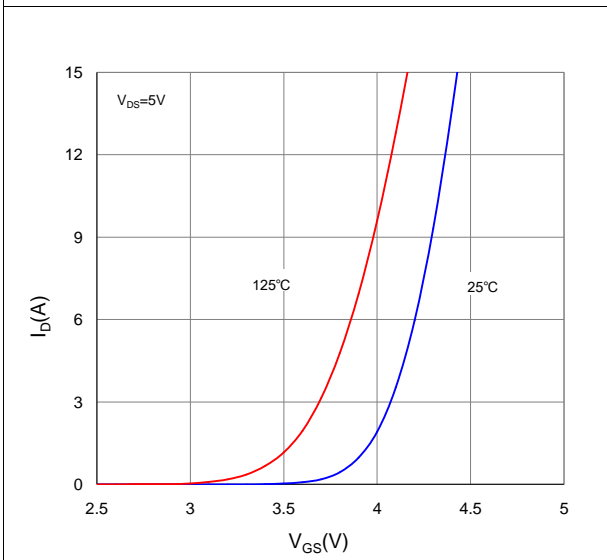


Figure 6. Typical Source-Drain Diode Forward Voltage

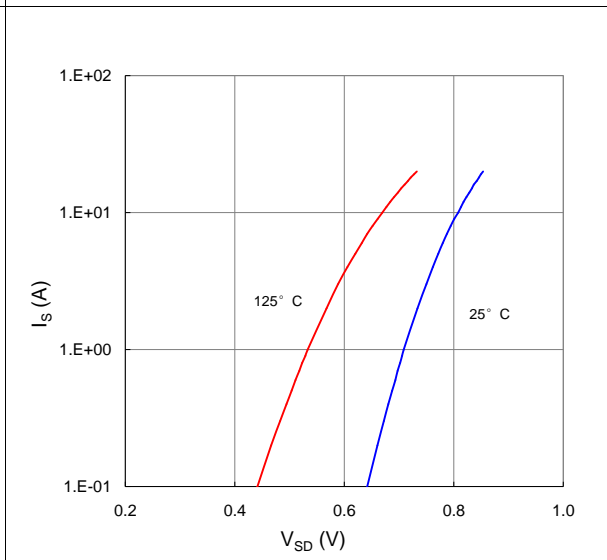


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

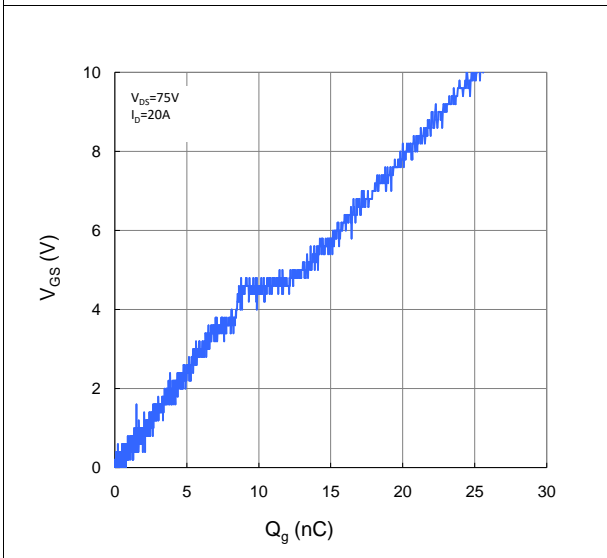


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

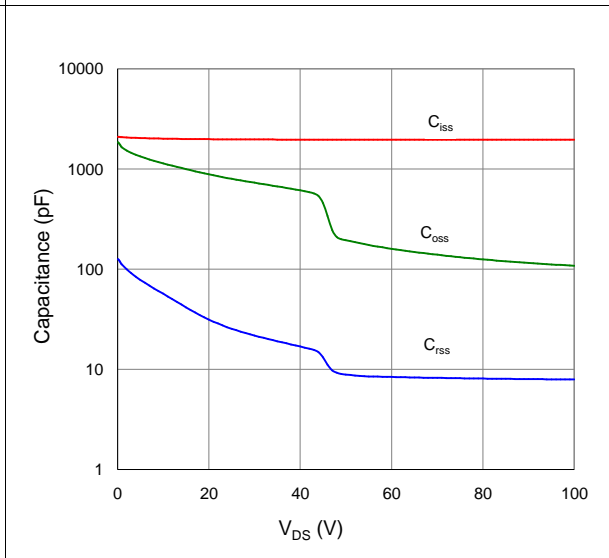


Figure 9. Maximum Safe Operating Area

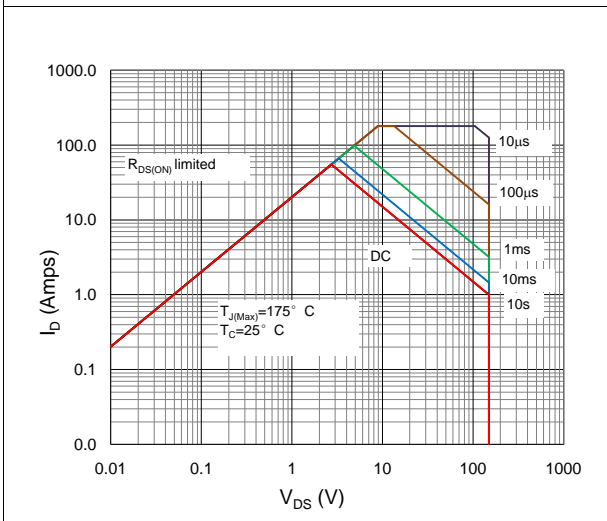


Figure 10. Maximum Drain Current vs. Case Temperature

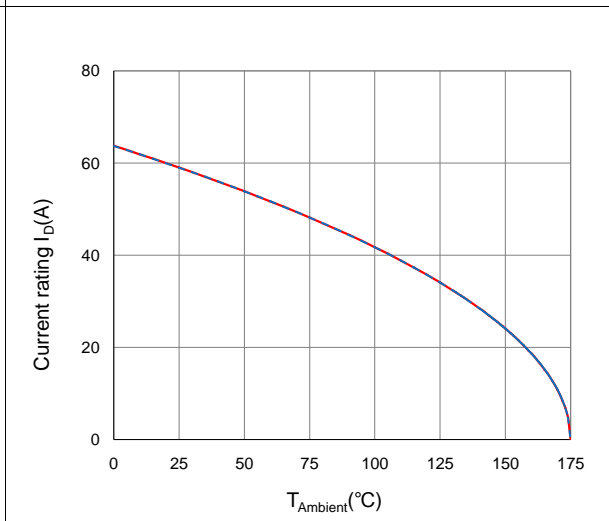
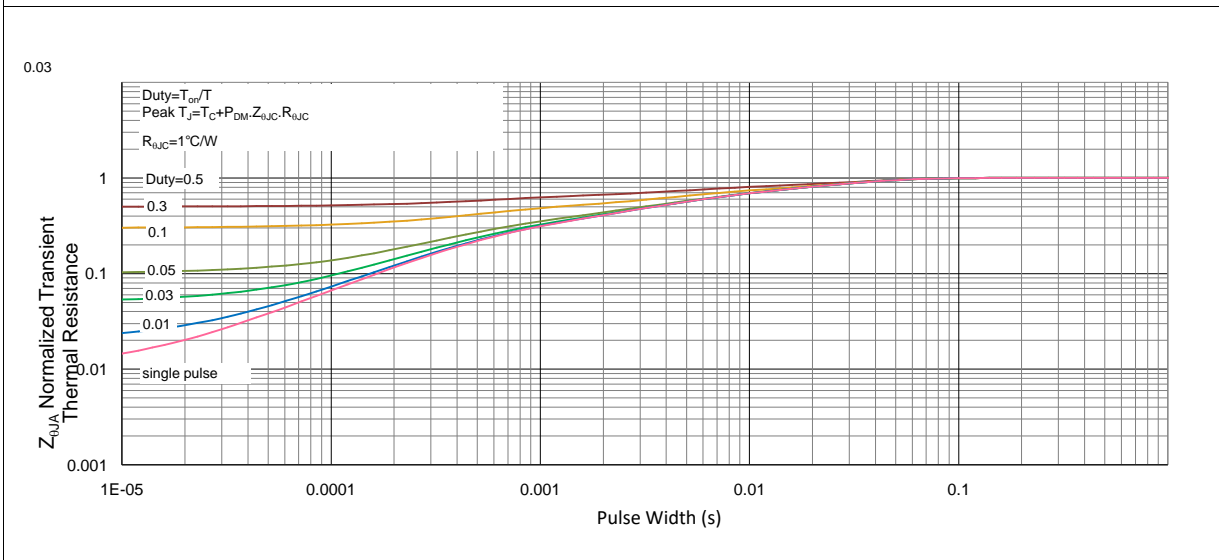
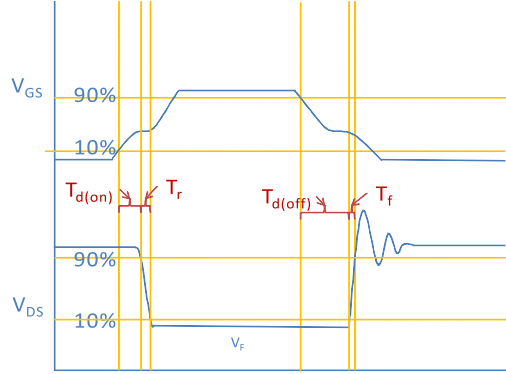
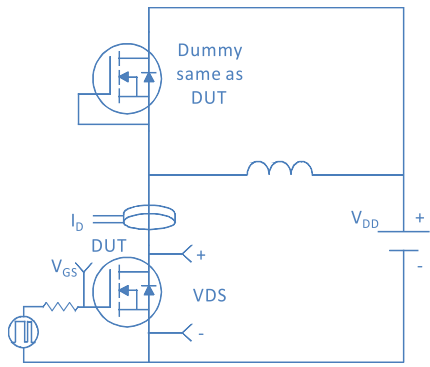


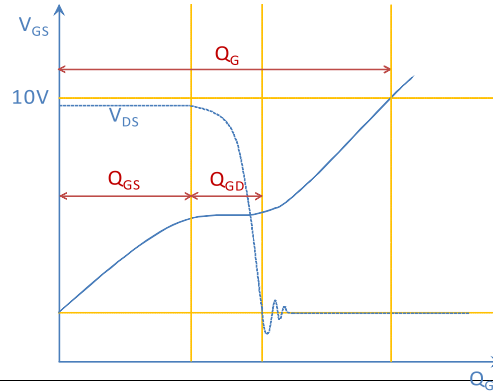
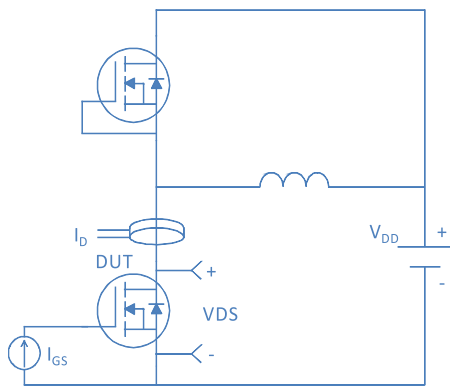
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



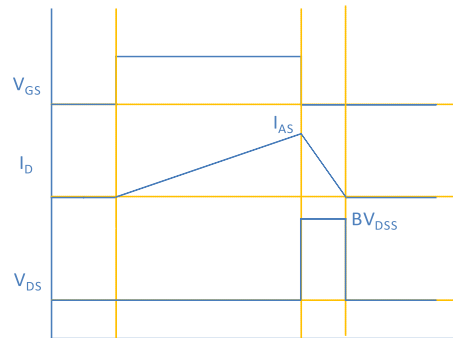
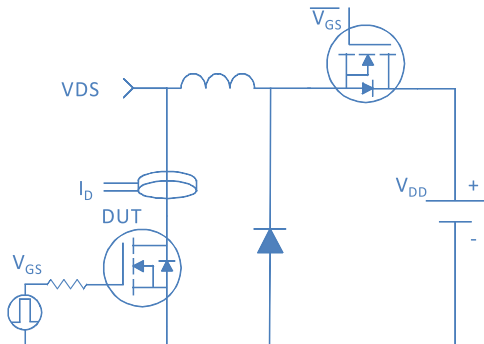
Inductive switching Test



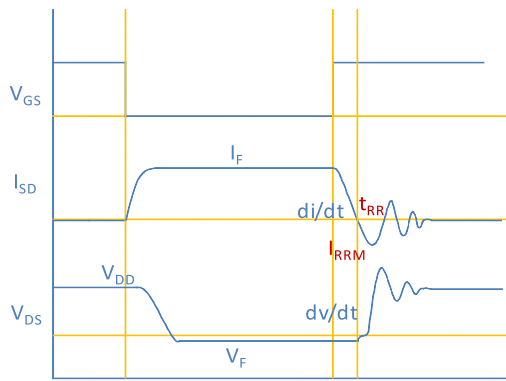
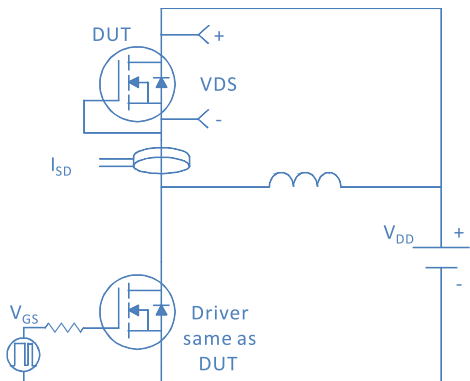
Gate Charge Test



Uclamped Inductive Switching (UIS) Test

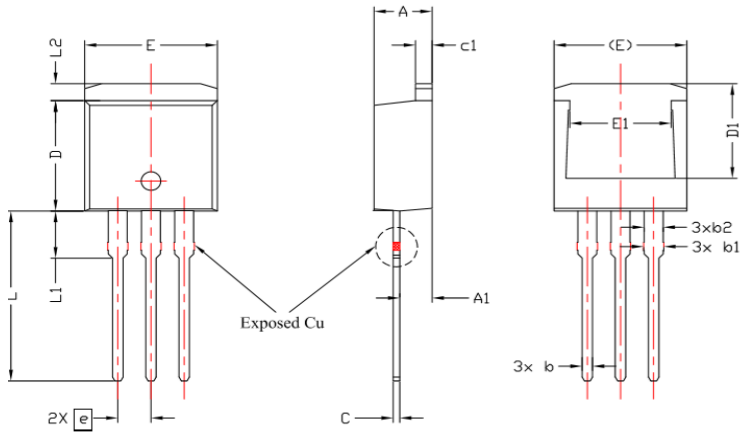


Diode Recovery Test



Package Outline

TO-262, 3 leads



SYMBOL	DIMENSIONS		
	MIN.	NOM.	MAX.
A	4.24	4.44	4.64
A1	2.30	2.48	2.70
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
c1	1.15	1.27	1.40
D	8.82	8.92	9.02
D1	6.86	7.65	---
E	9.96	10.16	10.36
E1	6.86	7.77	8.89
e	2.54 BSC		
L	13.47	13.72	13.97
L1	3.60	3.80	4.00
L2	1.36 REF.		