

150V N-Ch Power MOSFET

V_{DS}		150	V
$R_{DS(on),typ}$	TO-263	3.2	m
$R_{DS(on),typ}$	TO-220	3.6	m
I_D (Silicon Limited)		206	A
I_D (Package Limited)		180	A

Part Number	Package	Marking
HGB039N15M	TO-263	GB039N15M
HGP039N15M	TO-220	GP039N15M

Absolute Maximum Ratings at T_I

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	T_C	206	
		T_C	146	A
Continuous Drain Current (Package Limited)		T_C	180	
Drain to Source Voltage	V_{DS}	-	150	V
Gate to Source Voltage	V_{GS}	-	20	V
Pulsed Drain Current	I_{DM}	-	750	A
Avalanche Energy, Single Pulse	E_{AS}	$L=0.4mH, T_C$	720	mJ
Power Dissipation	P_D	T_C	429	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	

Electrical Characteristics at T_j

Static Characteristics

Parameter	Symbol	Conditions	Value		Unit
Gate Threshold Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\text{ A}$	150	-	V
	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\text{ A}$	-	-	-
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=150V, T_j$	-	1	A
		$V_{GS}=0V, V_{DS}=150V, T_j$	-	100	A
Gate to Source Leakage Current	I_{GSS}		-	-	nA
Drain to Source on Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$ TO-263	-	3.9	m
		$V_{GS}=10V, I_D=20A$ TO-220	3.6	4.2	S
	C_{oss}		-	-	pF
		$V_{DD}=75V, I_D=20A, V_{GS}=10V$	-	-	pF

Fig 1. Typical Output Characteristics

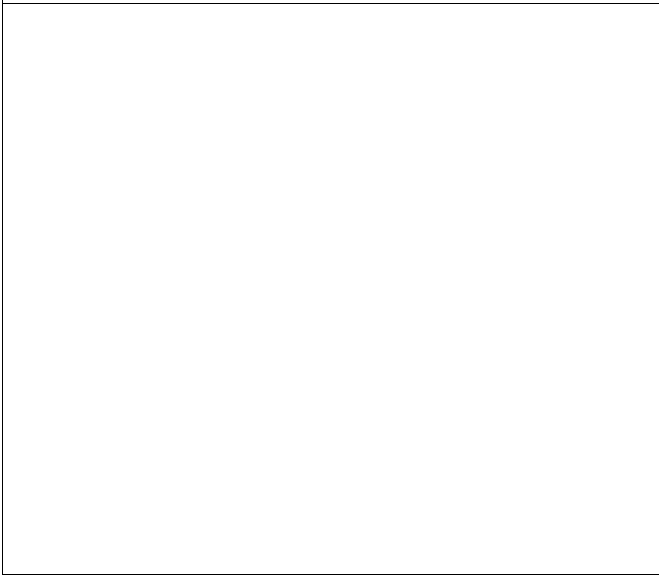


Figure 2. On-Resistance vs. Gate-Source Voltage

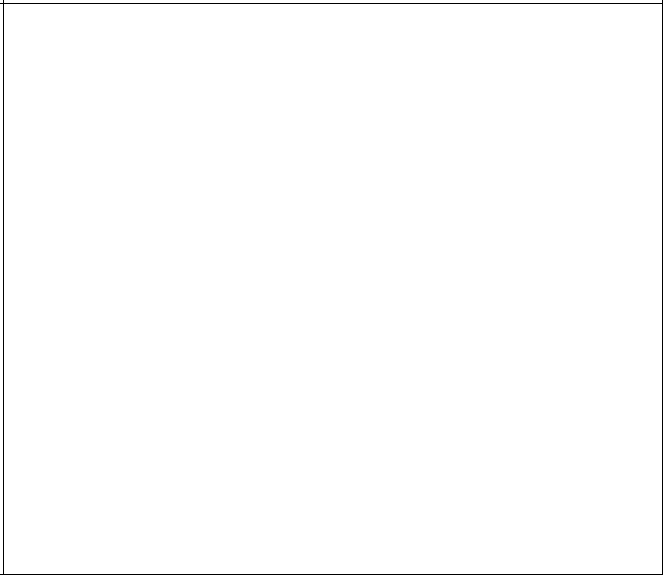


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

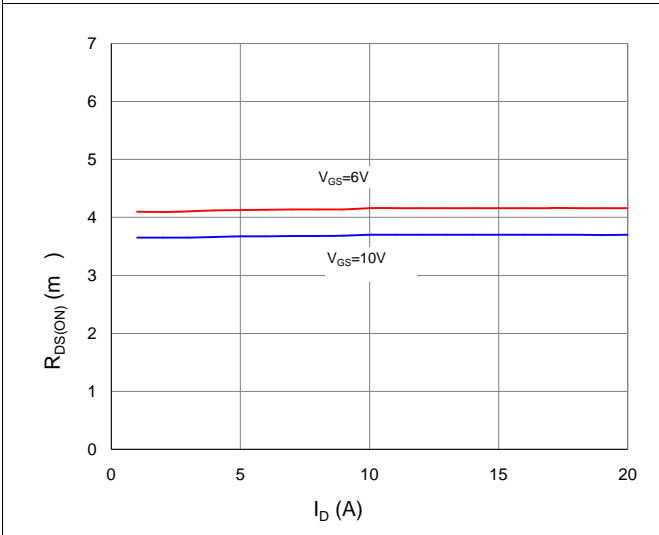


Figure 4. Normalized On-Resistance vs. Junction Temperature

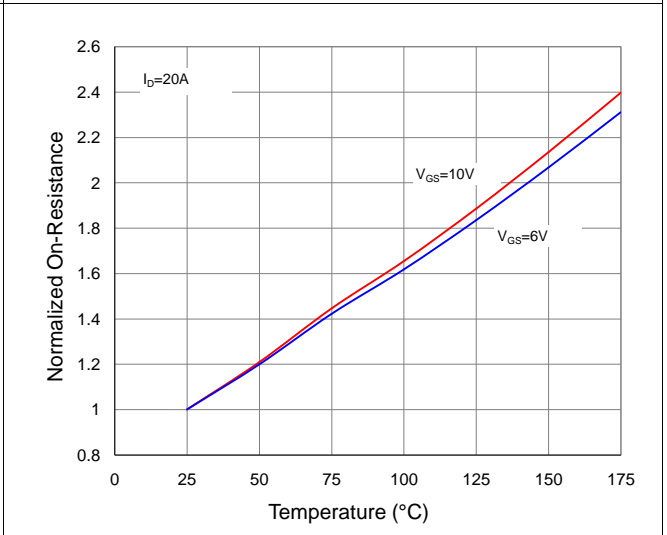


Figure 5. Typical Transfer Characteristics

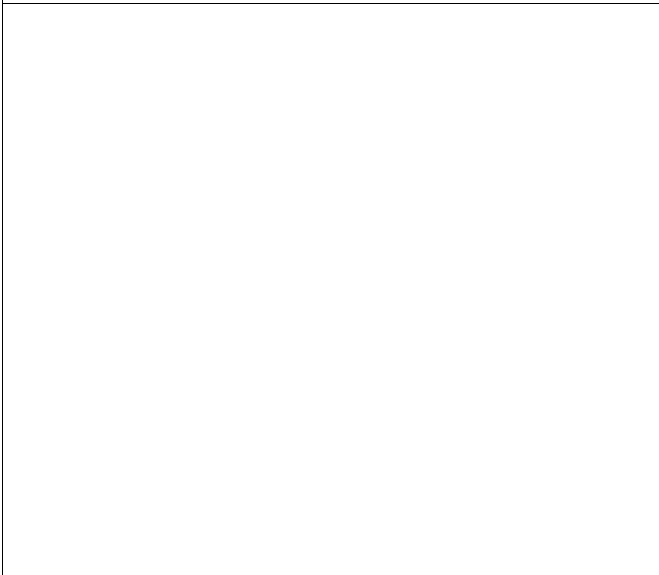


Figure 6. Typical Source-Drain Diode Forward Voltage

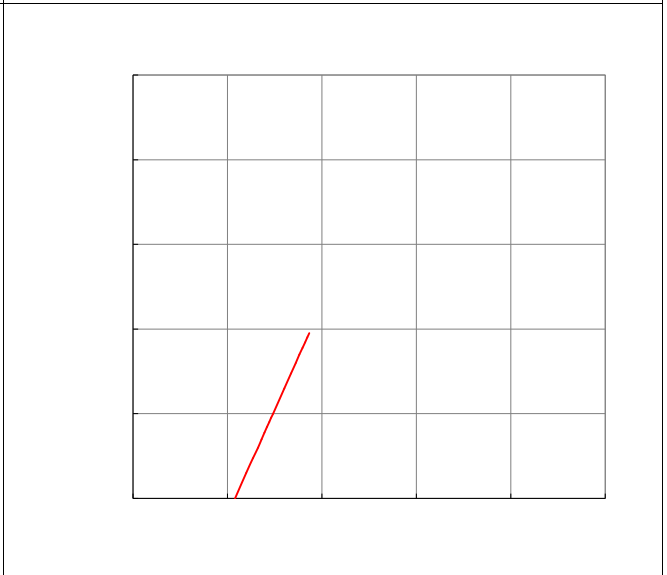


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

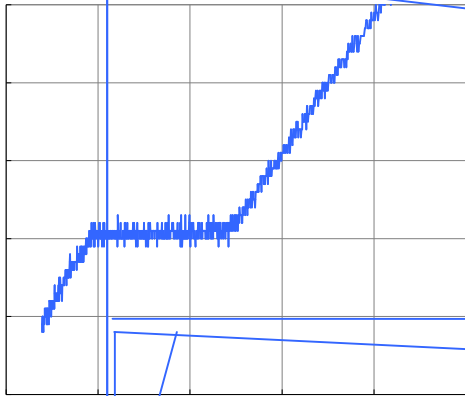


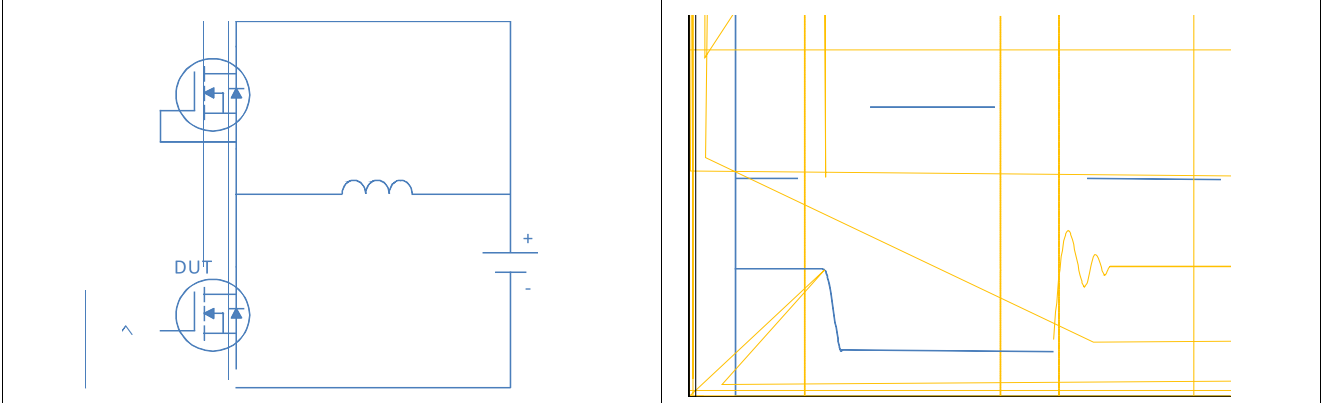
Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

Figure 9. Maximum Safe Operating Area

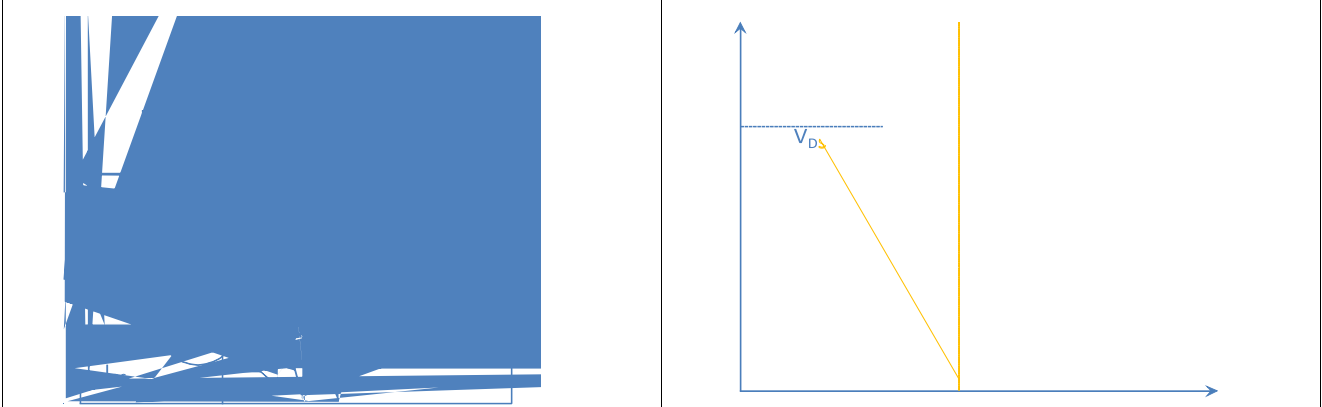
Figure 10. Maximun Drain Current vs. Case Temperature

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

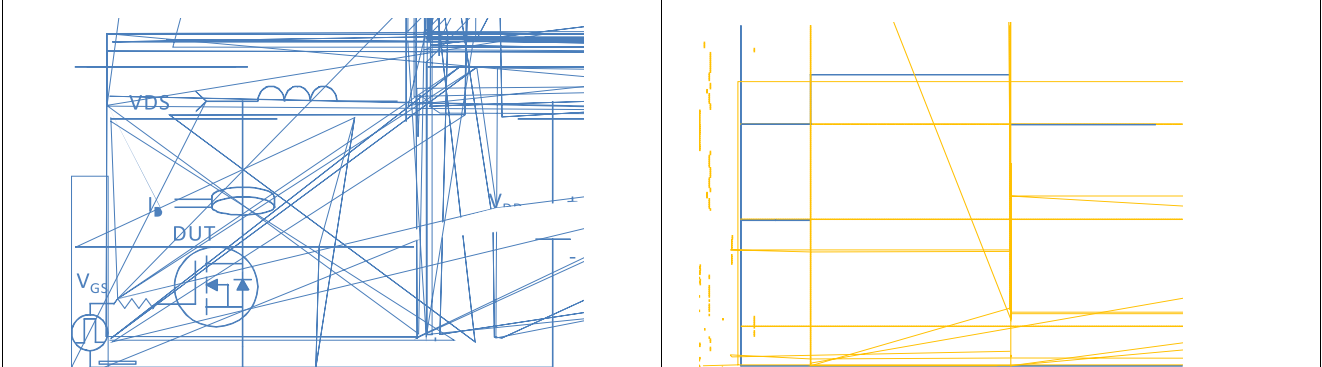
Inductive switching Test



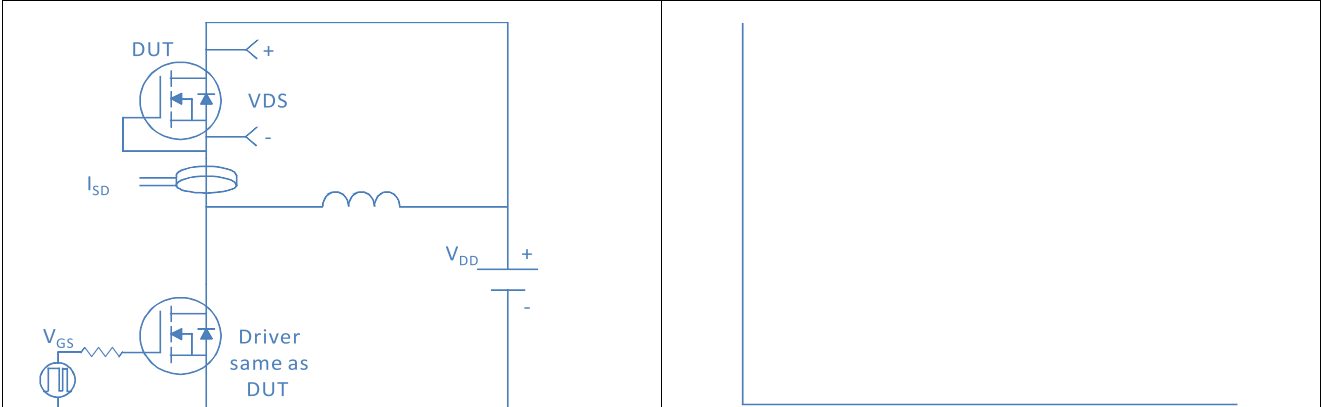
Gate Charge Test



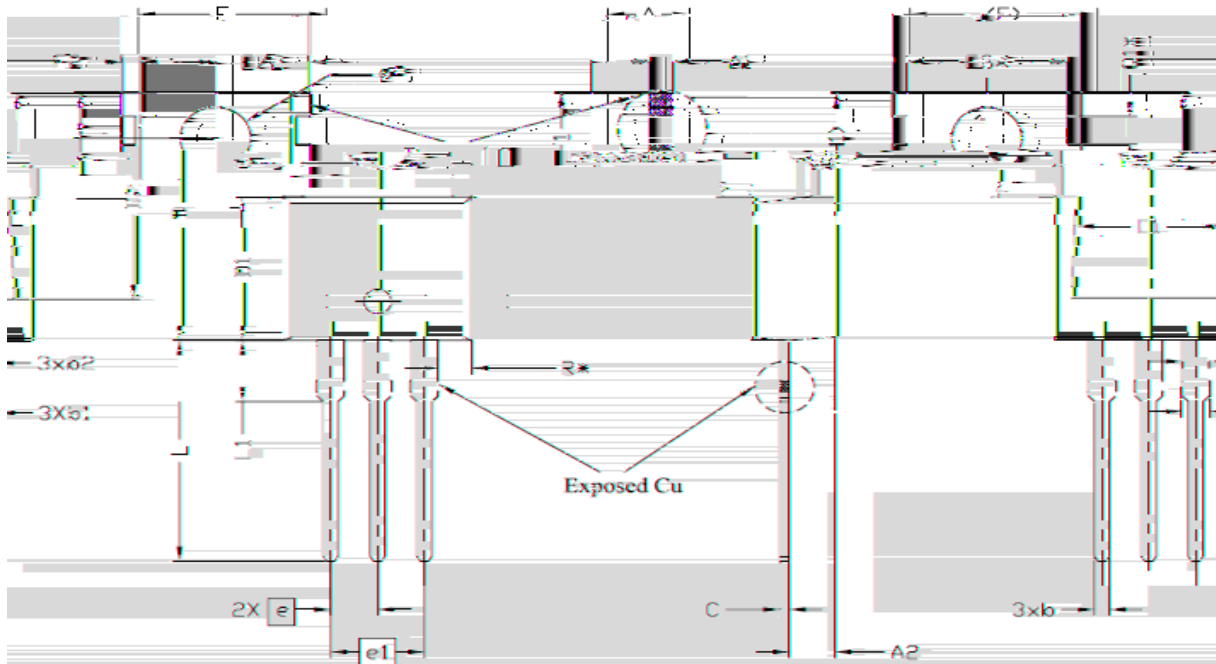
Uclamped Inductive Switching (UIS) Test



Diode Recovery Test



TO-220, 3 leads



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4,24	4,44	4,64	
A1	1,15	1,27	1,40	
A2	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	
D	14,70	15,37	16,00	4
D1	8,82	8,92	9,02	
D2	12,63	12,73	12,83	5
E	9,96	10,16	10,36	4,5
E1	6,86	7,77	8,89	5
E2	-	-	0,76	6
E3*	8,70REF.			
e	2,54BSC			
e1	5,08BSC			
H1	6,30	6,45	6,60	5,6
L	13,47	13,72	13,97	
L1	3,60	3,80	4,00	
øP	3,75	3,84	3,93	
Q	2,60	2,80	3,00	
Q1*	1,73REF.			
R*	1,82REF.			

TO-263, 2 leads

