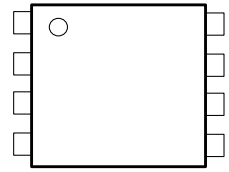
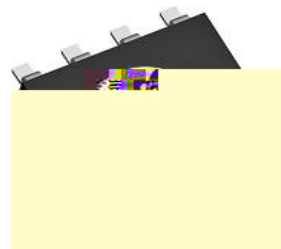


80V N-Ch Power MOSFET

$V_{DS}$		80	V
$R_{DS(on),typ}$	$V_{GS}=10V$	4.8	m
$R_{DS(on),typ}$	$V_{GS}=4.5V$	6.2	m
$I_D$		16.6	A



Part Number	Package	Marking
HGS063N08SL	SOIC-8	GS063N08SL

Absolute Maximum Ratings at  $T_j$

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	$I_D$	$T_C$	17	A
		$T_C$	10	
Drain to Source Voltage	$V_{DS}$	-	80	V
Gate to Source Voltage	$V_{GS}$	-	20	V
Pulsed Drain Current	$I_{DM}$	-	120	A
Avalanche Energy, Single Pulse	$E_{AS}$	$L=0.3mH, T_C$	240	mJ
Power Dissipation	$P_D$	$T_C$	3.1	W
Operating and Storage Temperature	$T_J, T_{stg}$	-	-55 to 150	

Absolute Maximum Ratings

Parameter	Symbol	Max	Unit
Thermal Resistance Junction-Lead	$R_{JL}$	23	
Thermal Resistance Junction-Ambient (steady state)	$R_{JA}$	40	
		75	

**Electrical Characteristics at T<sub>j</sub>**
**Static Characteristics**

Parameter	Symbol	Conditions	Value			Unit
			min	typ	max	
Drain to Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250 A	80	-	-	V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250 A	1.0	1.7	2.4	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =80V, T <sub>j</sub>	-	-	1	A
		V <sub>GS</sub> =0V, V <sub>DS</sub> =80V, T <sub>j</sub>	-	-	100	
Gate to Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> s99 <sub>DS</sub> =0V	-	-	100	nA
Drain to Source on Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =14A	-	4.8	6.3	m
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A	-	6.2	8.5	
Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =14A	-	50	-	S
Gate Resistance	R <sub>G</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> Open, f=1MHz	-	1.5	-	

**Dynamic Characteristics**

Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =40V, f=1MHz	-	3130	-	pF
Output Capacitance	C <sub>oss</sub>		-	385	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	18	-	
Total Gate Charge	Q <sub>g</sub> (10V)	V <sub>DD</sub> =40V, I <sub>D</sub> =14A, V <sub>GS</sub> =10V	-	46	-	nC
Total Gate Charge	Q <sub>g</sub> (4.5V)		-	22	-	
Gate to Source Charge	Q <sub>gs</sub>		-	9	-	
Gate to Drain (Miller) Charge	Q <sub>gd</sub>		-	8	-	
Turn on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =40V, I <sub>D</sub> =14A, V <sub>GS</sub> =10V, R <sub>G</sub> =10	-	11	-	ns
Rise time	t <sub>r</sub>		-	7	-	
Turn off Delay Time	t <sub>d(off)</sub>		-	38	-	
Fall Time	t <sub>f</sub>		-	9	-	

**Reverse Diode Characteristics**

Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>F</sub> =14A	-	0.9	1.2	V
Reverse Recovery Time	t <sub>rr</sub>	V <sub>R</sub> =40V, I <sub>F</sub> =14A, dI <sub>F</sub> /dt=500A/ s	-	48	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>		-	190	-	nC

Figure 1. Typical Output Characteristics

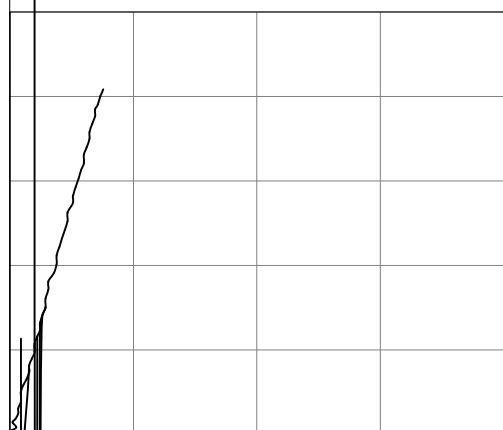


Figure 2. On-Resistance vs. Gate-Source Voltage

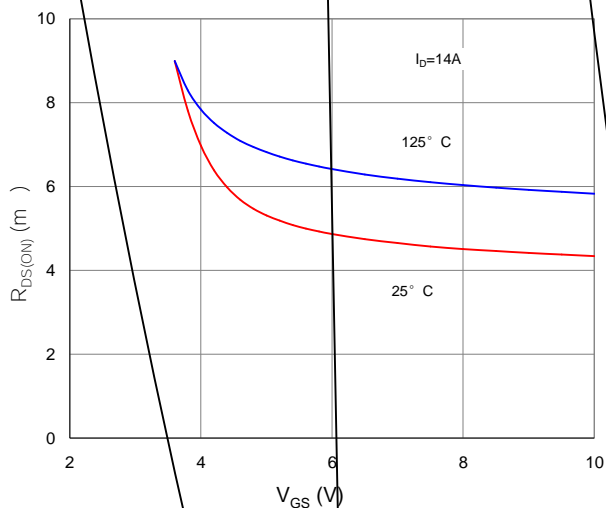


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

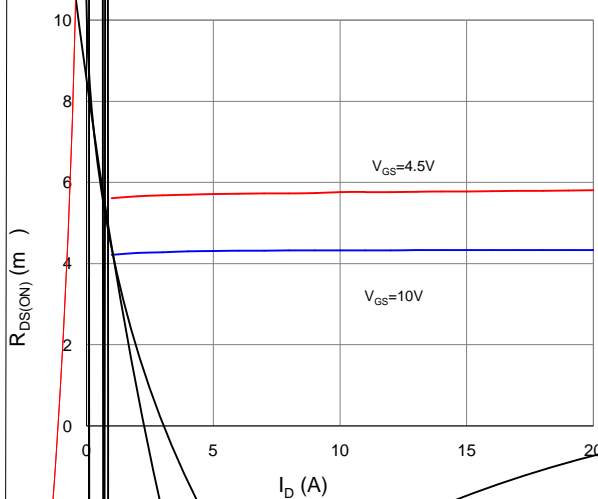


Figure 4. Normalized On-Resistance vs. Junction Temperature

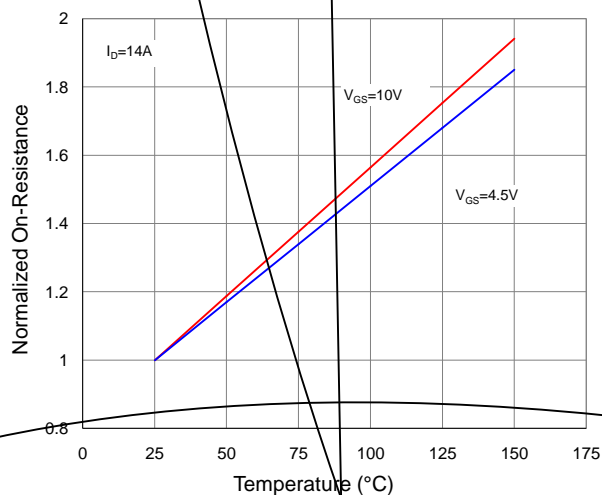


Figure 5. Typical Transfer Characteristics

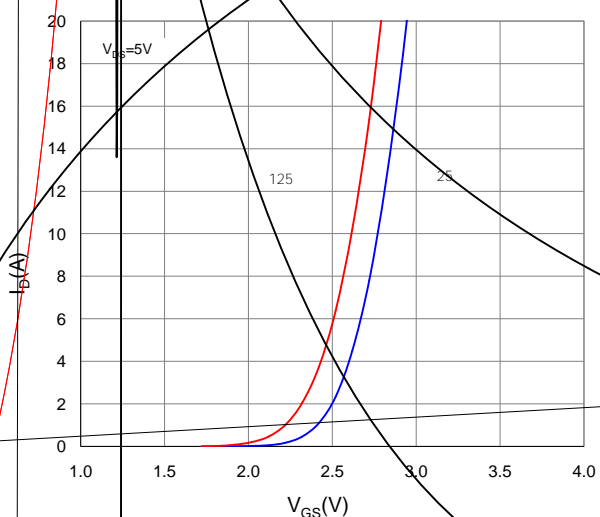


Figure 6. Typical Source-Drain Diode Forward Voltage

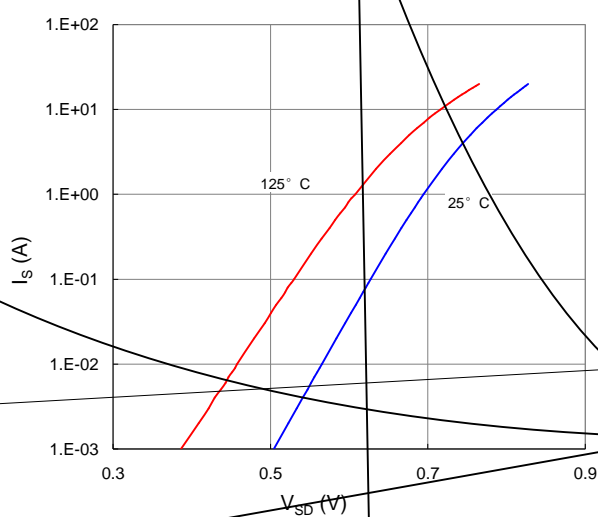


Figure 7. Typical Gate-Charge vs. Gate-to-Source Voltage

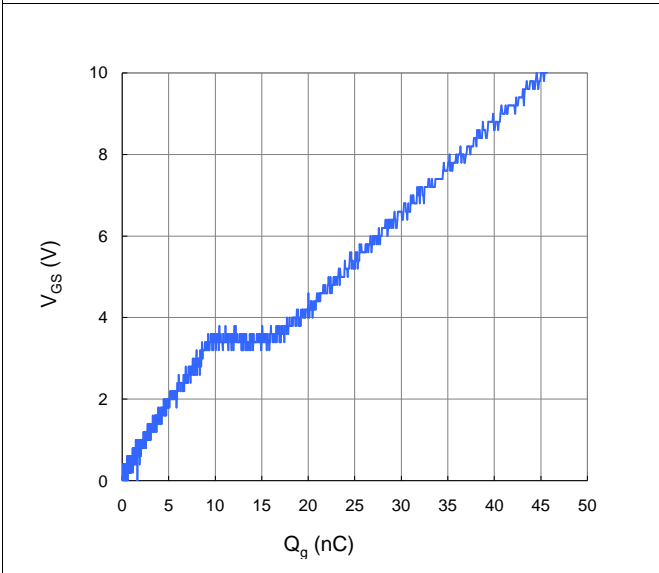


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

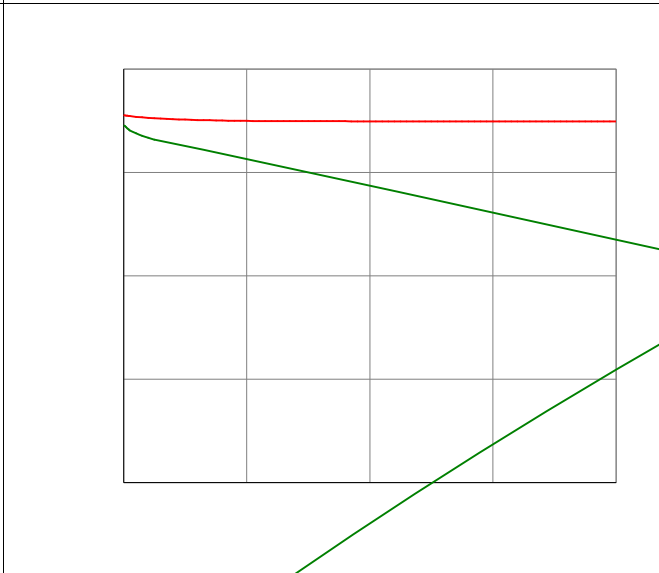


Figure 9. Maximum Safe Operating Area

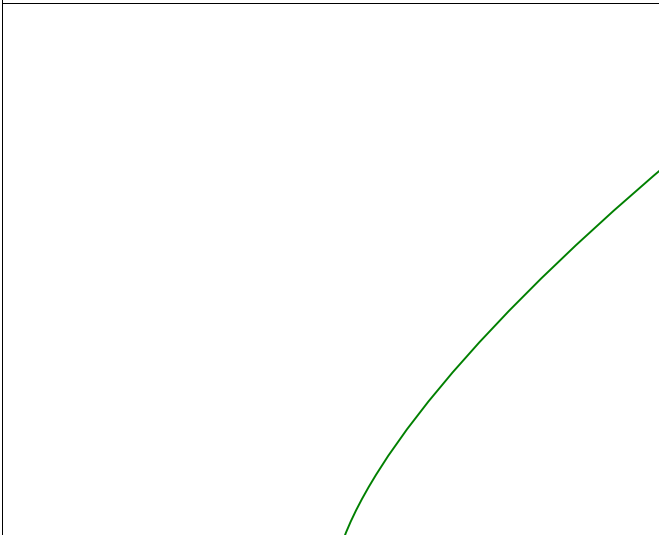


Figure 10. Maximum Drain Current vs. Case Temperature

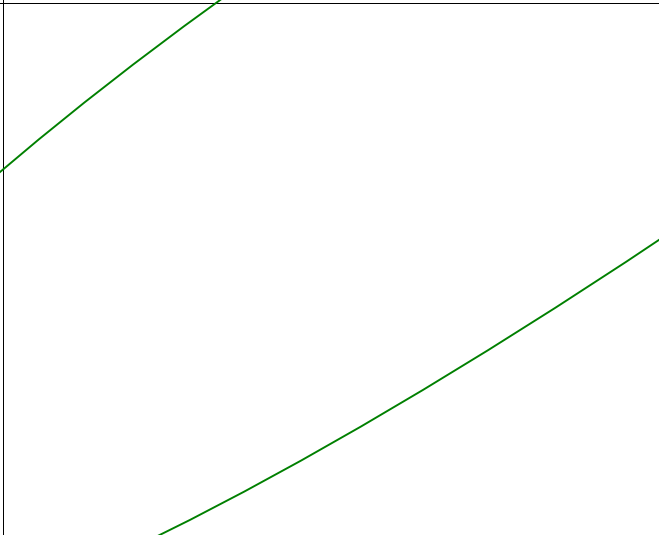
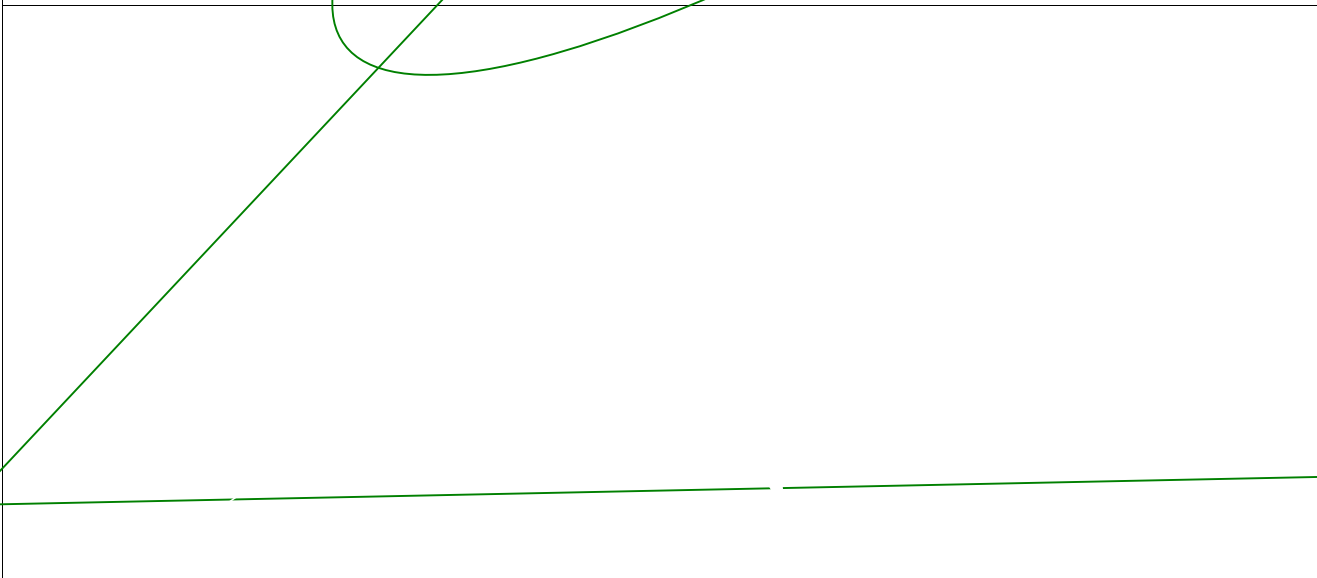
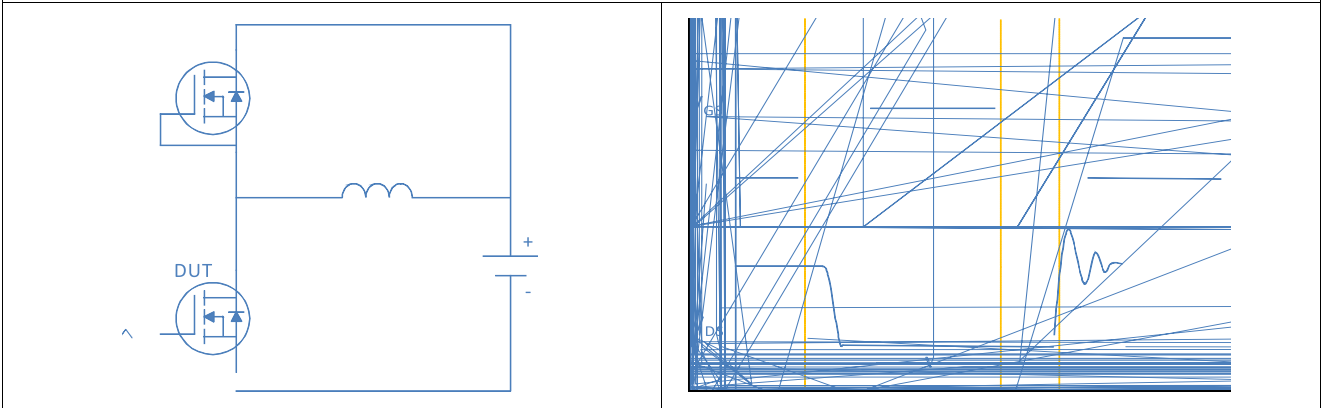


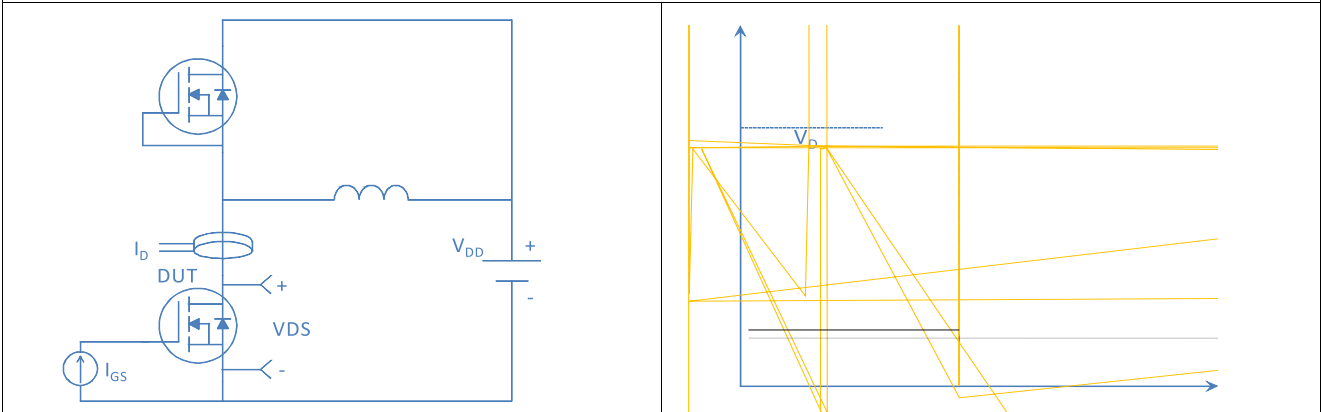
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient



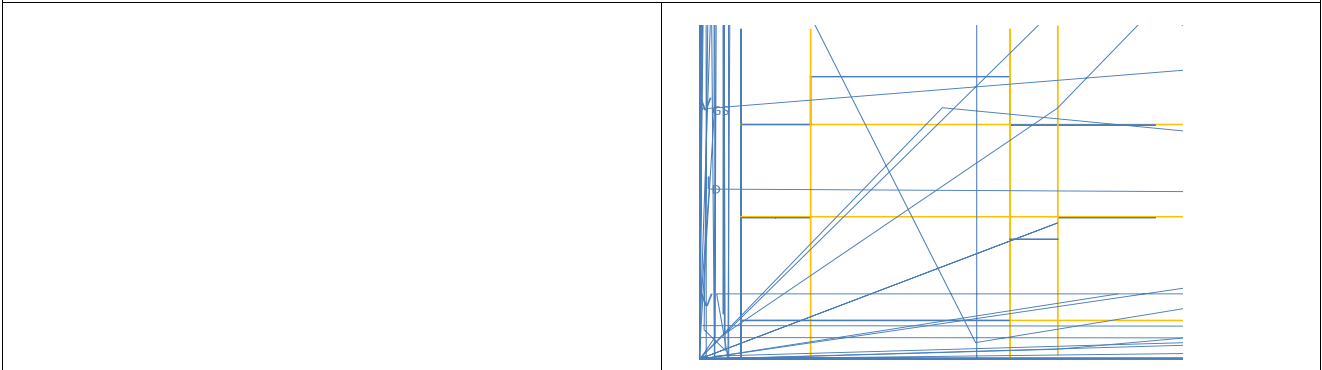
Inductive switching Test



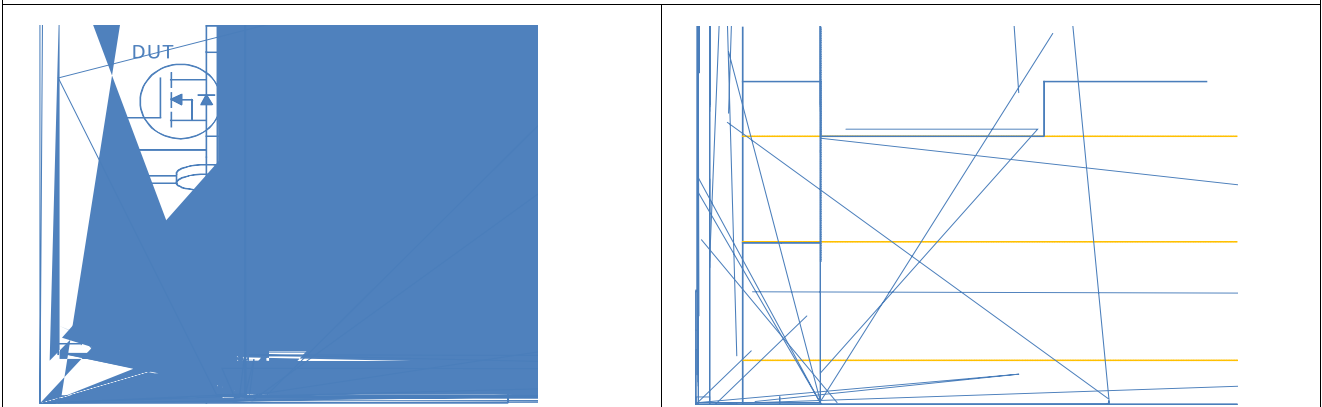
Gate Charge Test



Uclamped Inductive Switching (UIS) Test

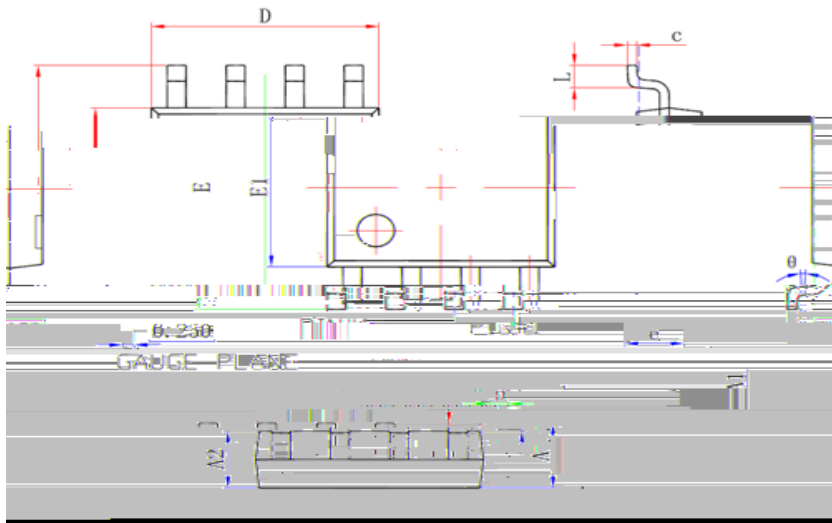


Diode Recovery Test



Package Outline

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°