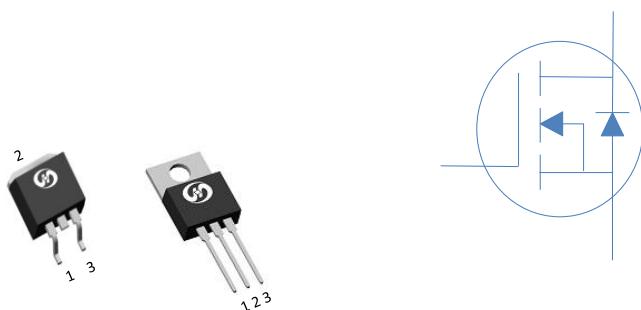


150V N-Ch Power MOSFET

V_{DS}	150	V
$R_{DS(on),typ}$	TO-263	16.0 m
$R_{DS(on),typ}$	TO-220	16.3 m
I_D (Silicon Limited)	59	A



Part Number	Package	Marking
HGB195N15S	TO-263	GB195N15S
HGP195N15S	TO-220	GP195N15S

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

Parameter	Symbol	Conditions	Value	Unit
Continuous Drain Current (Silicon Limited)	I_D	$T_C=25^\circ\text{C}$	59	A
		$T_C=100^\circ\text{C}$	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}	$L=0.4\text{mH}, T_C=25^\circ\text{C}$	80	mJ
Power Dissipation	P_D	$T_C=25^\circ\text{C}$	150	W
Operating and Storage Temperature	T_J, T_{stg}	-	-55 to 175	$^\circ\text{C}$

Absolute Maximum Ratings

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

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

Drain to Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{GS}=0V, I_D=250 \text{ A}$				
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{GS}=V_{DS}, I_D=250 \text{ A}$	2	3		
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=150V, T_J=25^\circ\text{C}$	-	-	1	
Gate to Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	
Drain to Source on Resistance	$R_{DS(\text{on})}$		-	16	19.2	m
Transconductance	g_f	$V_{DS}=5V, I_D=20A$	-	55	-	S
Gate Resistance	R_G	$V_{GS}=0V, V_{DS} \text{ Open}, f=1\text{MHz}$	-	2.2	-	

Dynamic Characteristics

Input Capacitance	C_{iss}		-	1960	-	
Output Capacitance	C_{oss}	$V_{GS}=0V, V_{DS}=75V, f=1\text{MHz}$	-	130		
Reverse Transfer Capacitance	C_{rss}		-	8	-	
Total Gate Charge	$Q_g(10V)$		-	25	-	
Gate to Source Charge	Q_{gs}	$V_{DD}=75V, I_D=20A, V_{GS}=10V$	-	9	-	
Gate to Drain (Miller) Charge	Q_{gd}		-	3	-	
Turn on Delay Time	$t_{d(on)}$		-	9	-	
Rise time	t_r	$V_{DD}=75V, I_D=20A, V_{GS}=10V,$	-	8	-	ns
Turn off Delay Time	$t_{d(off)}$	$R_G=10 \Omega$	-	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}	$V_R=75V, I_F=20A, dI_F/dt=100A/\text{s}$	-	60	-	ns
Reverse Recovery Charge	Q_{rr}		-	120	-	nC

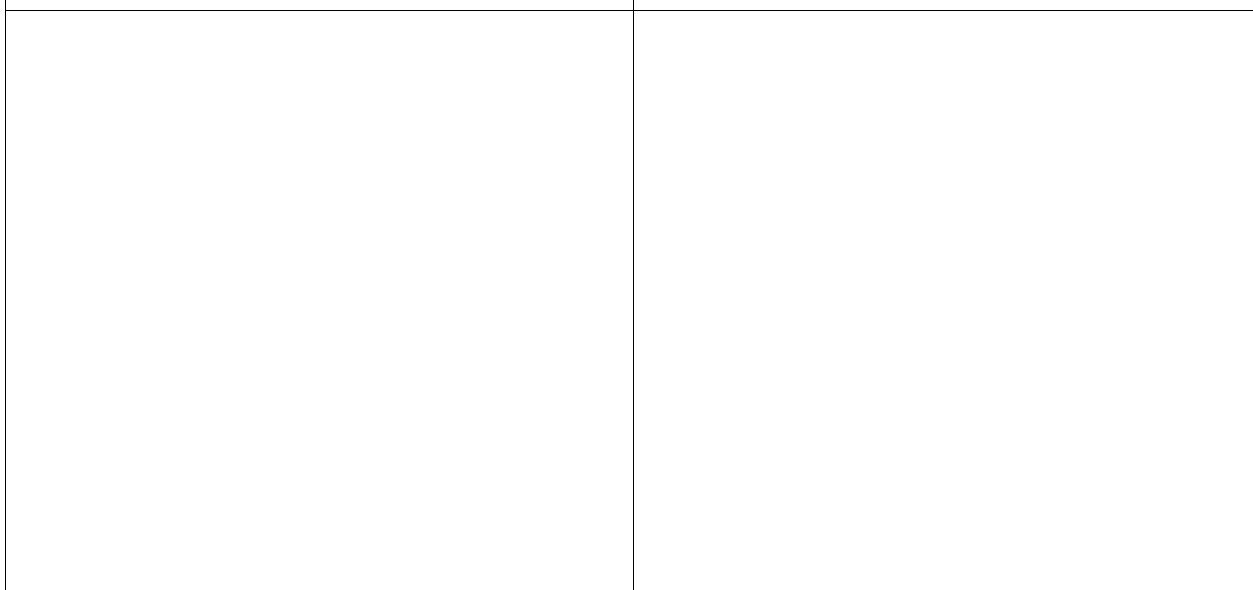
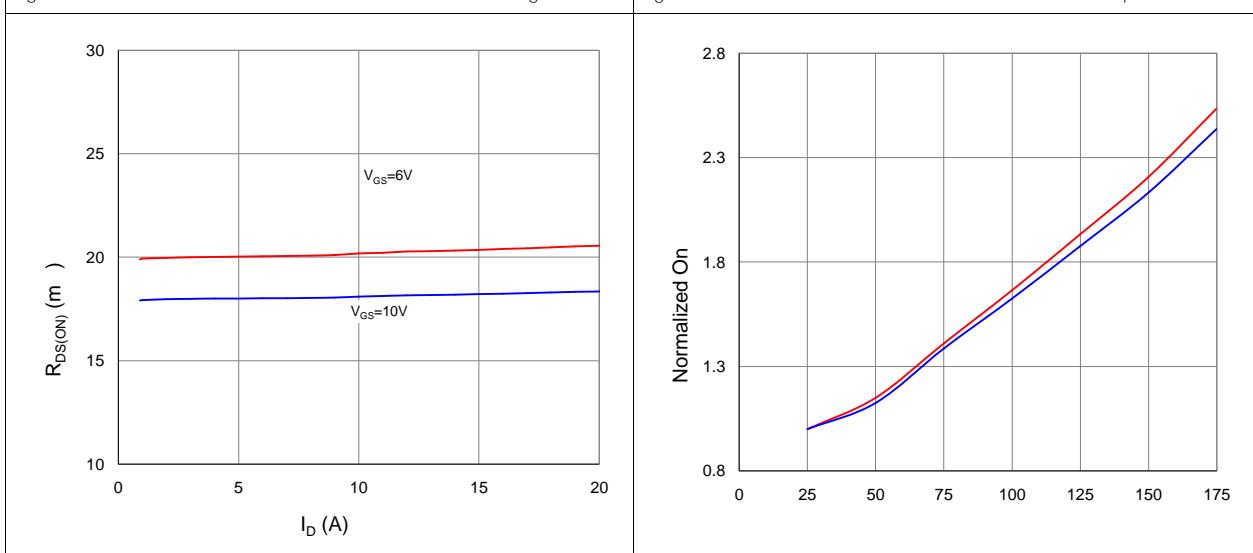
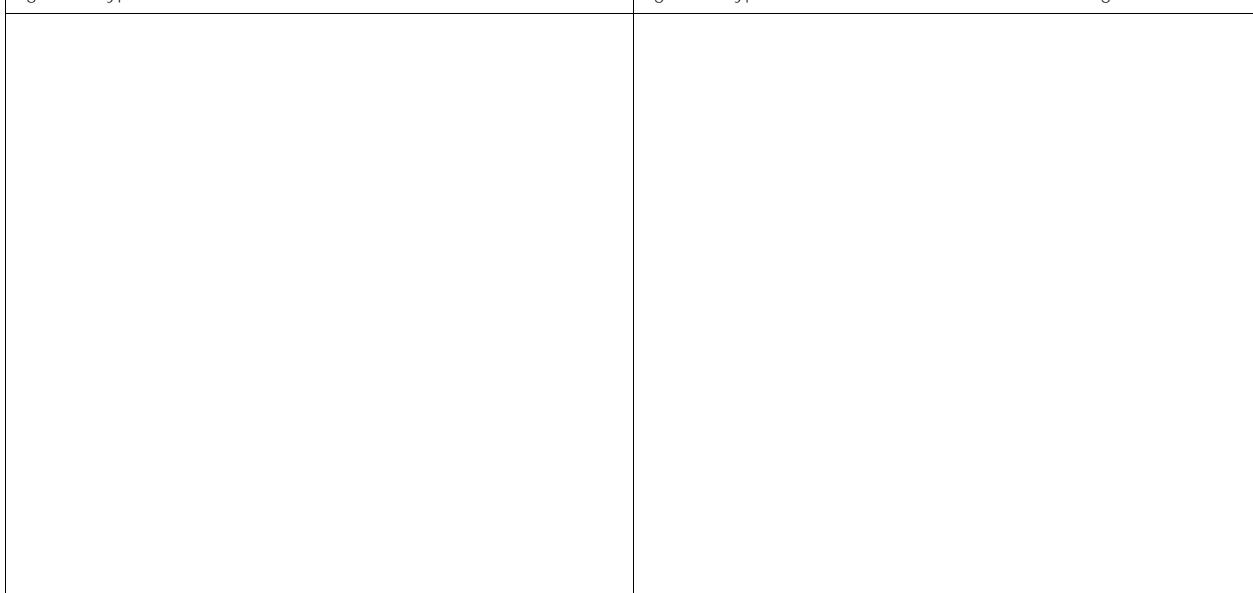
Fig 1. Typical Output Characteristics
Figure 2. On-Resistance vs. Gate-Source Voltage

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

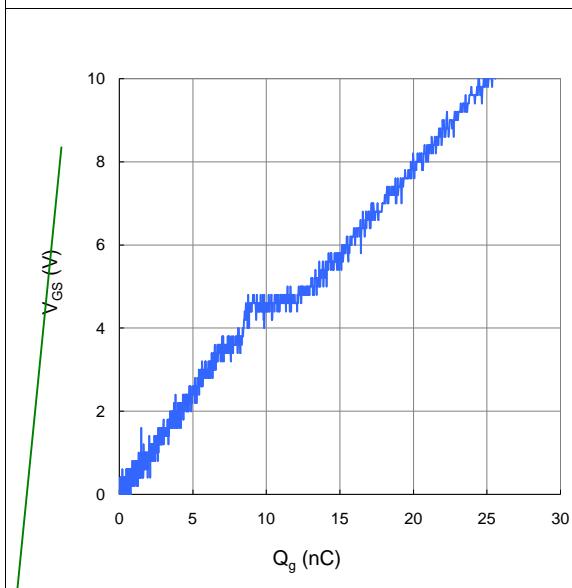


Figure 8. Typical Capacitance vs. Drain-to-Source Voltage

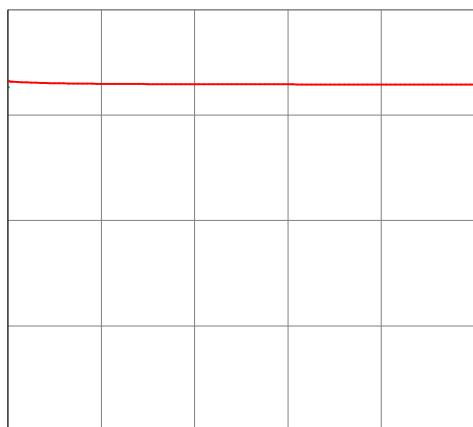


Figure 9. Maximum Safe Operating Area

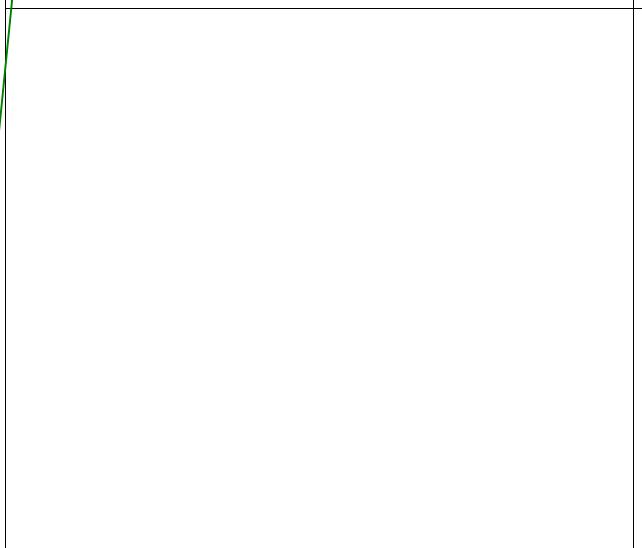


Figure 10. Maximum Drain Current vs. Case Temperature

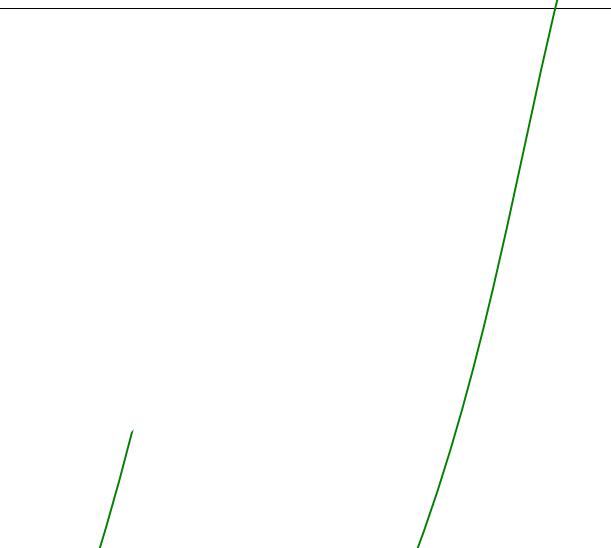
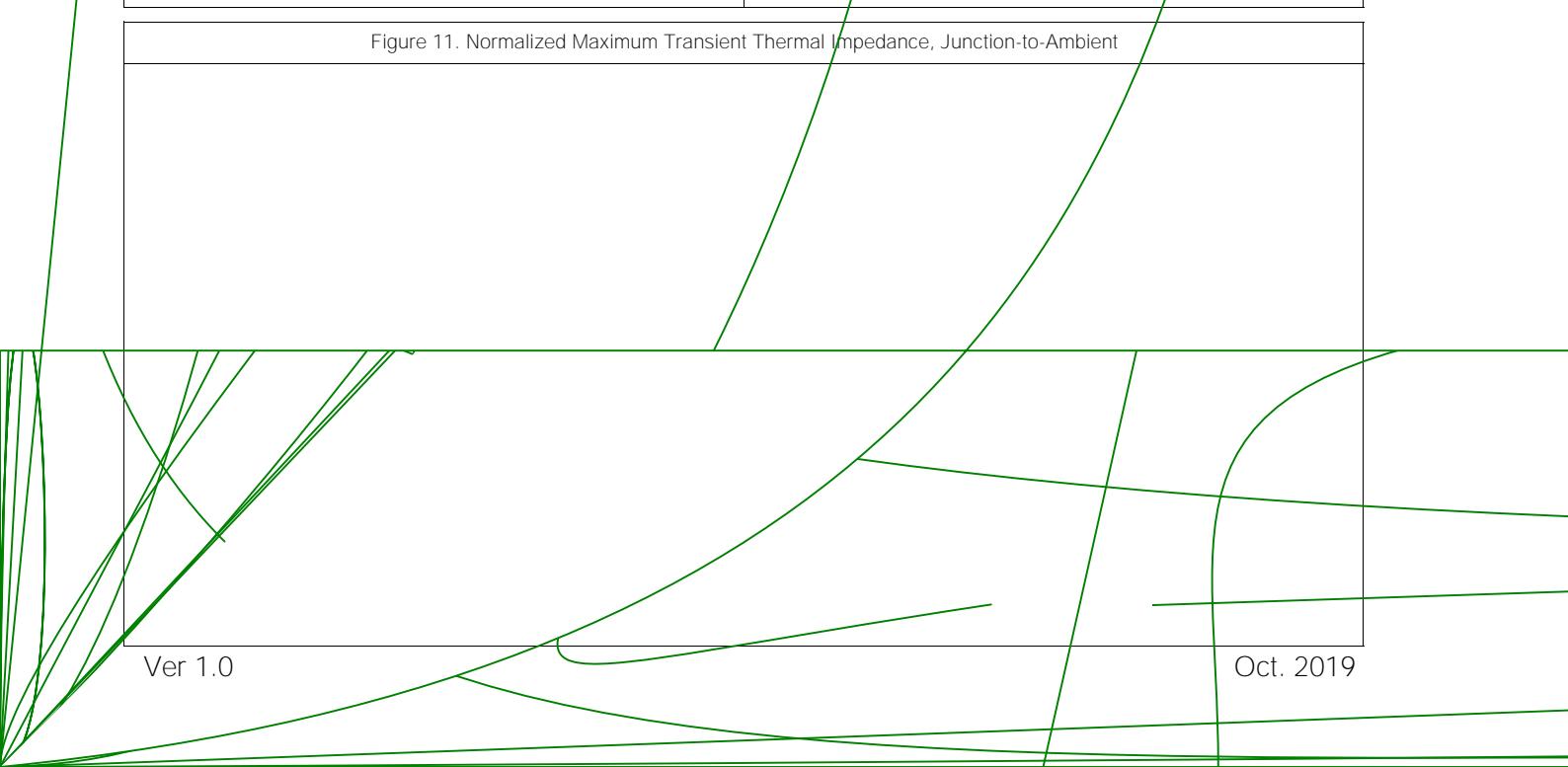
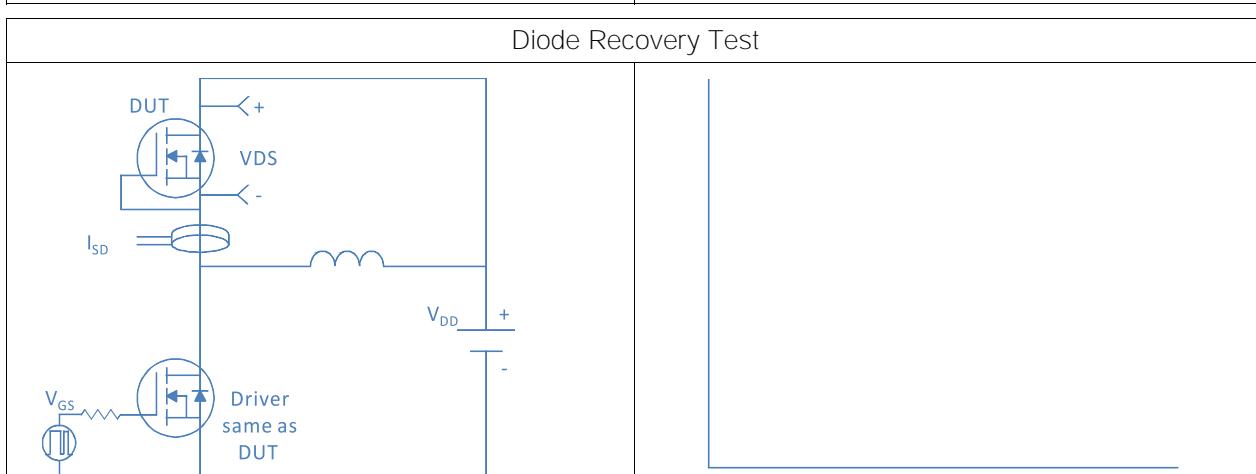
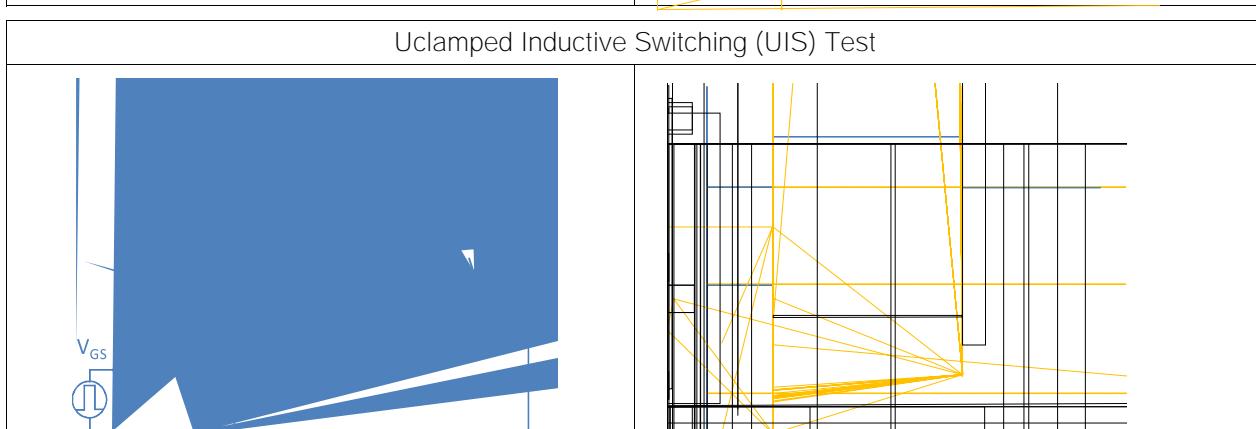
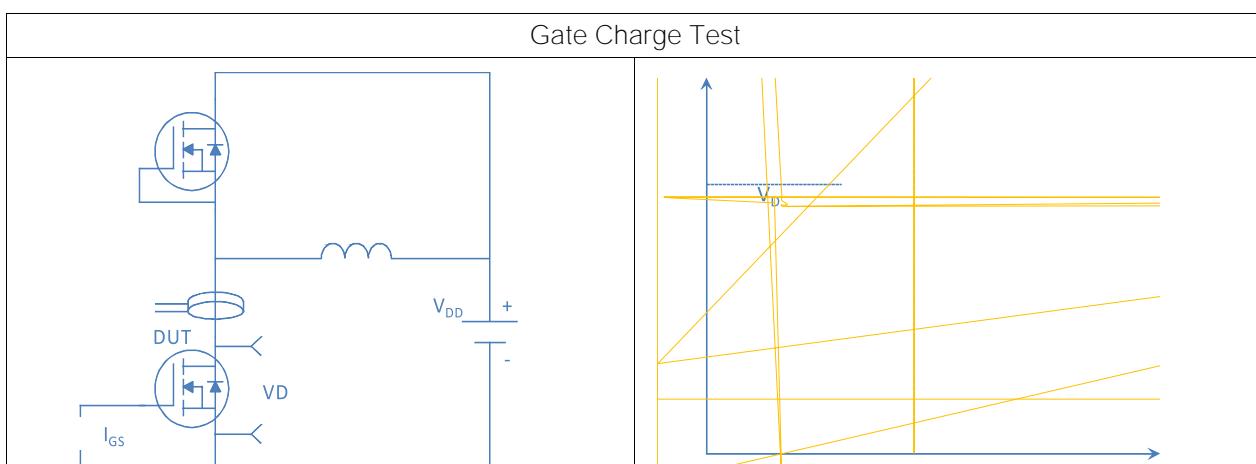
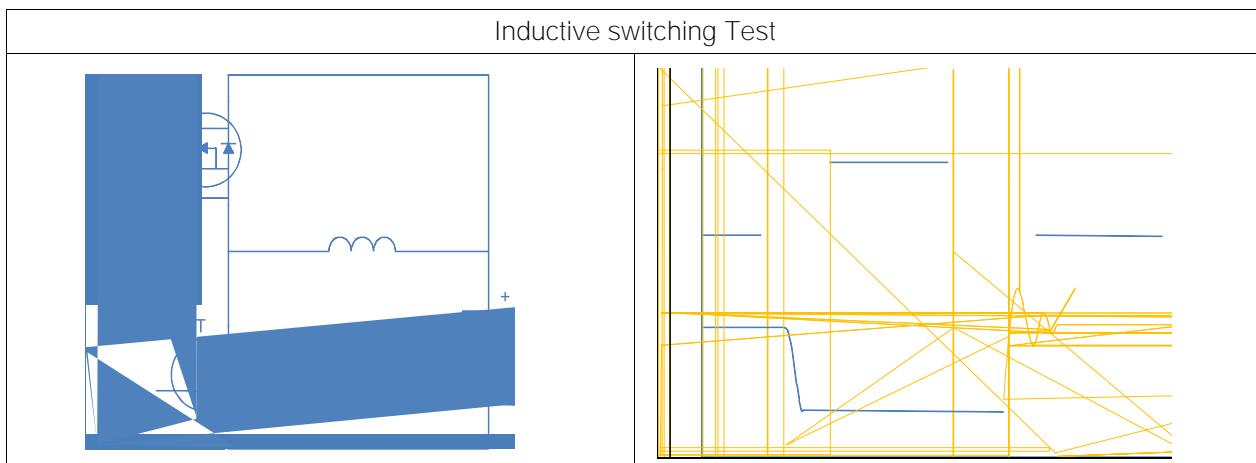
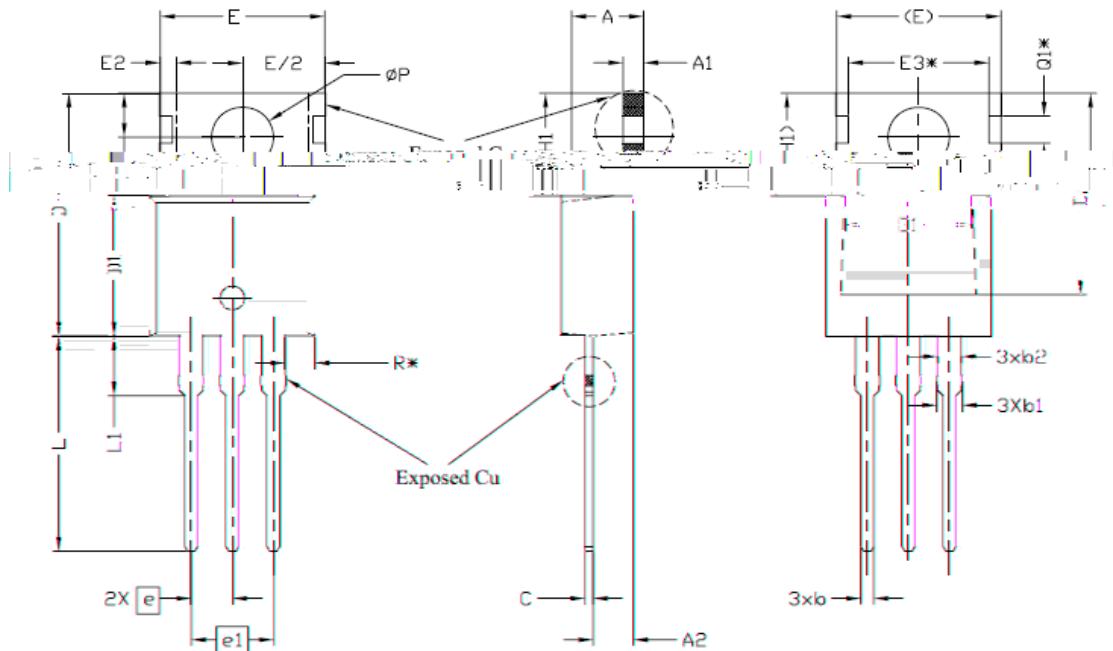


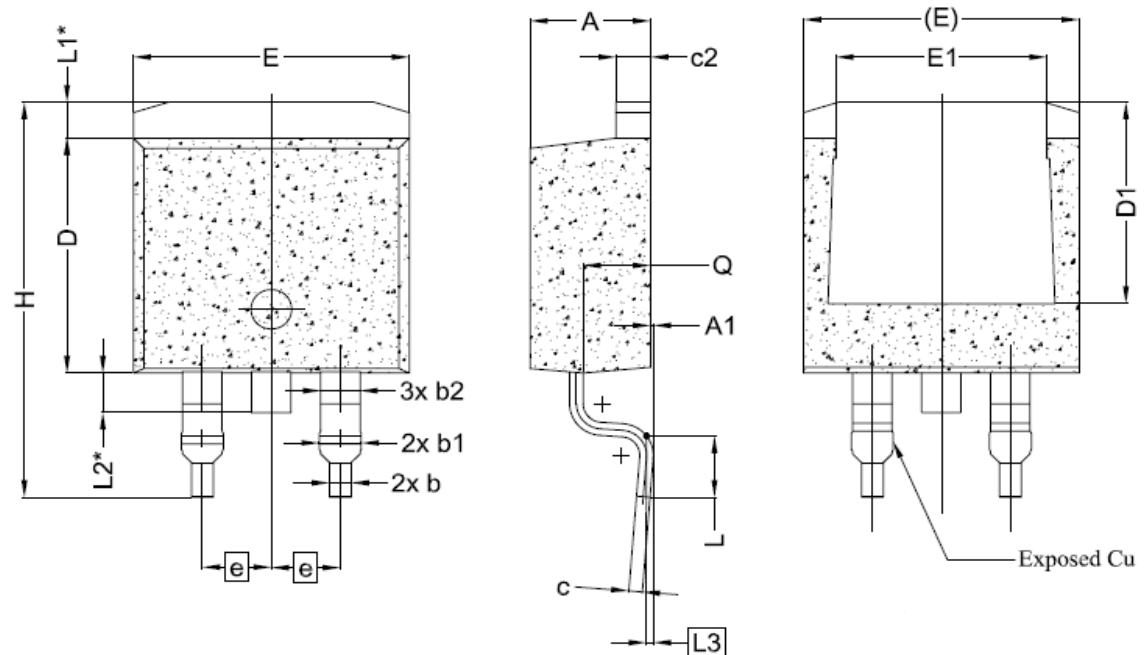
Figure 11. Normalized Maximum Transient Thermal Impedance, Junction-to-Ambient





Package Outline
TO-220, 3 leads


SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A1	1.075	1.087	1.097	13.49
A2	0.35	0.36	0.37	13.50
E	0.50	0.50	0.50	13.49
E1	0.09	0.09	0.09	13.49
E2	17.0	17.0	17.0	13.49
e	0.45	0.46	0.47	0.46
e1	4	14.8	15.3	14.80
e2	25	6.92	6.92	6.92
e3	62	13.69	13.72	13.69
e4	6.5	9.98	10.16	9.98
e5	17	6.96	7.01	6.96
e6	12			6.96
E3*				9.045, 11.3445
e7				2.34450
e8				3.08650
S1	16*	6.98	6.46	6.98
S2		13.47	13.72	13.47
S3	3.68	3.69	4.00	3.68
S4	5.78	5.84	5.95	5.78
S5	2.80	2.80	3.00	2.80
S6		17.985		17.985
S7		18.285		18.285

Package Outline
TO-263, 3 leads


Dimensions			Dimensions		
Unit	Value	Unit	Value	Unit	Value
mm	0.612	mm	0.24	mm	0.05
in	0.024	in	0.009	in	0.002
mm	0.50	mm	0.20	mm	0.05
in	0.020	in	0.008	in	0.002
mm	0.37	mm	0.15	mm	0.05
in	0.015	in	0.006	in	0.002
mm	1.45	mm	1.20	mm	b2
in	0.057	in	0.047	in	
mm	2.50	mm	0.80	mm	b1
in	0.098	in	0.031	in	
mm	1.27	mm	0.90	mm	a
in	0.050	in	0.035	in	
mm	0.30	mm	—	mm	c
in	0.012	in	—	in	
mm	10.16	mm	10.56	mm	L1
in	0.40	in	0.41	in	
mm	7.72	mm	7.36	mm	L2
in	0.30	in	0.29	in	
mm	2.48	mm	2.70	mm	L3
in	0.10	in	0.10	in	
2.54 BSC			2.54 BSC		
mm	15.00	mm	15.88	mm	1
in	0.60	in	0.62	in	
mm	2.32	mm	2.79	mm	1
in	0.09	in	0.11	in	
1.36 REF.			1.36 REF.		
1.50 REF.			1.50 REF.		
0.25 BSC			0.25 BSC		
mm	2.30	mm	2.48	mm	2
in	0.09	in	0.10	in	