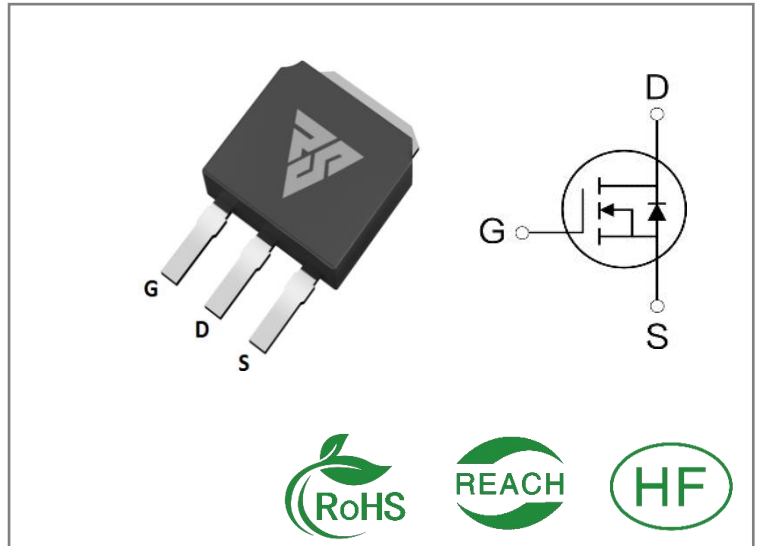


ID	R _{DS(ON)} (Typ)	VDSS
1.8A	2.2Ω	650V


Applications:

- Switch Mode Power Supply(SMPS)
- Adapter & Charger
- AC-DC Switching Power Supply

Features:

- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSU2N65MD	T0-251	RSU2N65MD	Tube	80 PCS

Absolute Maximun Ratings Tc= 25°C unless otherwise specified

Symbol	Parameter	RSU2N65MD	Units
VDSS	Drain-to-Source Voltage	650	V
ID	Continuous Drain Current TC=25°C	1.8	A
IDM	Pulsed Drain Current (Note*1)	5.4	
PD	Power Dissipation	22	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Energy L = 10mH, VDD = 50V, RG = 25 Ω	40	mJ
TL TPKG	Maximum Temperature for Soldering	300	°C
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	260	
TJ and TSTG	Operating Junction and Storage Temperature Range	-55 to 150	

* Drain Current Limited by Maximum Junction Temperature

Caution: Stresses greater than those listed in the " Absolute Maximum Ratings" Table may cause permanent damage to the device.

Thermal Resistance

Symbol	Parameter	RSU2N65MD	Units	Test Conditions
R θ JC	Junction-to-Case	5.68	°C / W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 150 °C
R θ JA	Junction-to-Ambient	75		1 cubic foot chamber, free air.

OFF Characteristics T_J= 25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	650	--	--	V	V _{GS} =0V, I _D =250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	V _D S=650V, V _{GS} =0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	V _{GS} =30V , V _D S=0V
	Gate- to- Source Reverse Leakage	--	--	-100		V _{GS} =-30V , V _D S=0V

ON Characteristics T_J=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
R _D S(on)	Static Drain- to- Source On-Resistance(Note*2)	--	2.2	2.4	Ω	V _{GS} =10V, I _D =1A
V _{GS} (TH)	Gate Threshold Voltage	3	--	4	V	V _{GS} =V _D S, I _D =250μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
t _d (ON)	Turn- on Delay Time	--	6	--	nS	V _D S=325V I _D =1A R _G =50Ω
t _{rise}	Rise Time	--	3	--		
t _d (OFF)	Turn- OFF Delay Time	--	64	--		
t _{fall}	Fall Time	--	11	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	183	--	pF	VGS=0V VDS=50V f=1.0MHz
Coss	Output Capacitance	--	12	--		
Crss	Reverse Transfer Capacitance	--	1	--		
Qg	Total Gate Charge	--	3	--	nC	VDS=480V ID=1.8A VGS=10V
Qgs	Gate- to- Source Charge	--	0.6	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	1.1	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	1.8	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	5.4	A	
VSD	Diode Forward Voltage	--	--	1.3	V	IS=1.8A,VGS=0V
trr	Reverse Recovery Time	--	135	--	nS	VGS=0V IS=1.8A,di/dt=100 A/μs
Qrr	Reverse Recovery Charge	--	0.6	--	μC	

Notes:

- * 1. Repetitive rating, pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 1\%$

Typical Feature Curve

Figure1. Safe operating area

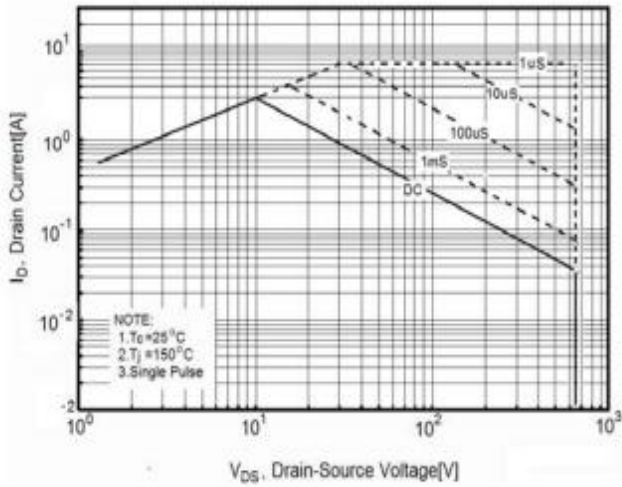


Figure2. Source-Drain Diode Forward Voltage

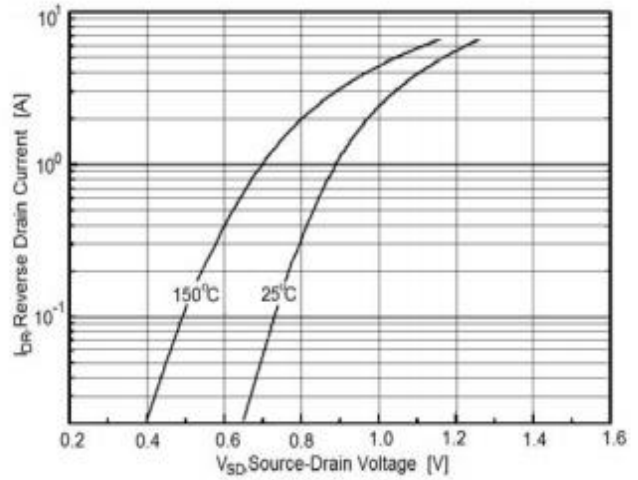


Figure3. Output characteristics

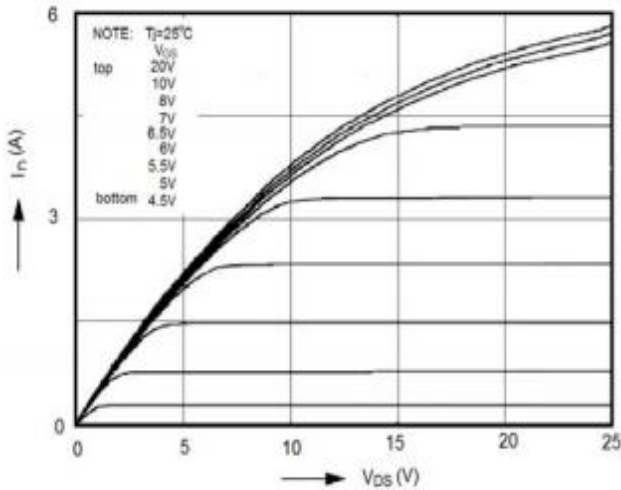


Figure4. Transfer characteristics

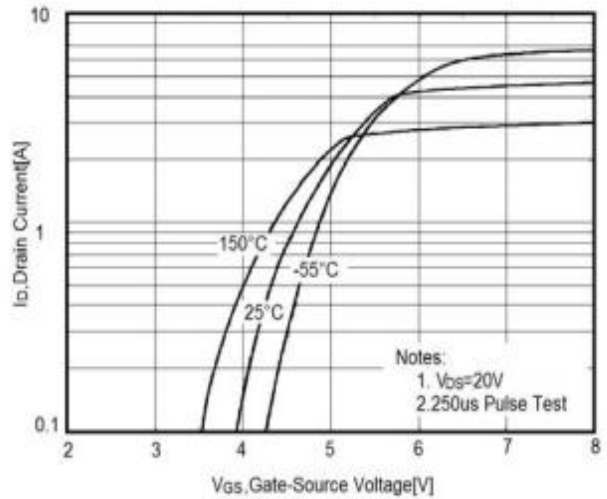


Figure5. Static drain-source on resistance

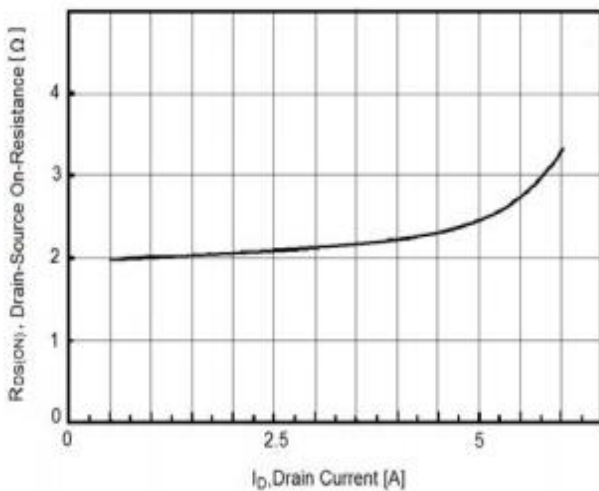


Figure6. $R_{DS(ON)}$ vs Junction Temperature

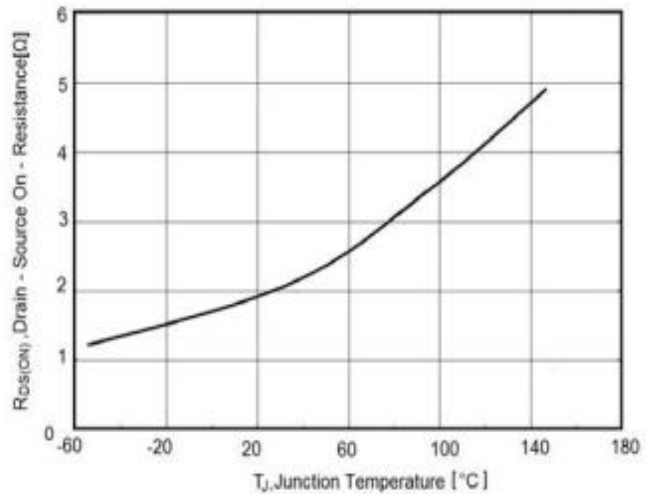


Figure7. BV_{DSS} vs Junction Temperature

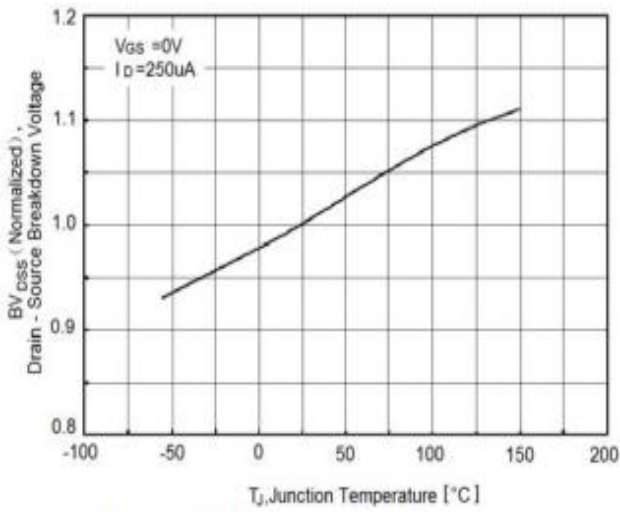


Figure8. Maximum I_D vs Junction Temperature

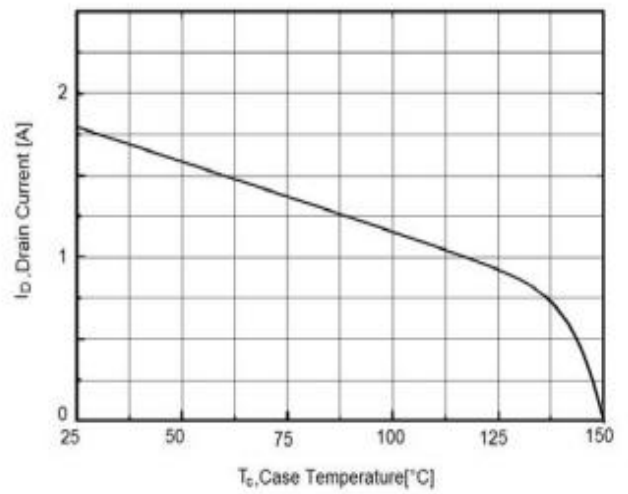


Figure9. Gate charge waveforms

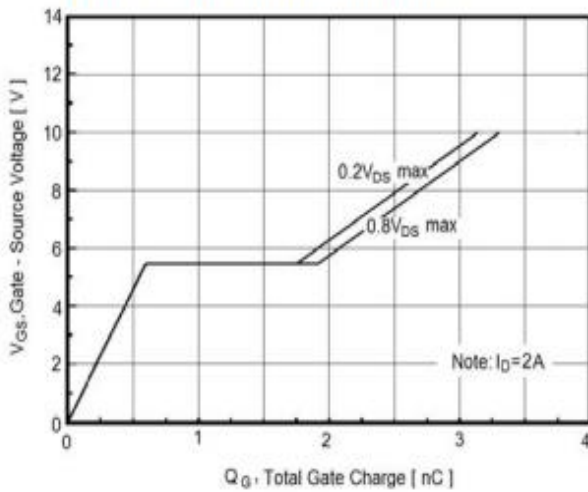


Figure10. Capacitance

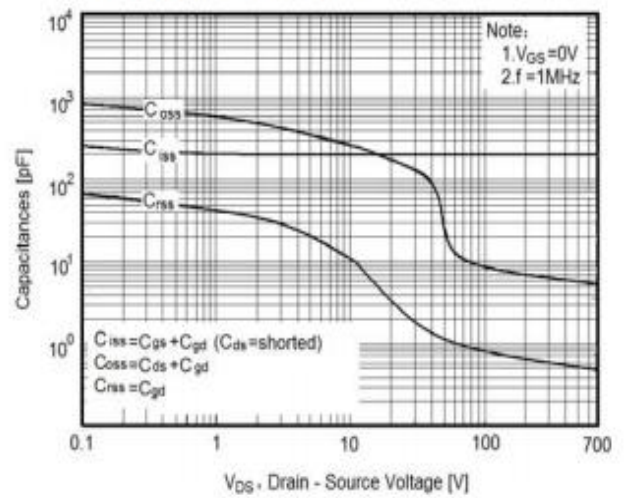
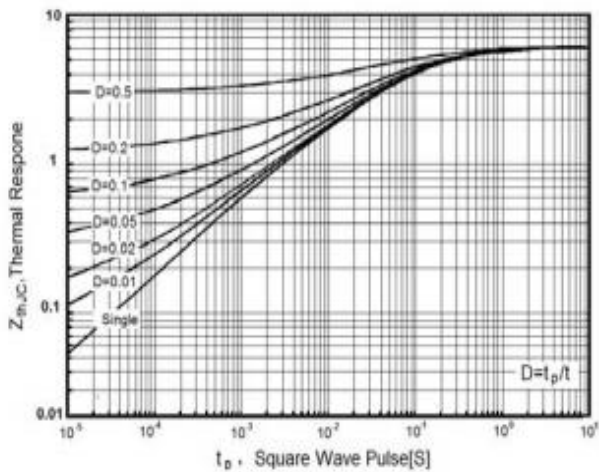


Figure11. Transient Thermal Impedance



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

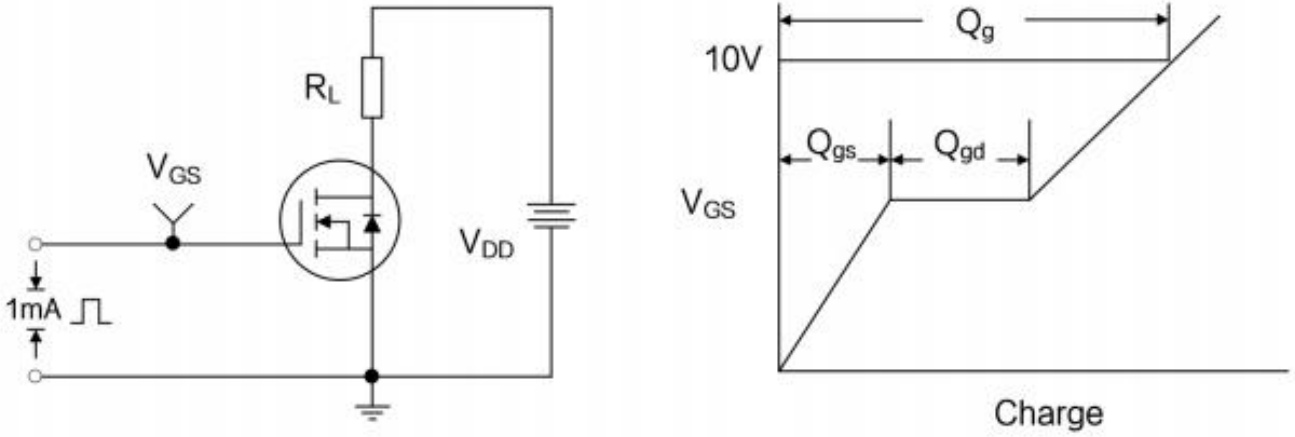


Figure B: Resistive Switching Test Circuit and Waveform

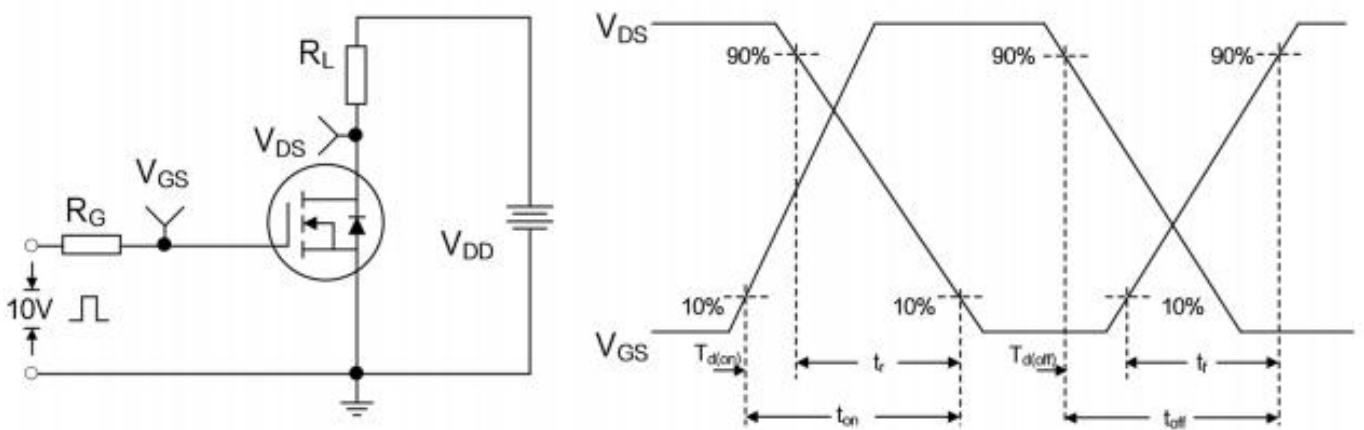
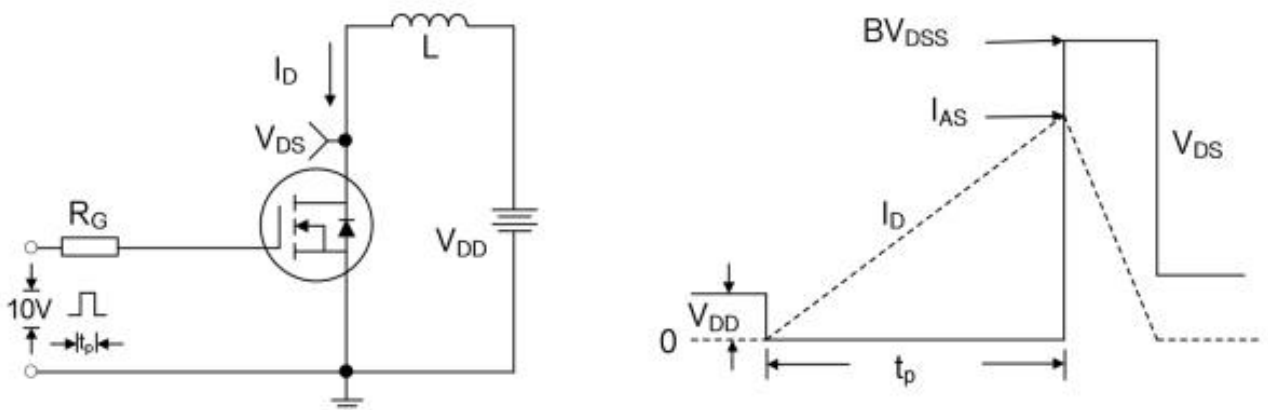
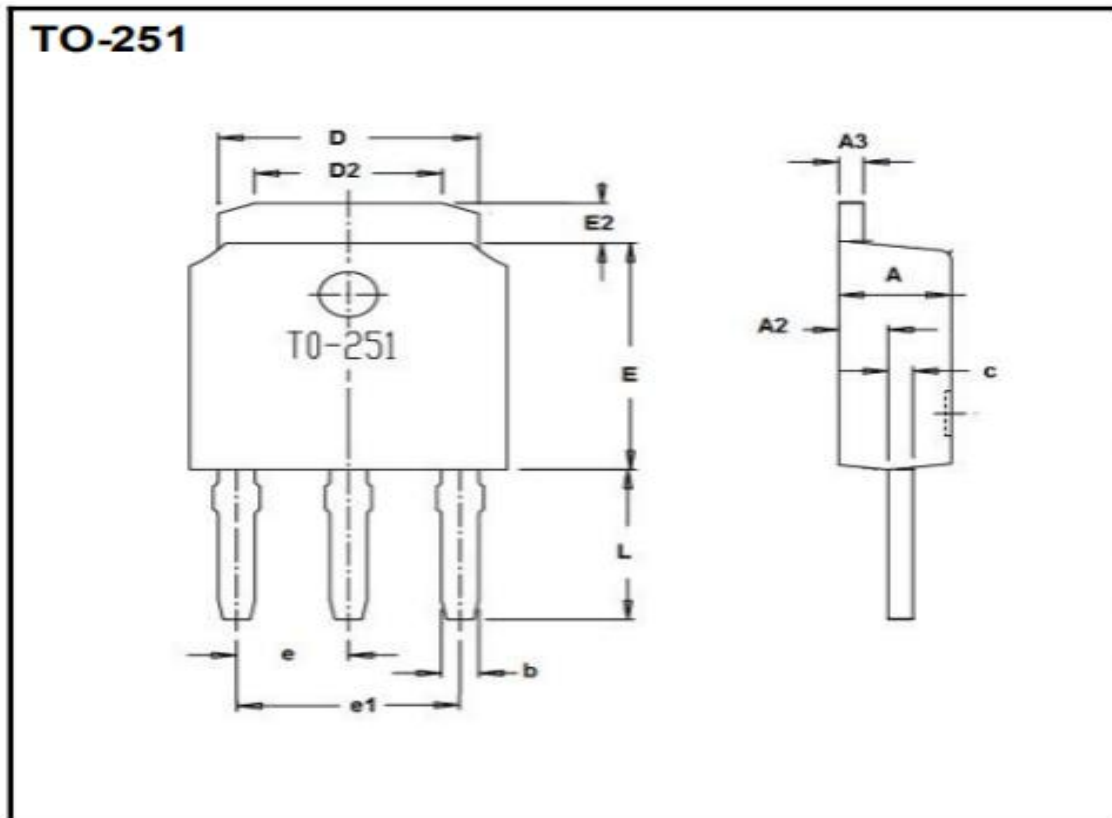


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Package outline drawing(TO-251 Unit: mm)



Dim.	Min.	Max.
A	2.15	2.45
A2	0.9	1.1
A3	Typ0.5	
b	0.74	0.86
c	0.9	1.1
D	5.33	5.53
D2	3.65	4.05
E	6.0	6.2
E2	0.91	1.36
e	Typ2.29	
e1	Typ4.58	
L	3.7	4.3
All Dimensions in millimeter		

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