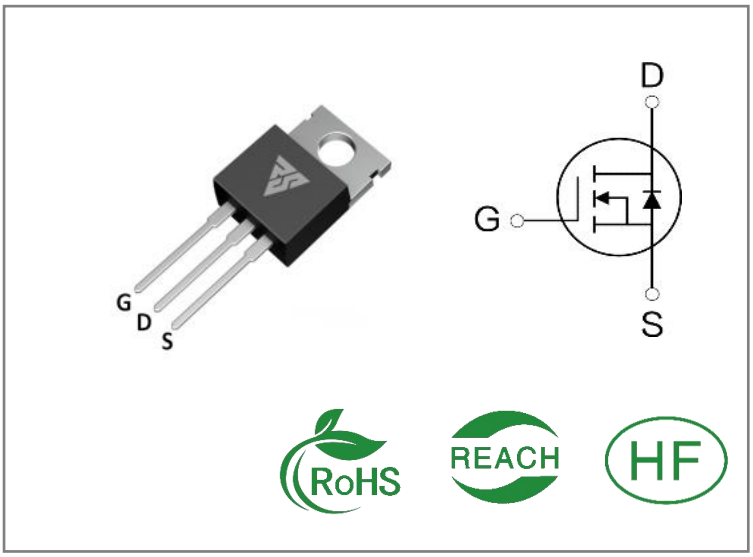
ID	R_{DS}(ON)(Typ)	VDSS
150A	2.8mΩ	85V



Applications:
- Load Switch
- PWM Applications
- Power Managment

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS85N150T	T0-220	RS85N150T	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS85N150T	Units
VDSS	Drain-to-Source Voltage	85	V
ID	Continuous Drain Current TC=25℃	150	A
ID	Continuous Drain Current TC=100℃	140	
IDM	Pulsed Drain Current	600	
PD	Power Dissipation	310	W
VGS	Gate- to- Source Voltage	±20	V
EAS	Single Pulse Avalanche Engergy L = 0.5mH,IS = 55A, RG = 25Ω, Tj = 25℃	750	mJ
TL TPKG	Maximum Temperature for Soldering	300 260	℃
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds		
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	RS85N150T	Units	Test Conditions
RθJC	Junction-to-Case	0.4	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	52		1 cubic foot chamber,free air.

OFF Characteristics TJ= 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	85	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=80V,VGS=0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=20V ,VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-20V ,VDS=0V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance	--	2.8	3.6	mΩ	VGS=10V,ID=60A
VGS(TH)	Gate Threshold Voltage	2.0	--	4.0	V	VGS=VDS,ID=250μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	37	--	nS	VDS=43V ID=60A RG=4.7Ω VGS=10V
trise	Rise Time	--	63	--		
td(OFF)	Turn- OFF Delay Time	--	78	--		
tfall	Fall Time	--	41	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	7447	--	pF	VGS= 0V VDS=43V f=100KHz
Coss	Output Capacitance	--	1075	--		
Crss	Reverse Transfer Capacitance	--	43	--		
Qg	Total Gate Charge	--	130	--	nC	VDS= 68V ID=60A VGS=10V
Qgs	Gate- to- Source Charge	--	40	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	39	--		

Source- Drain Diode Characteristics

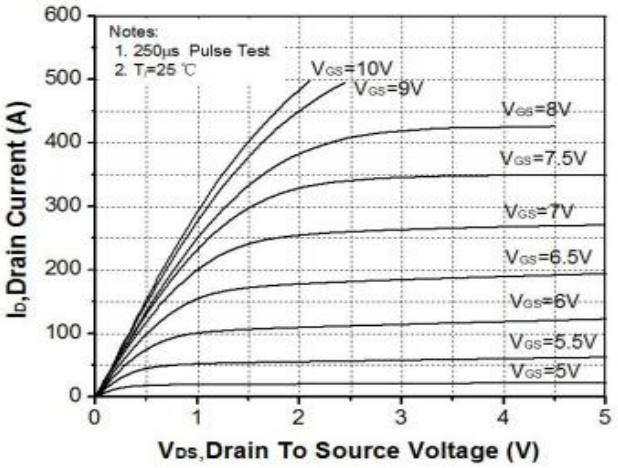
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	150	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	600	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=60A,VGS=0V
trr	Reverse Recovery Time	--	56	--	nS	VGS=0V IS=60A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	84	--	nC	

Notes:

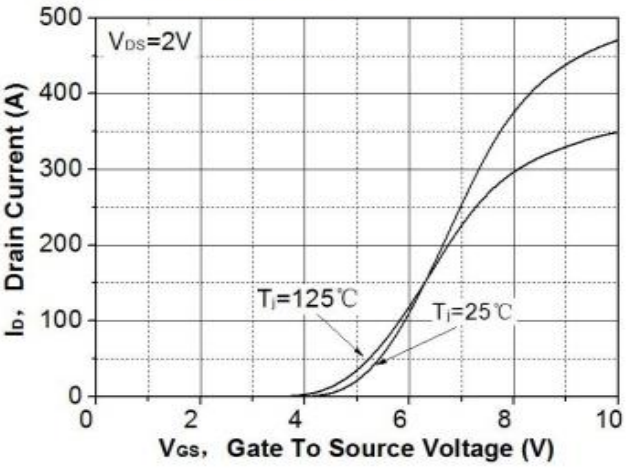
* 1. Repetitive rating, pulse width limited by maximum junction temperature.
* 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1.5%

Typical Feature Curve

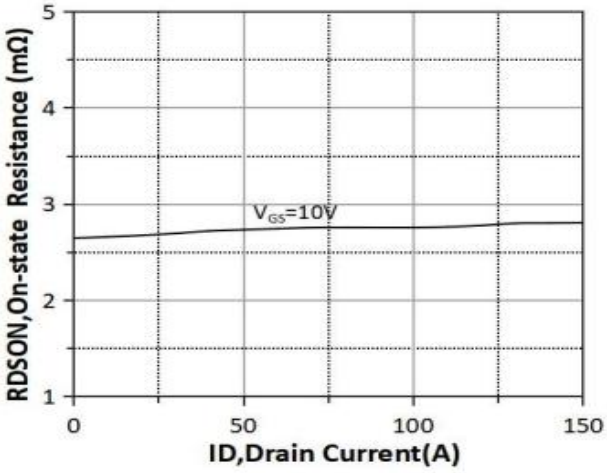
On-state characteristics



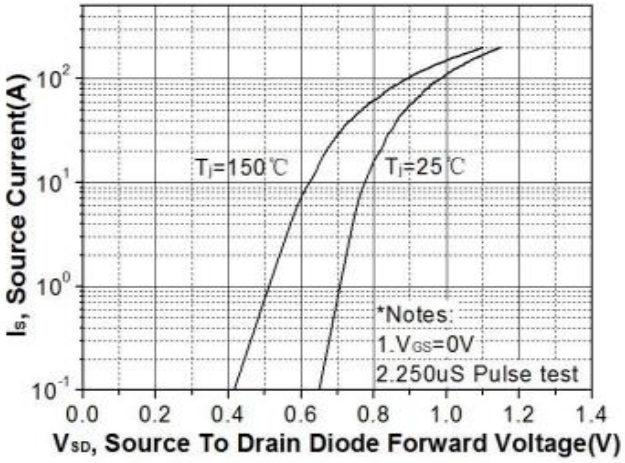
Transfer Characteristics



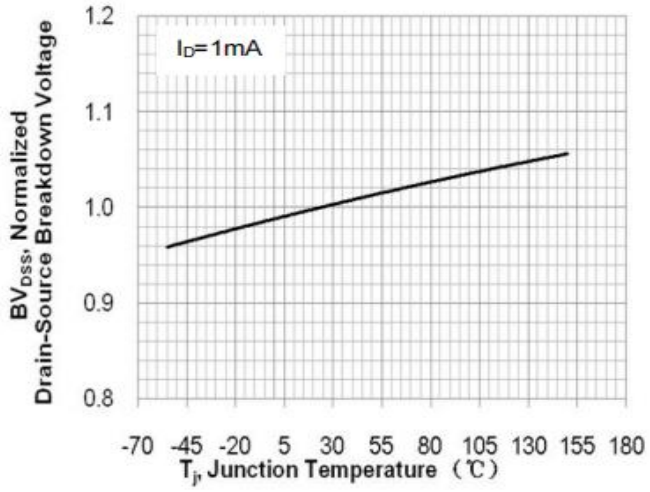
On-resistance variation vs.drain current and gate voltage



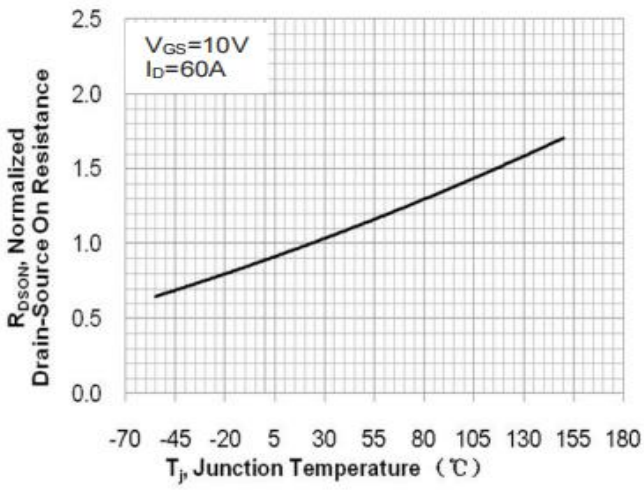
On-state current vs. diode forward voltage



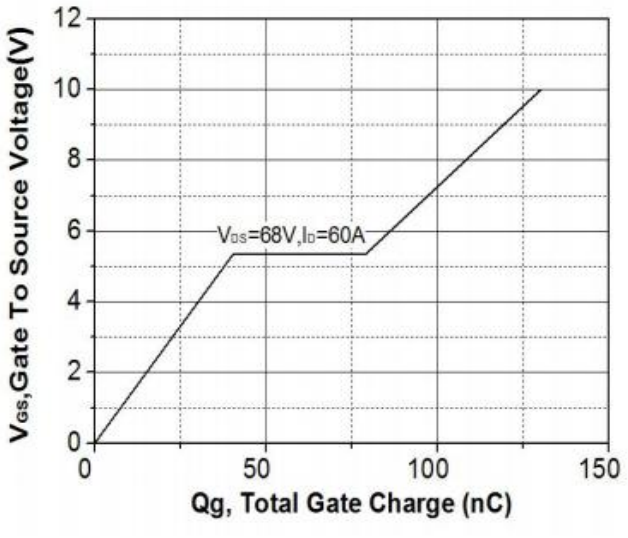
Breakdown voltage variation vs. junction temperature



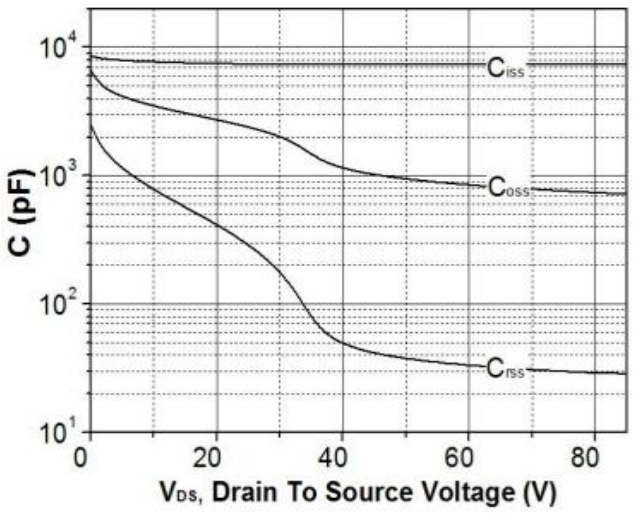
On-resistance variation vs. junction temperature



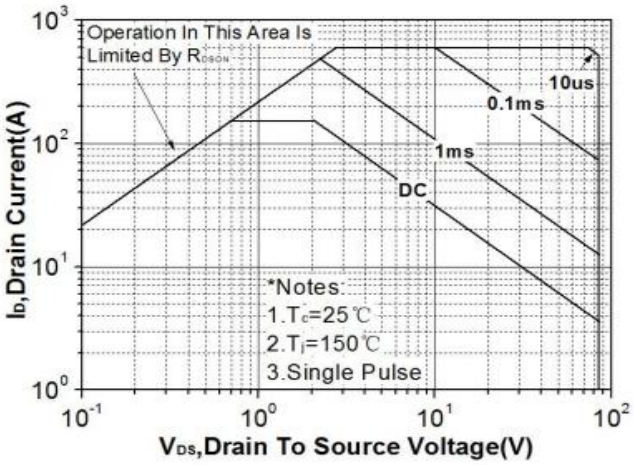
Gate charge characteristics



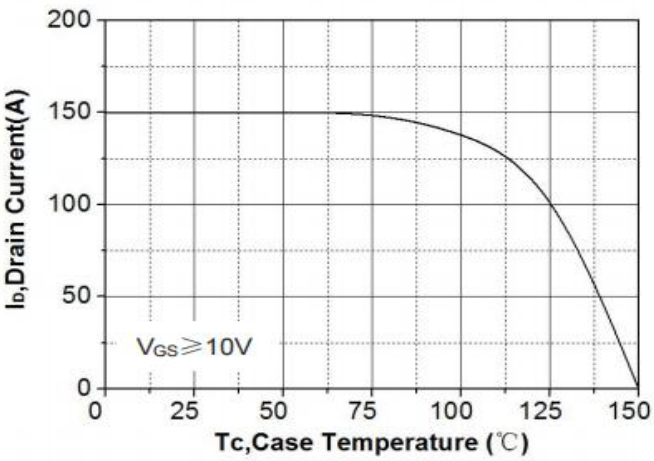
Capacitance characteristics



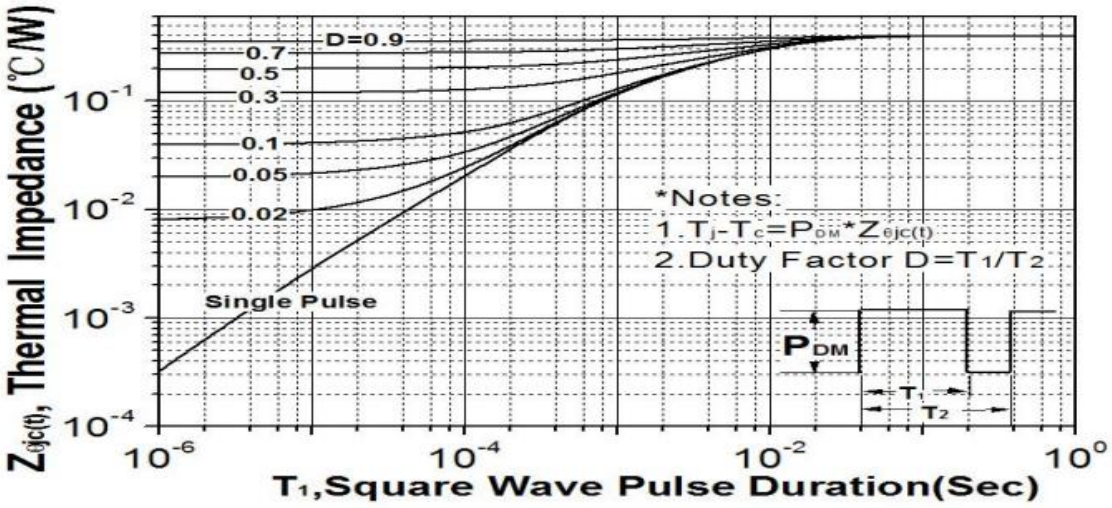
Maximum safe operating area



Maximum drain current vs. case temperature



Transient thermal response curve



Test ircuits and Waveforms

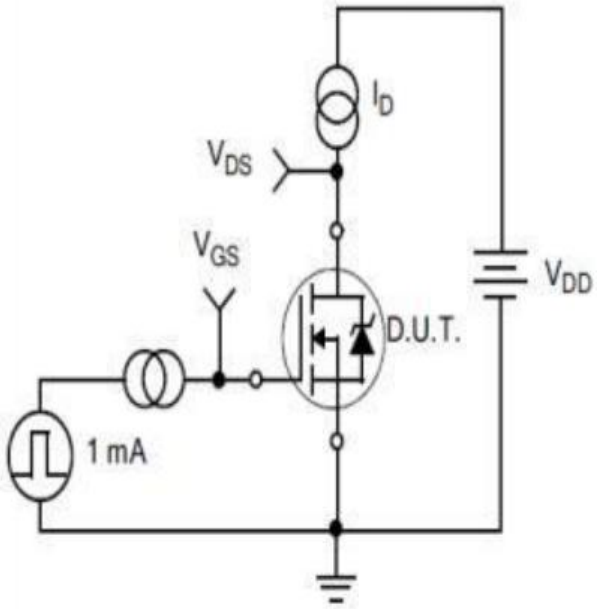


Figure A.
Gate Charge Test Circuit

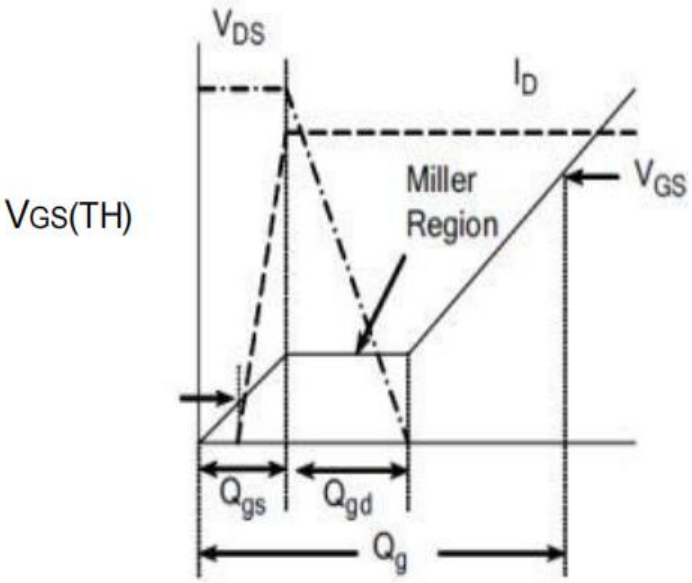


Figure B.
Gate Charge Waveform

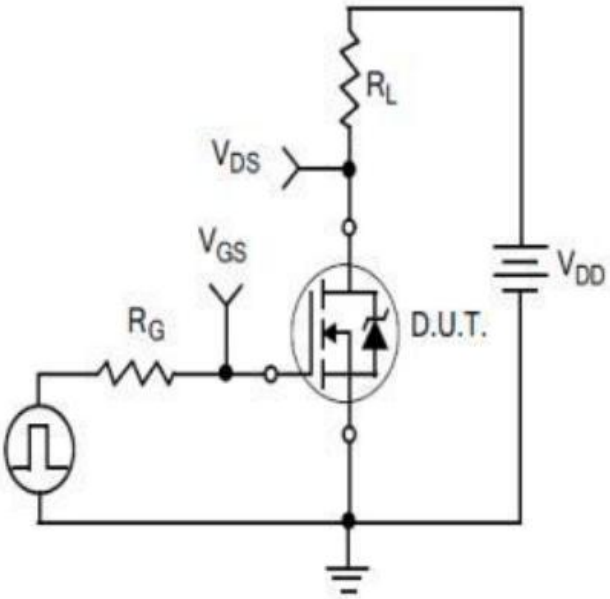


Figure C.
Resistive Switching Test Circuit

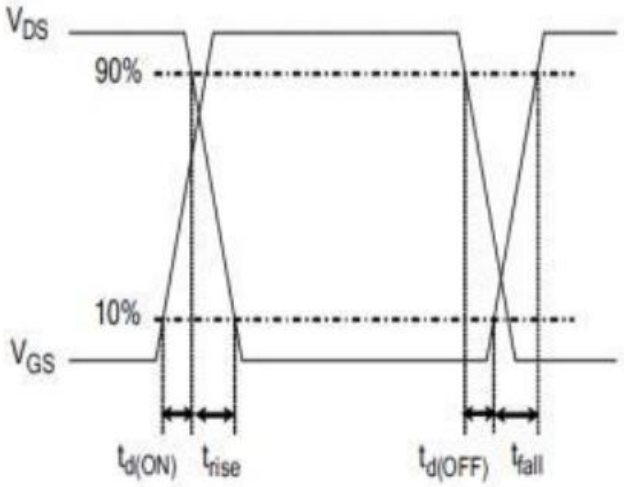


Figure D.
Resistive Switching Waveforms

Test ircuits and Waveforms

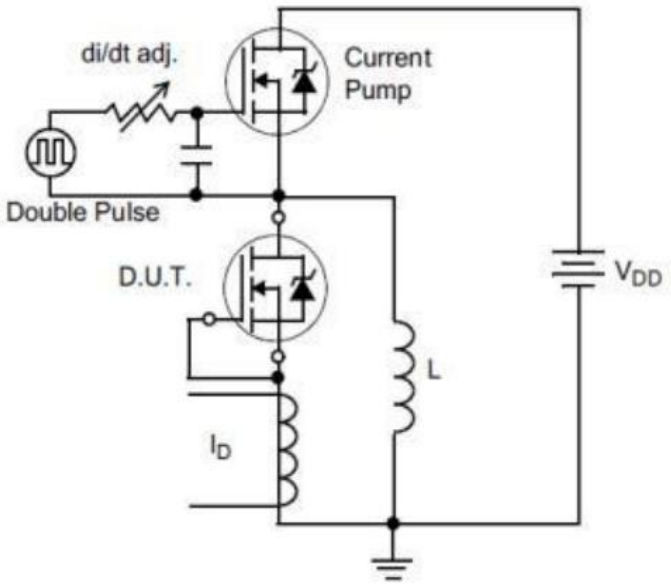


Figure E.Diode Reverse Recovery Test Circuit

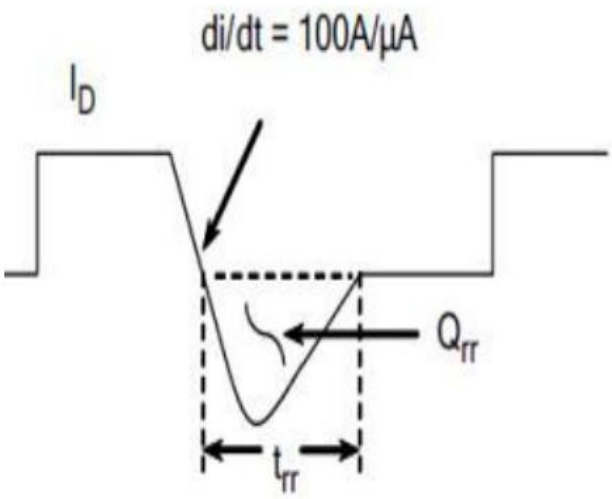


Figure F.Diode Reverse Recovery Waveform

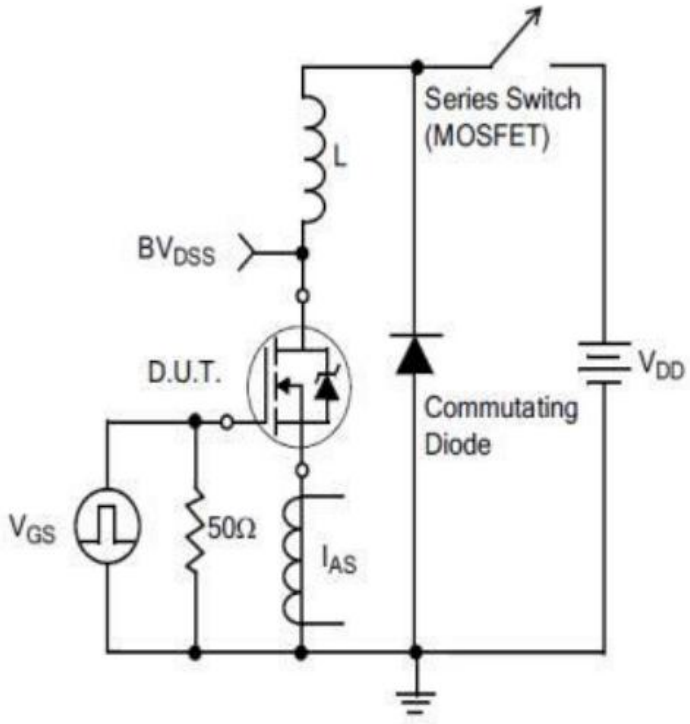
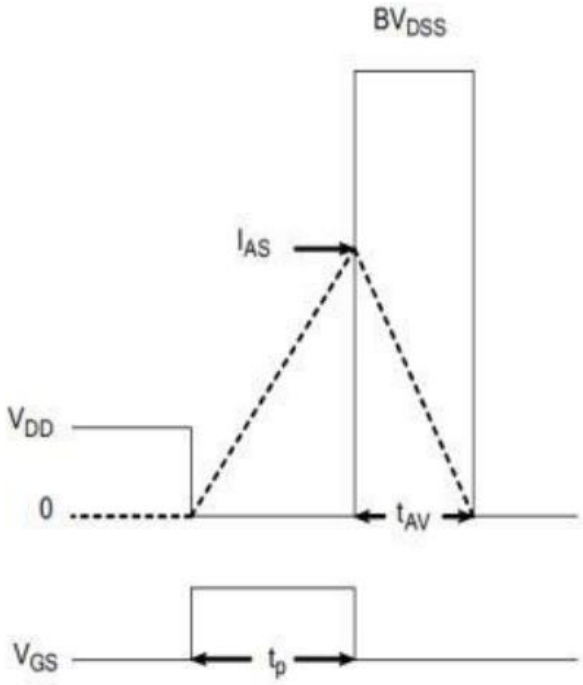


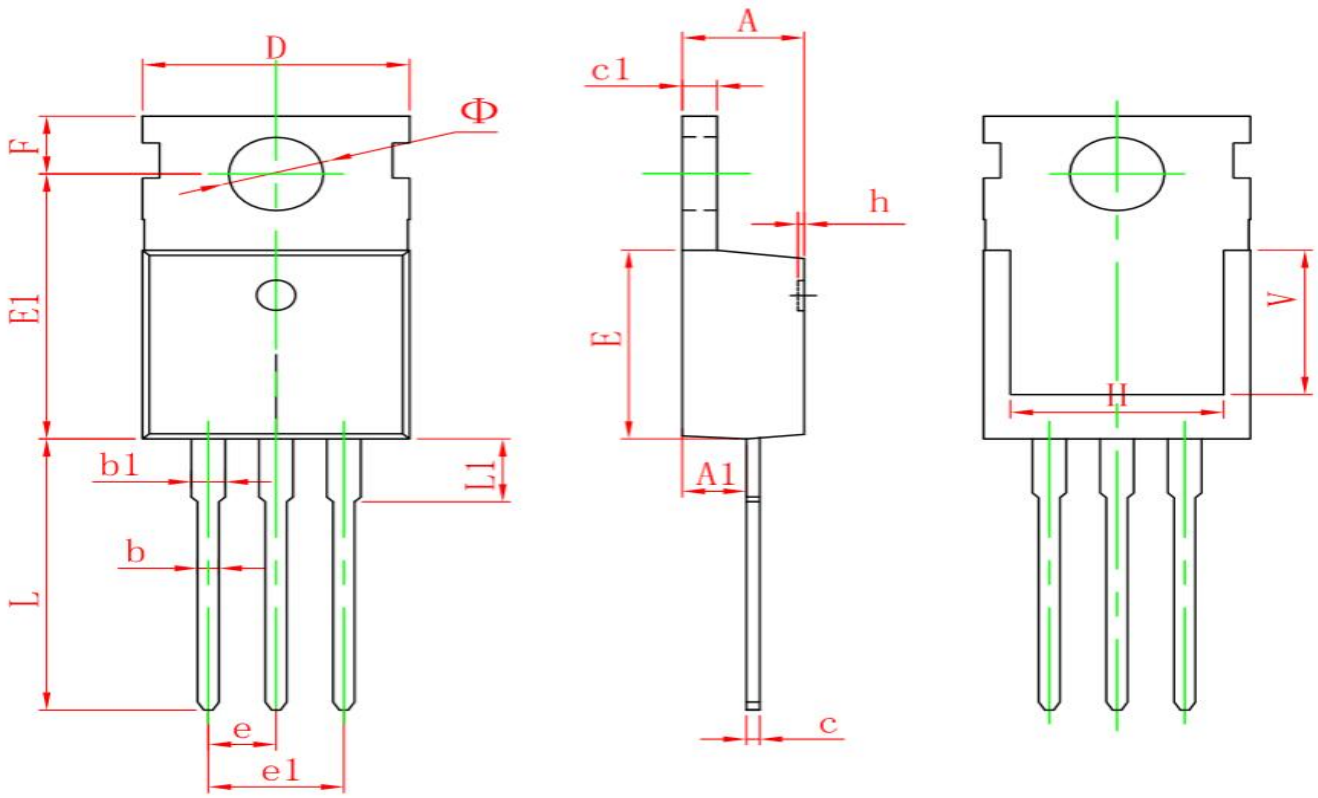
Figure G.Unclamped Inductive Switching Test Circuit



$$E_{AS}=\frac{I_{AS}^2 L}{2}$$

Figure H.Unclamped Inductive Switching Waveforms

Package outline drawing(TO-220 Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.400	4.600	0.173	0.181
A1	2.250	2.550	0.089	0.100
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.330	0.650	0.013	0.026
c1	1.200	1.400	0.047	0.055
D	9.910	10.250	0.390	0.404
E	8.950	9.750	0.352	0.384
E1	12.650	13.050	0.498	0.514
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
F	2.650	2.950	0.104	0.116
H	7.900	8.100	0.311	0.319
h	0.000	0.300	0.000	0.012
L	12.900	13.400	0.508	0.528
L1	2.850	3.250	0.112	0.128
V	6.900 REF.		0.276 REF.	
Φ	3.400	3.800	0.134	0.150

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