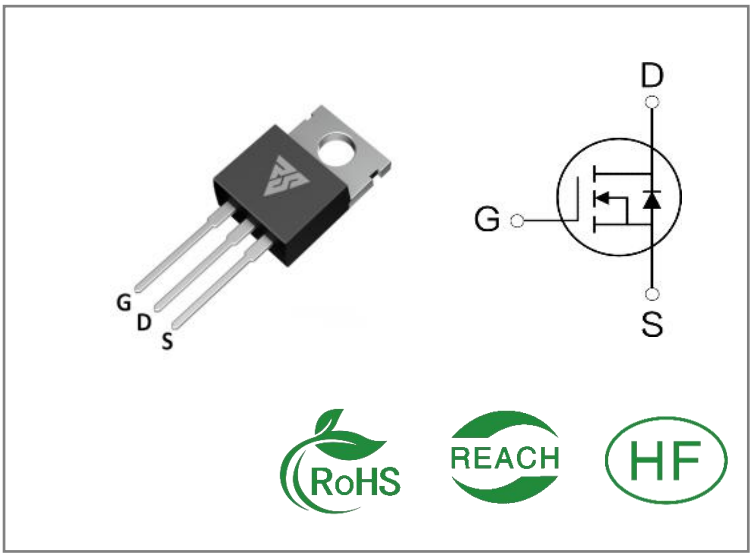
ID	R_{DS}(ON)(Typ)	VDSS
105A	9.8mΩ	150V



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.
RS150N105T	T0-220	RS150N105T	Tube	50 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS150N105T	Units
VDSS	Drain-to-Source Voltage	150	V
ID	Continuous Drain Current TC=25℃	105	A
ID	Continuous Drain Current TC=100℃	75	
IDM	Pulsed Drain Current	420	
PD	Power Dissipation	380	W
VGS	Gate- to- Source Voltage	±20	V
EAS	Single Pulse Avalanche Engergy L = 0.3mH,VDS = 50V, RG = 25Ω, Tj = 25℃	1000	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.

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Thermal Resistance

Symbol	Parameter	RS150N105T	Units	Test Conditions
RθJC	Junction-to-Case	0.36	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	60		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	150	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=150V,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	--	9.8	11	mΩ	VGS=10V,ID=60A
VGS(TH)	Gate Threshold Voltage	3.6	--	5.0	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	--	45	--	nS	VDS=50V ID=40A RG=2.5Ω VGS=10V
trise	Rise Time	--	70	--		
td(OFF)	Turn- OFF Delay Time	--	110	--		
tfall	Fall Time	--	90	--		

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Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	7000	--	pF	VGS= 0V VDS=50V f=1MHz
Coss	Output Capacitance	--	480	--		
Crss	Reverse Transfer Capacitance	--	210	--		
Qg	Total Gate Charge	--	85	--	nC	VDS= 100V ID=40A VGS=10V
Qgs	Gate- to- Source Charge	--	15	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	25	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	105	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	420	A	
VSD	Diode Forward Voltage	--	--	1.2	V	IS=60A,VGS=0V
trr	Reverse Recovery Time	--	110	--	nS	VGS=0V IS=30A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	0.55	--	μC	

Notes:

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

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Typical Feature Curve

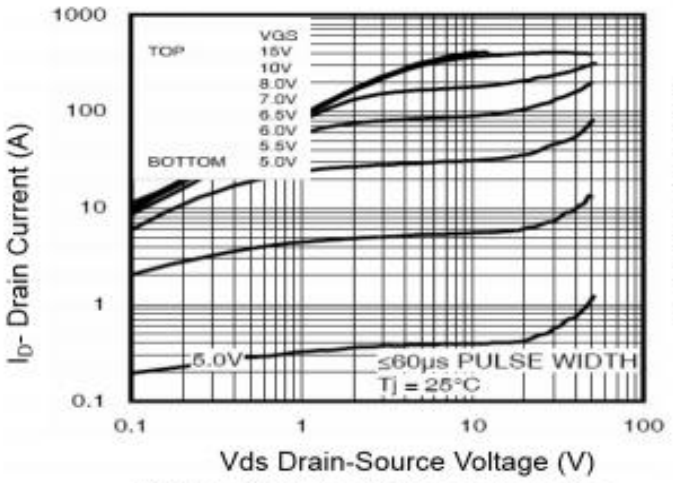

Figure 1 Output Characteristics

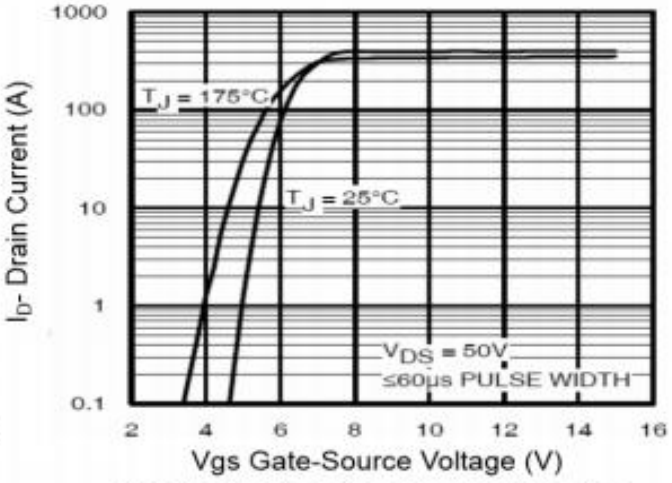

Figure 2 Transfer Characteristics

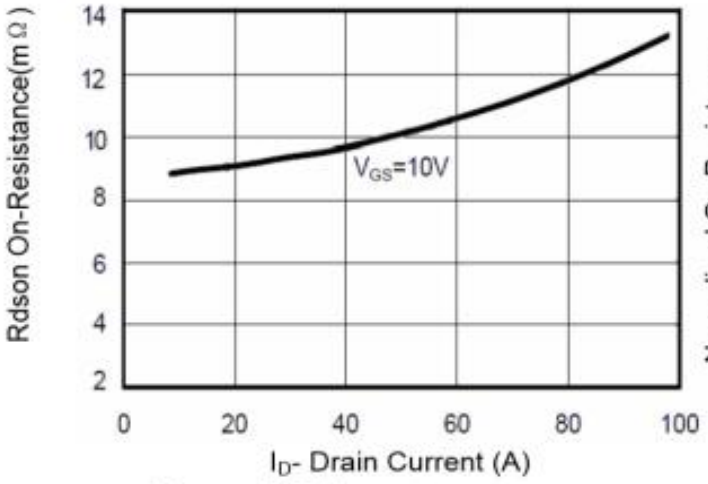

Figure 3 Rdson- Drain Current

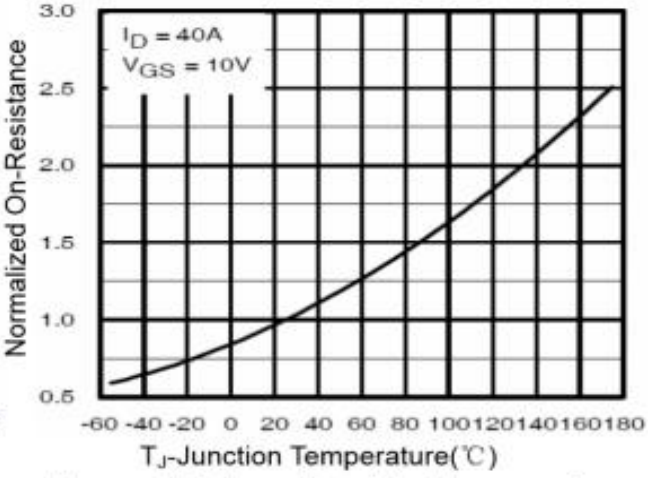

Figure 4 Rdson-JunctionTemperature

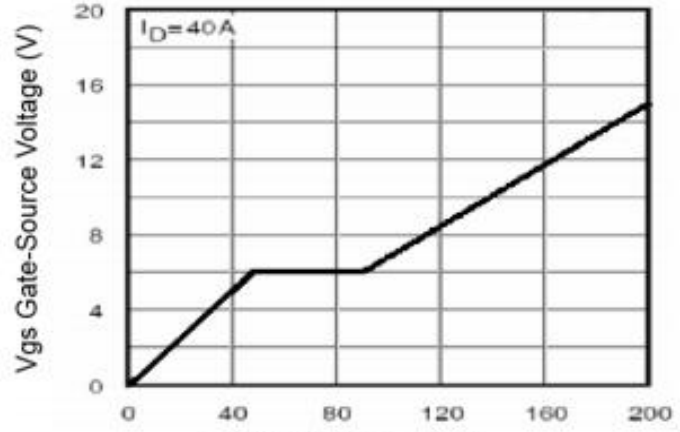

Figure 5 Gate Charge

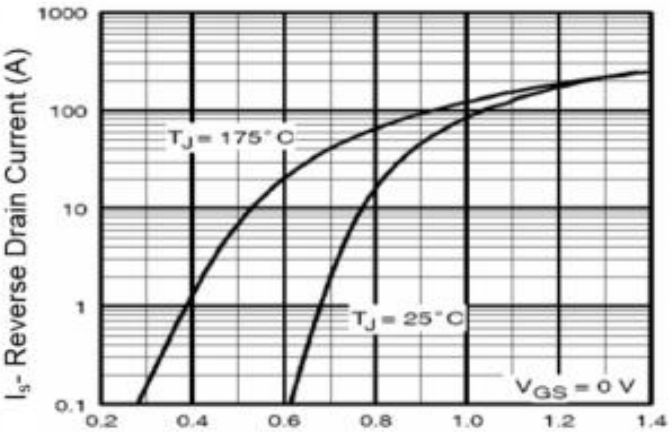

Figure 6 Source- Drain Diode Forward

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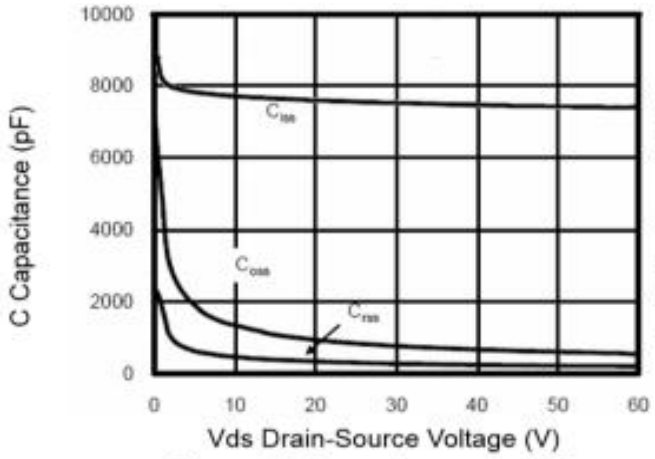

Figure 7 Capacitance vs Vds

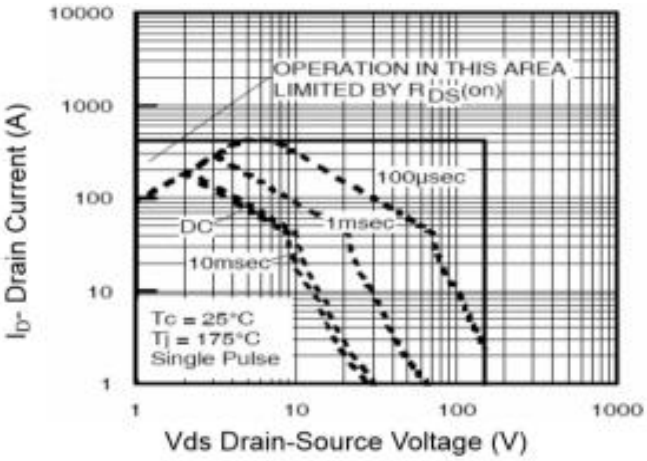

Figure 8 Safe Operation Area

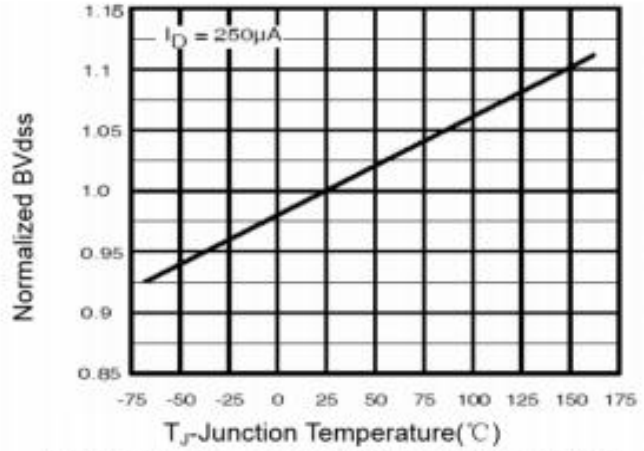

Figure 9 BV_{DSS} vs Junction Temperature

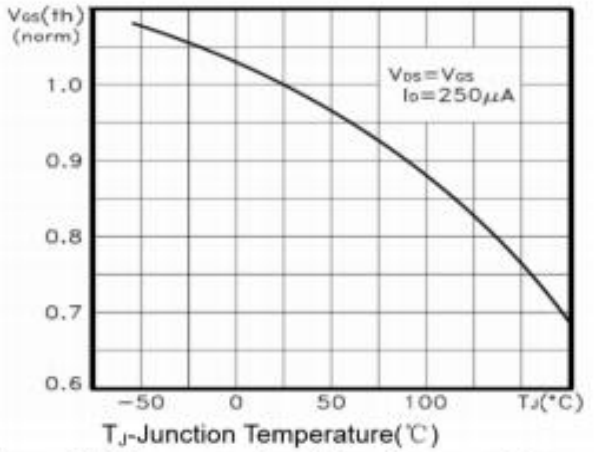

Figure 10 $V_{GS(th)}$ vs Junction Temperature

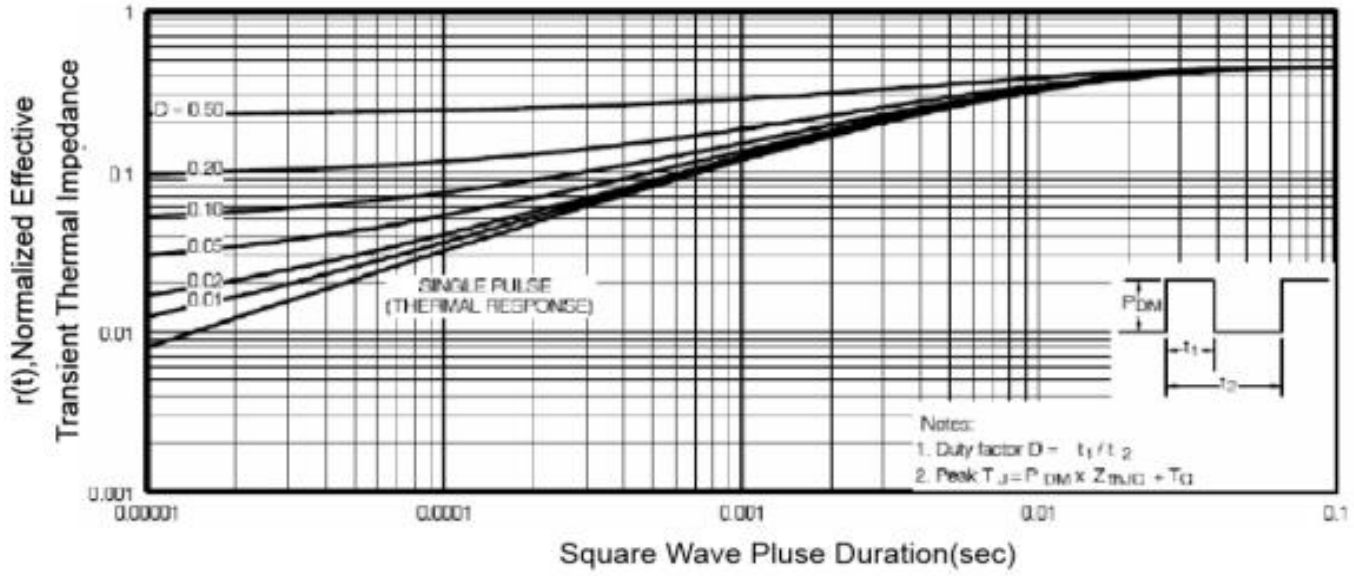

Figure 11 Normalized Maximum Transient Thermal Impedance

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Test ircuits and Waveforms

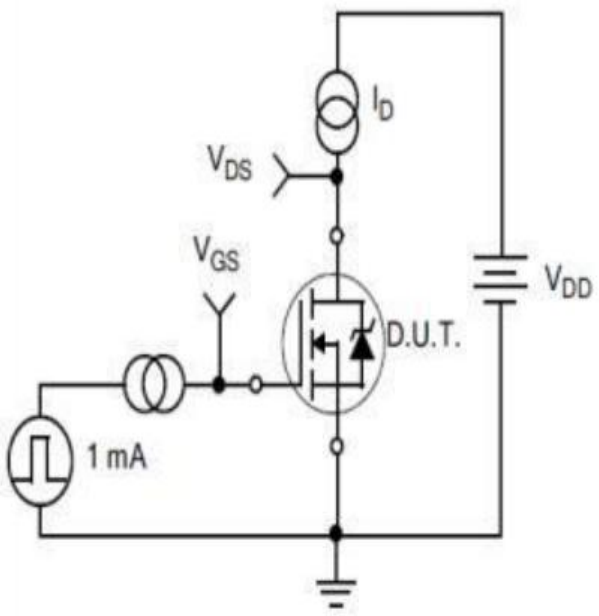

Figure A.
Gate Charge Test Circuit

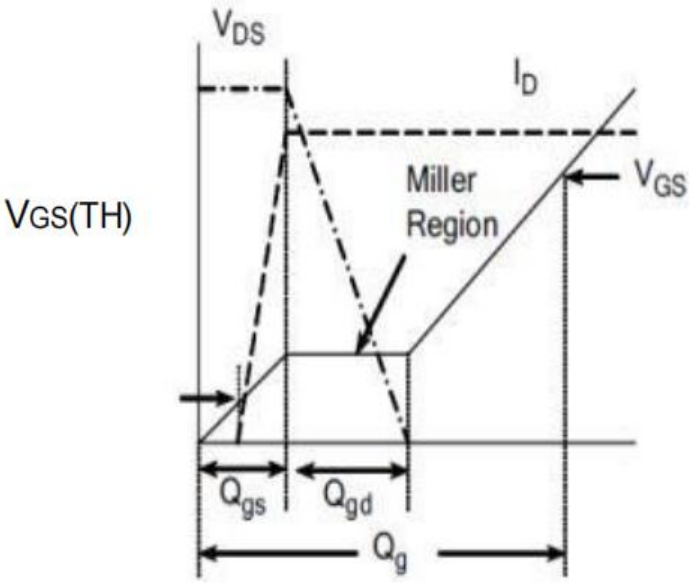

Figure B.
Gate Charge Waveform

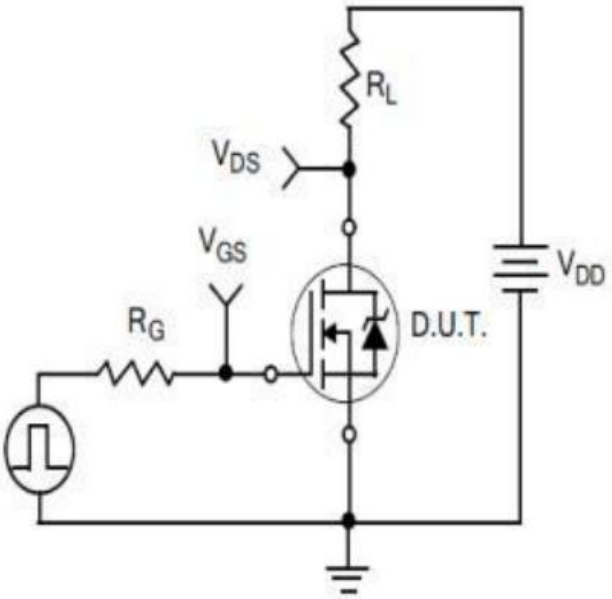

Figure C.
Resistive Switching Test Circuit

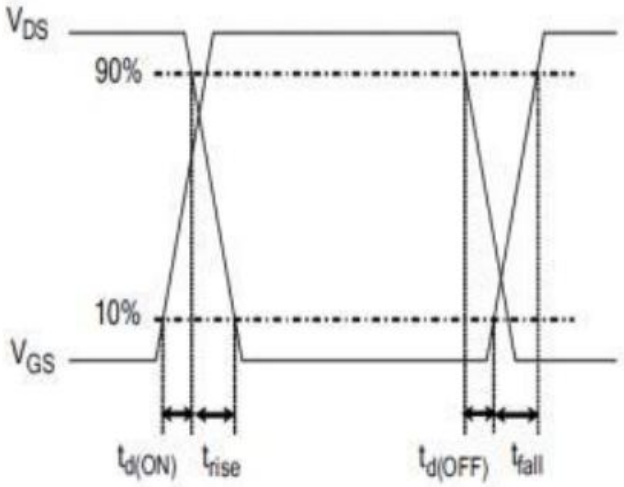

Figure D.
Resistive Switching Waveforms

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Test ircuits and Waveforms

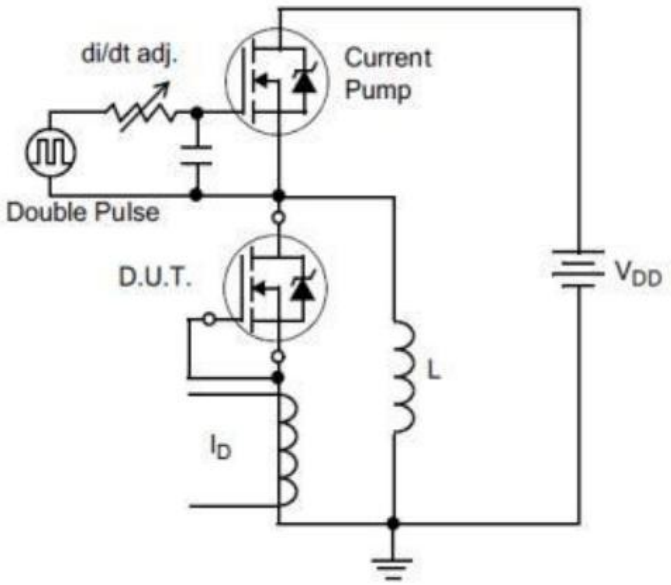


Figure E.Diode Reverse Recovery Test Circuit

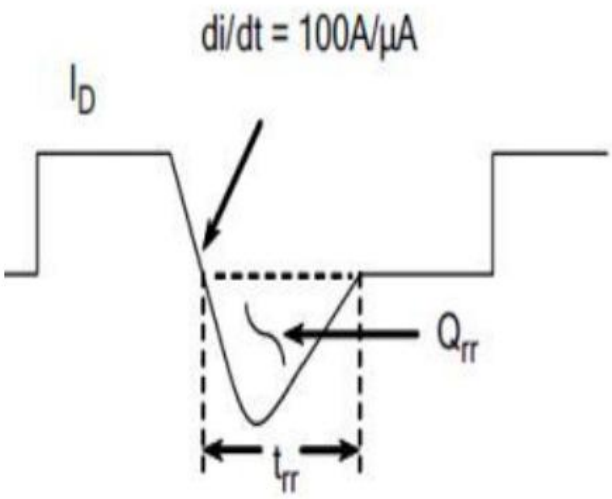


Figure F.Diode Reverse Recovery Waveform

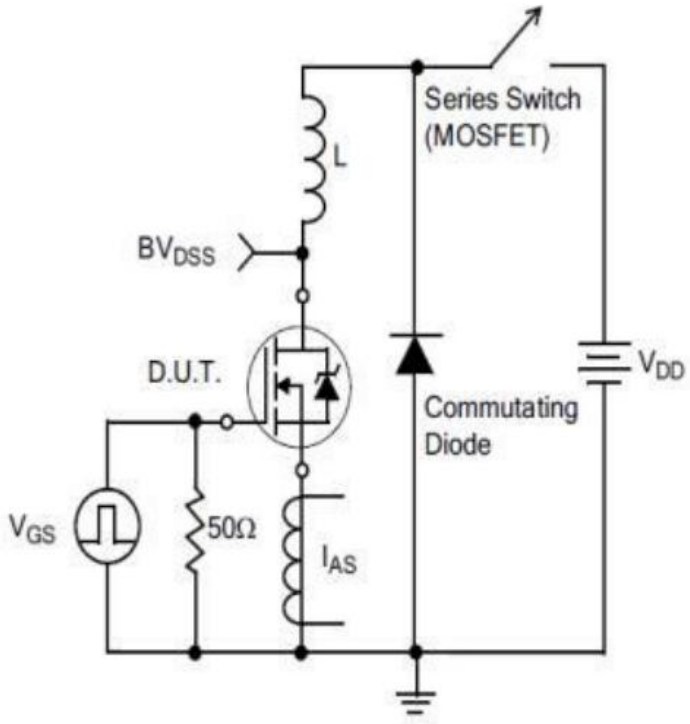
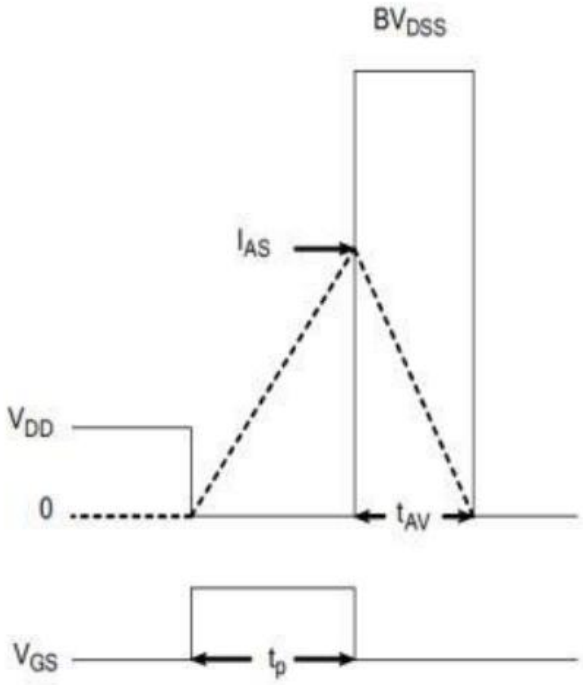


Figure G.Unclamped Inductive Switching Test Circuit



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

Figure H.Unclamped Inductive Switching Waveforms

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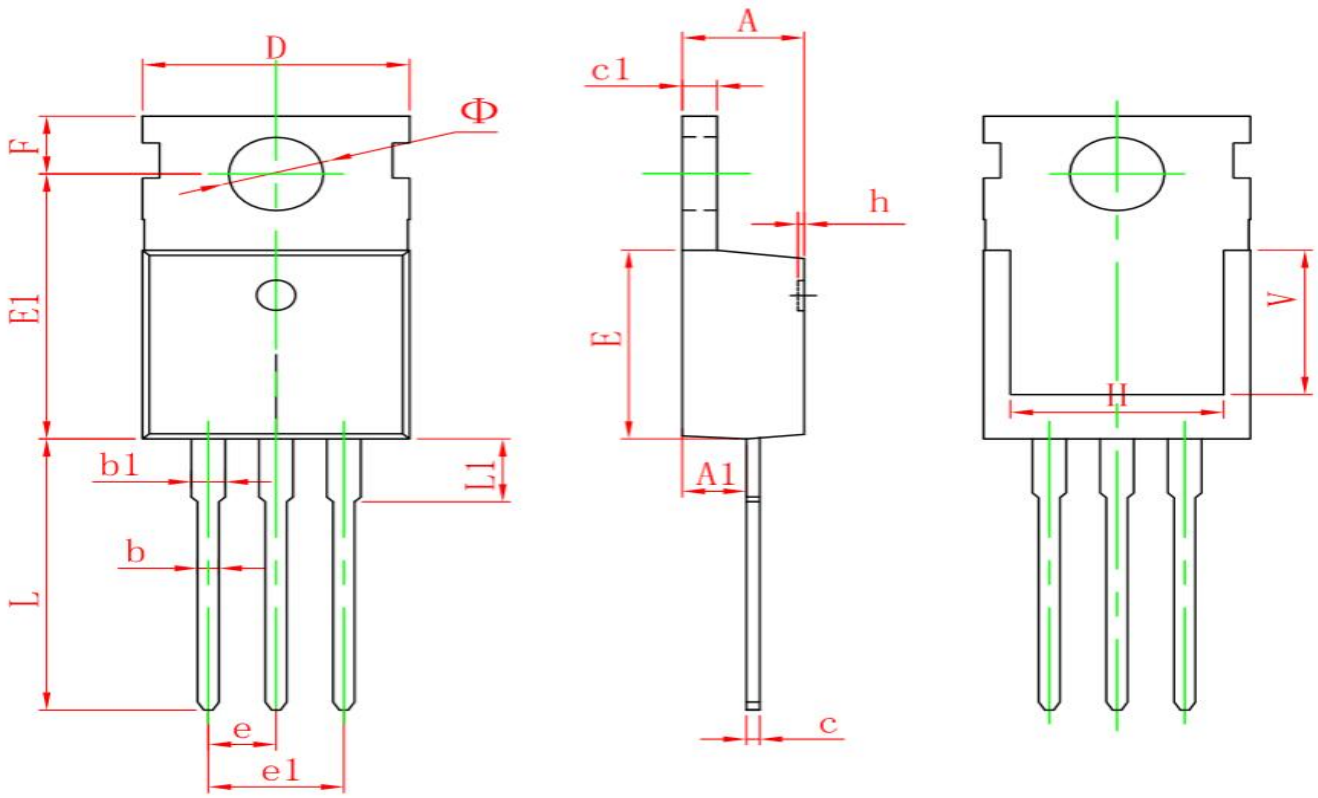
Package outline drawing(TO-220 Unit: mm)



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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