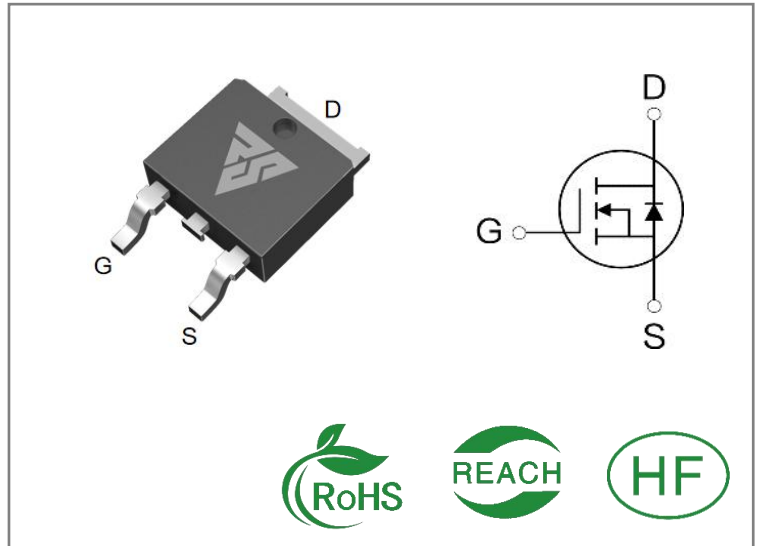


ID	R _{DS(ON)} (Typ)	VDSS
150A	2.6mΩ	30V


Applications:

- Load Switch
- PWM Applications
- Power Management

Features:

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS30N150D	T0-252	RS30N150D	Tape&reel	2500 PCS

Absolute Maximum Ratings T_c= 25°C unless otherwise specified

Symbol	Parameter	RS30N150D	Units
VDSS	Drain-to-Source Voltage	30	V
ID	Continuous Drain Current TC=25°C	150	A
ID	Continuous Drain Current TC=100°C	90	
IDM	Pulsed Drain Current	600	
PD	Power Dissipation	75	W
VGS	Gate- to- Source Voltage	±20	V
EAS	Single Pulse Avalanche Energy L = 0.5mH, VDD = 15V, R _G = 25Ω, T _j = 25°C	205	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.
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Thermal Resistance

Symbol	Parameter	RS30N150D	Units	Test Conditions
R θ JC	Junction-to-Case	1.7	°C / W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 °C
R θ JA	Junction-to-Ambient	34		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	30	--	--	V	V _{GS} =0V, I _D =250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	V _{DS} =30V, V _{GS} =0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	V _{GS} =20V , V _{DS} =0V
	Gate- to- Source Reverse Leakage	--	--	-100		V _{GS} =-20V , V _{DS} =0 V

ON Characteristics T_J=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
R _{DS(on)}	Static Drain- to- Source On-Resistance	--	2.6	3.4	mΩ	V _{GS} =10V, I _D =30A
		--	4.8	6.3	mΩ	V _{GS} =4.5V, I _D =20A
V _{GS(TH)}	Gate Threshold Voltage	1.0	1.8	2.5	V	V _{GS} =V _{DS} , 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	--	10	--	nS	V _{DS} =15V I _D =30A R _G =3Ω V _{GS} =10V
t _{rise}	Rise Time	--	18	--		
t _{d(OFF)}	Turn- OFF Delay Time	--	50	--		
t _{fall}	Fall Time	--	20	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	3640	--	pF	VGS= 0V VDS=15V f=1.0MHz
Coss	Output Capacitance	--	490	--		
Crss	Reverse Transfer Capacitance	--	360	--		
Qg	Total Gate Charge	--	67	--	nC	VDS= 15V ID=30A VGS=10V
Qgs	Gate- to- Source Charge	--	12	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	20	--		

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	--	--	1.2	V	IS=30A,VGS=0V
trr	Reverse Recovery Time	--	18	--	nS	VGS=0V IS=20A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	6	--	nC	

Notes:

- * 1. Repetitive rating, pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

Typical Feature Curve

Figure 1: Output Characteristics

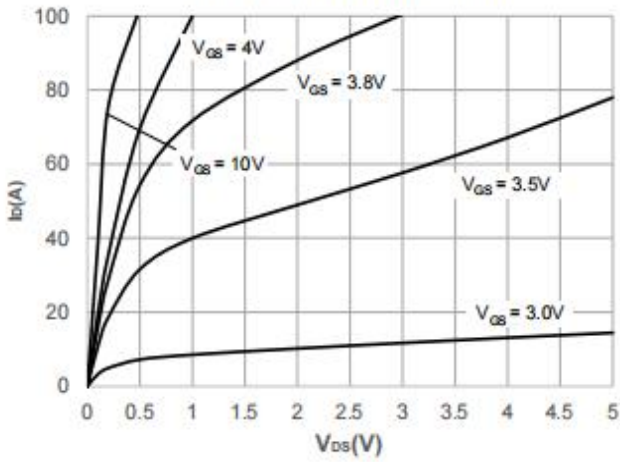


Figure 2: Typical Transfer Characteristics

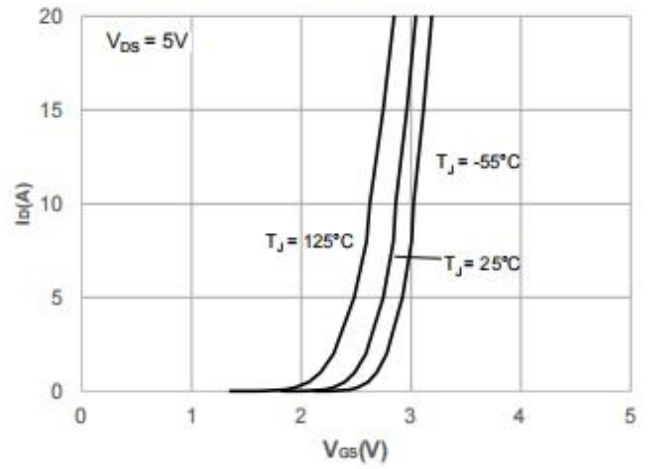


Figure 3: On-resistance vs. Drain Current

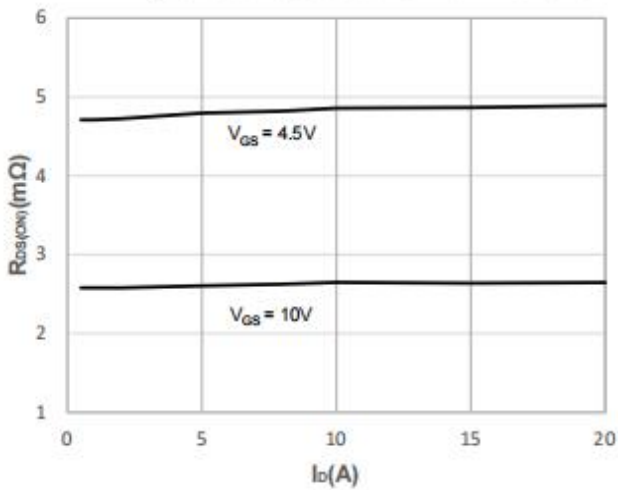


Figure 4: Body Diode Characteristics

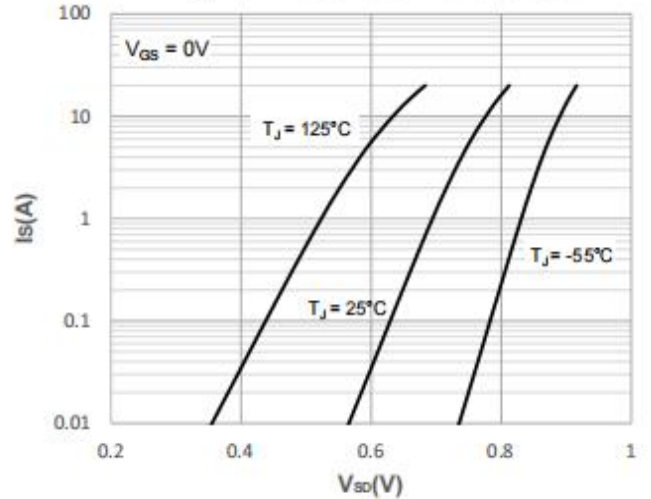


Figure 5: Gate Charge Characteristics

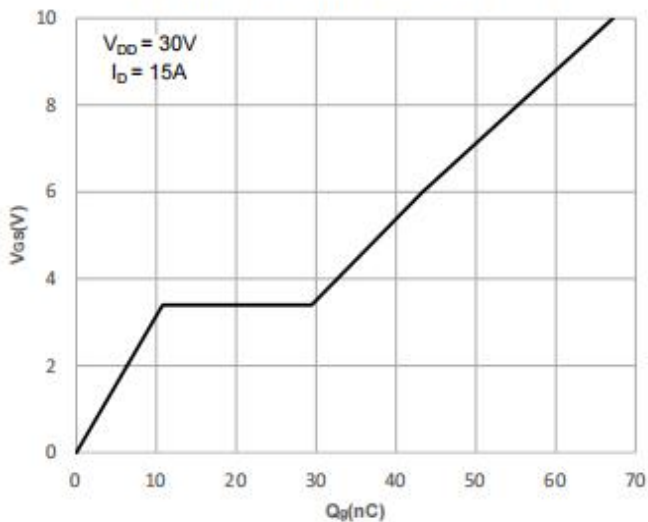


Figure 6: Capacitance Characteristics

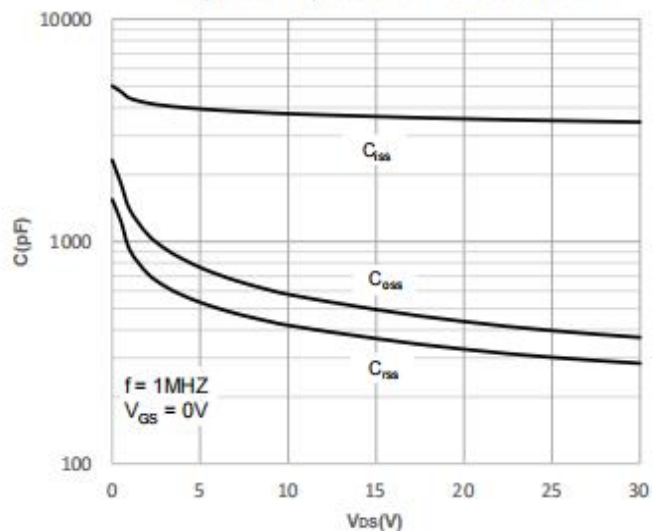


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

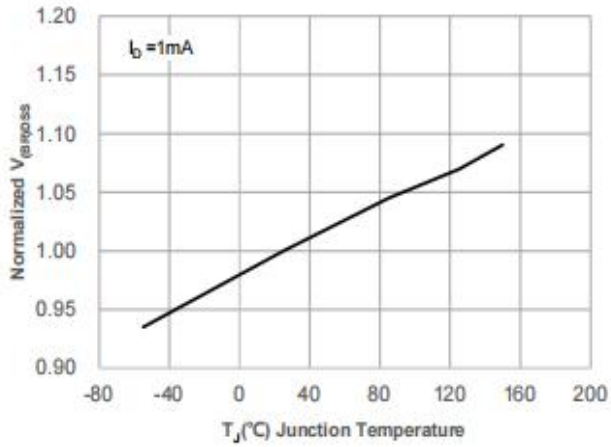


Figure 8: Normalized on Resistance vs. Junction Temperature

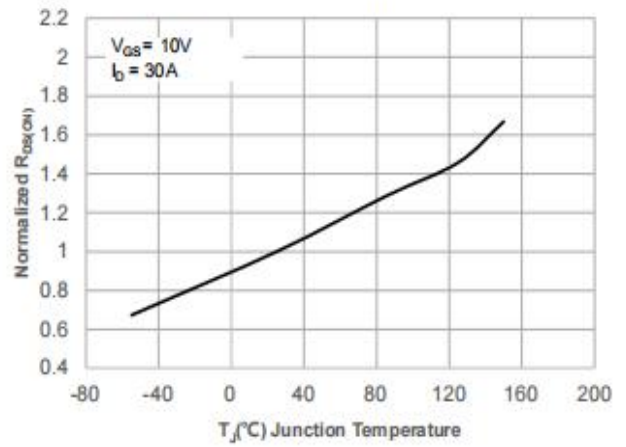


Figure 9: Maximum Safe Operating Area

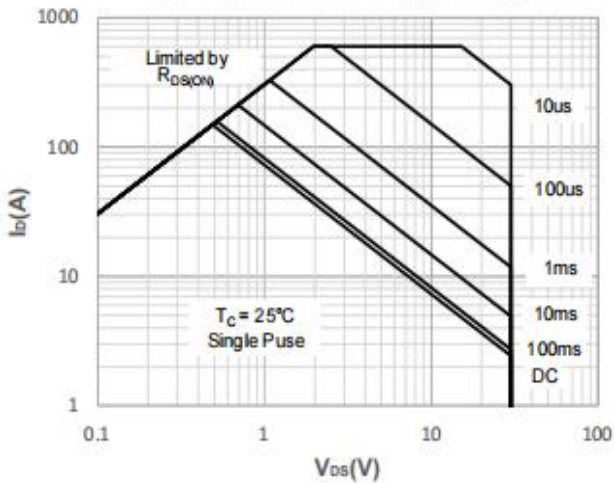


Figure 10: Maximum Continuous Driian Current vs. Case Temperature

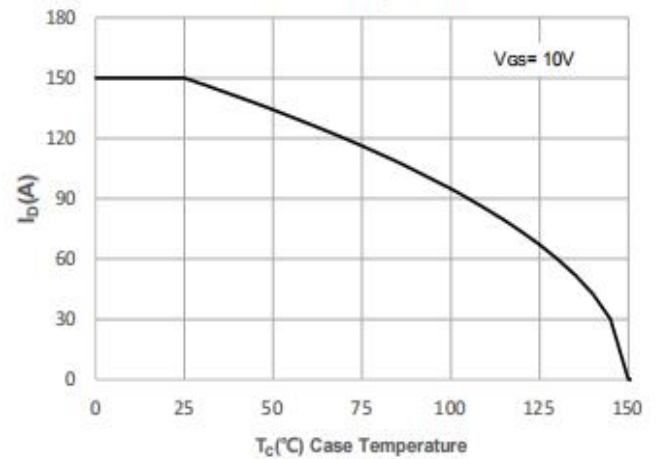


Figure 11: Normalized Maximum Transient Thermal Impedance

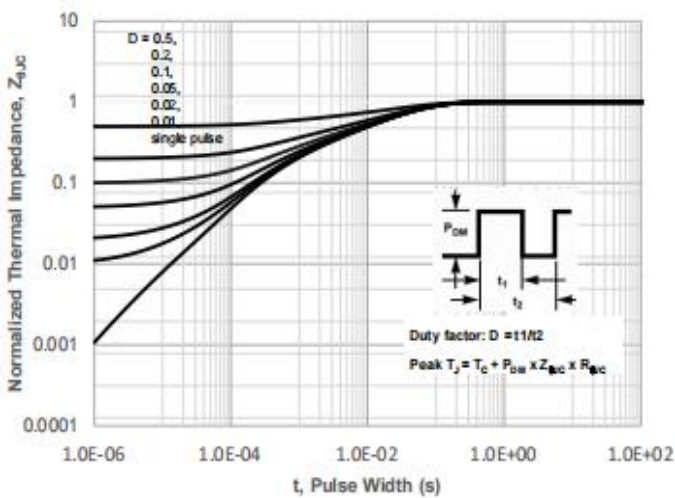
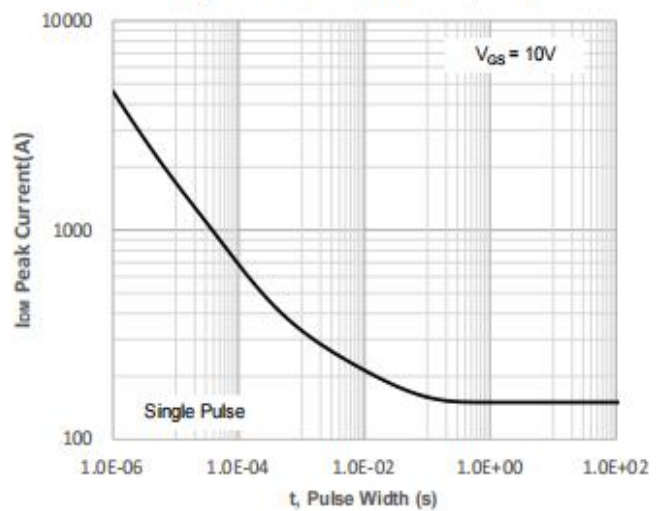


Figure 12: Peak Current Capacity



Test circuits and Waveforms

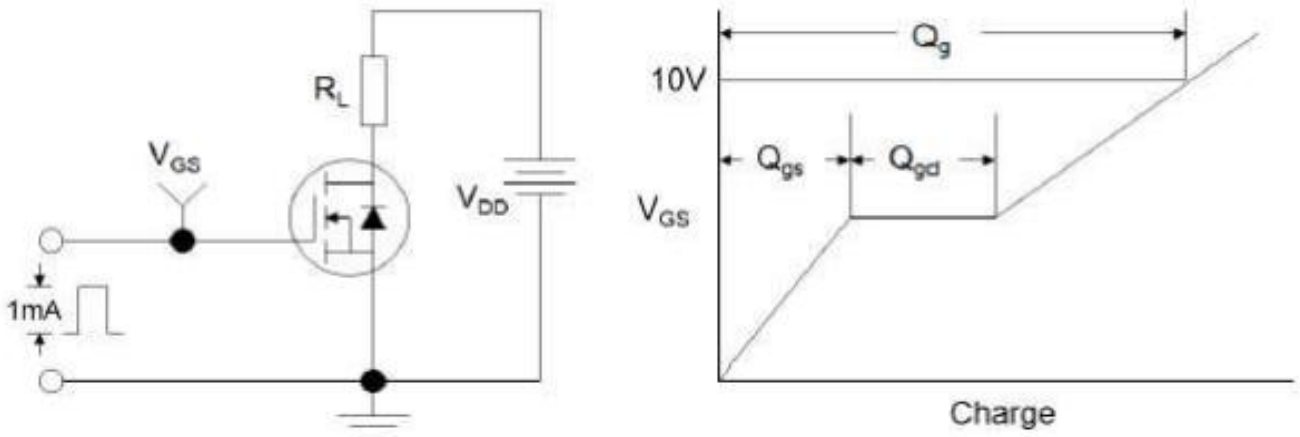


Figure1:Gate Charge Test Circuit & Waveform

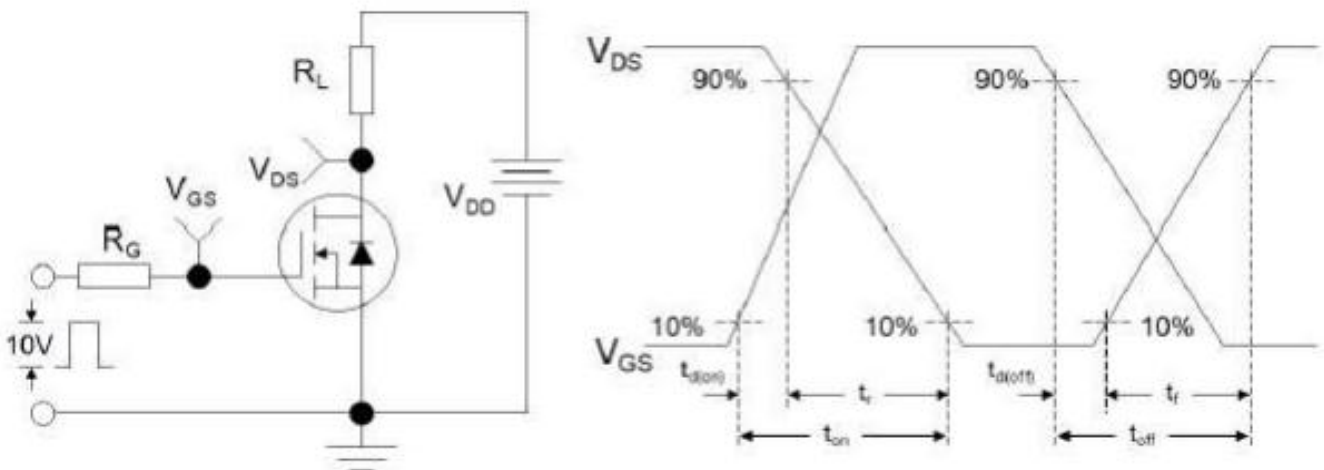


Figure 2: Resistive Switching Test Circuit & Waveforms

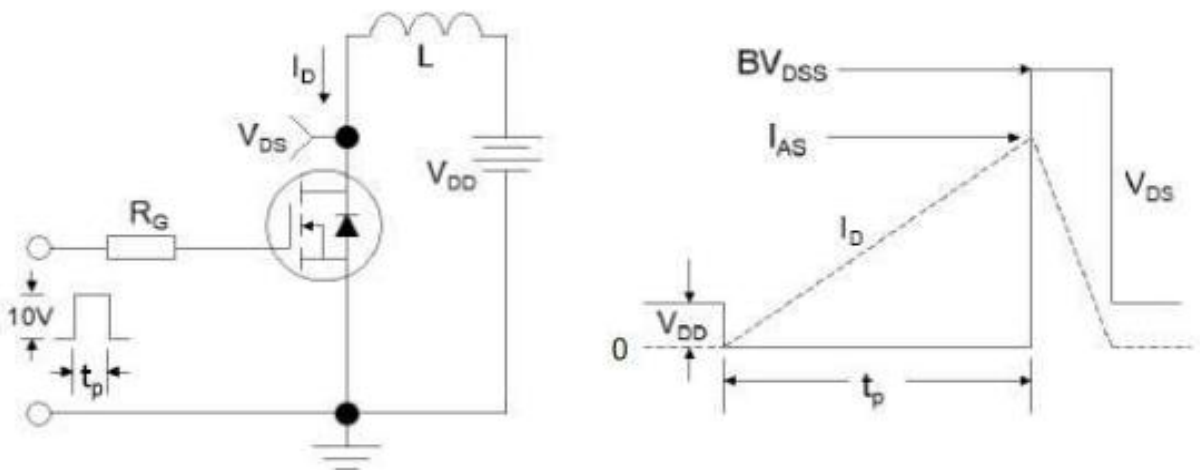
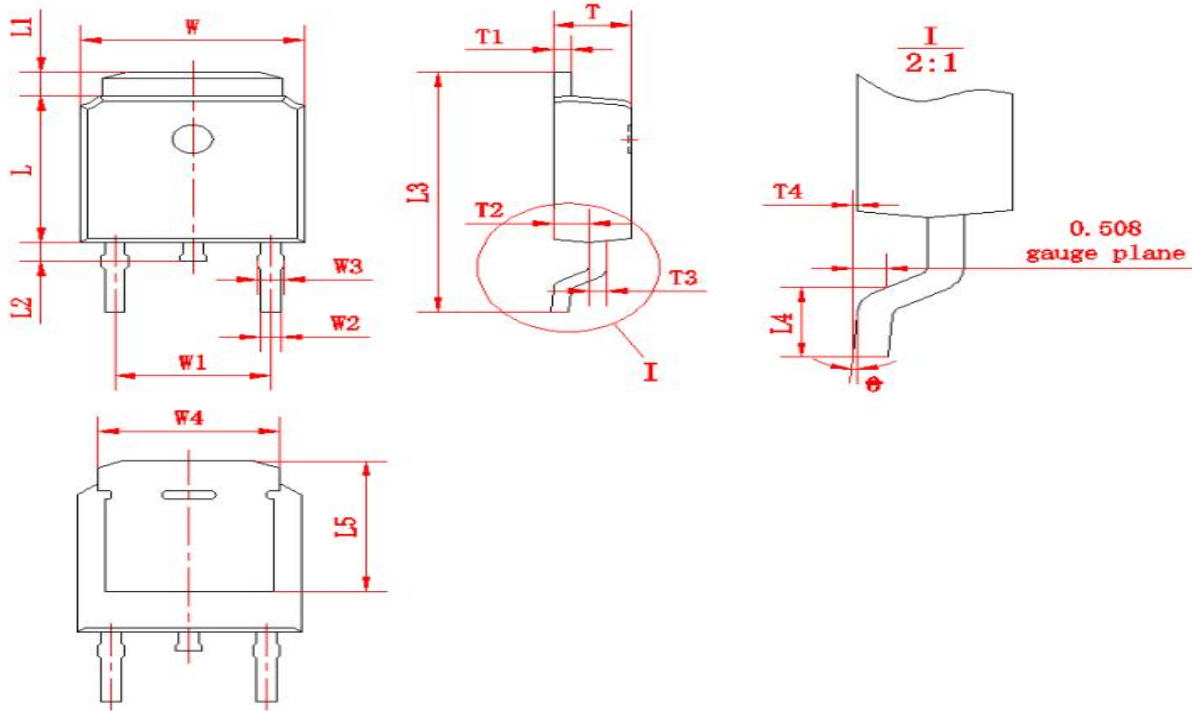


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Package outline drawing(TO-252 Unit: mm)



符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
W	6.50	6.70	L1	0.80	1.20	T1	0.48	0.58
W1	(4.572)		L2	0.60	1.00	T2	0.95	1.15
W2	0.6	0.8	L3	9.70	10.30	T3	0.48	0.58
W3	0.68	0.88	L4	1.30	1.70	T4	0.00	0.12
W4	(5.3)		L5	(5.20)		0	0	8
L	6.00	6.20	T	2.20	2.40			

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