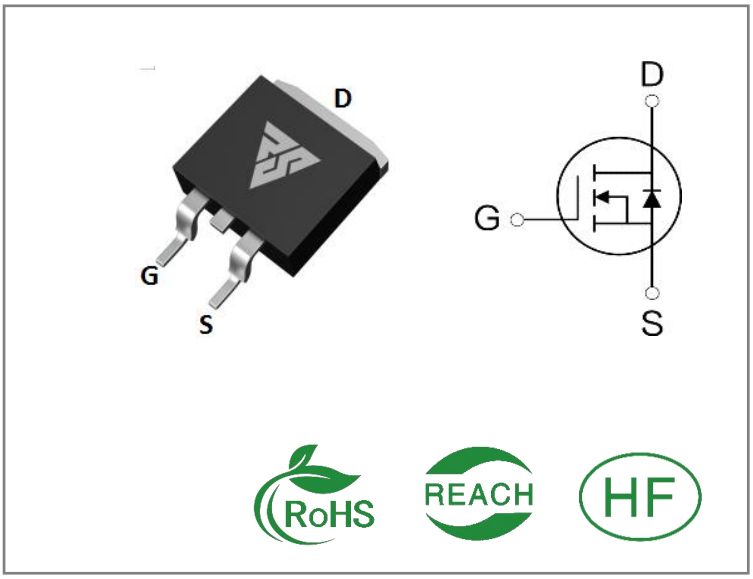
ID	R_{DS}(ON)(Typ)	VDSS
16A	0.33Ω	500V



Applications:
- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS16N50S	T0-263	RS16N50S	Tape&reel	800 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS16N65S	Units
VDSS	Drain-to-Source Voltage	500	V
ID	Continuous Drain Current TC=25℃	16	A
IDM	Pulsed Drain Current (Note*1)	64	
PD	Power Dissipation	54	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L = 10mH,,VDD = 50V, RG = 25Ω	960	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	RS16N65S	Units	Test Conditions
RθJC	Junction-to-Case	0.75	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	62.5		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	500	--	--	V	VGS=0V, ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=650V, VGS=0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=30V , VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-30V , 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(Note*2)	--	0.33	0.4	Ω	VGS=10V, ID=8A
VGS(TH)	Gate Threshold Voltage	3	--	4	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	--	33	--	nS	VDS=250V ID=16A RG=25Ω
trise	Rise Time	--	8	--		
td(OFF)	Turn- OFF Delay Time	--	42	--		
tfall	Fall Time	--	43	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1796	--	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	226	--		
Crss	Reverse Transfer Capacitance	--	31	--		
Qg	Total Gate Charge	--	56	--	nC	VDS=400V ID=16A VGS=10V
Qgs	Gate- to- Source Charge	--	8.6	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	2.8	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	16	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	64	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=8A,VGS=0V
trr	Reverse Recovery Time	--	493	--	nS	VGS=0V IS=16A, di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	3.5	--	μC	

Notes:

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

Typical Feature Curve

Figure 1. Output Characteristics (T_J = 25ºC)

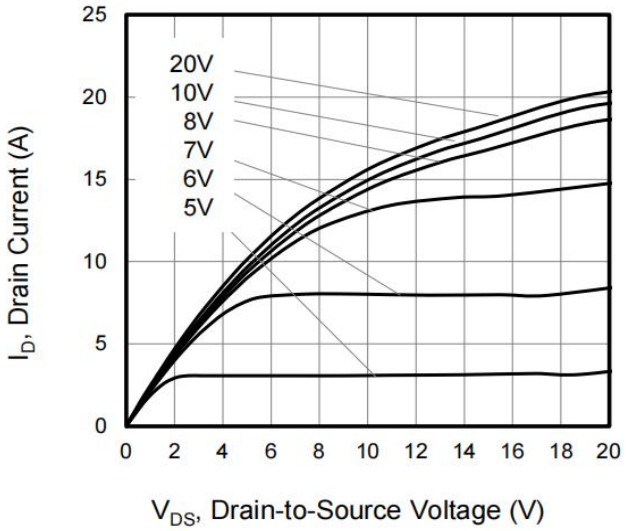


Figure 2. Body Diode Forward Voltage

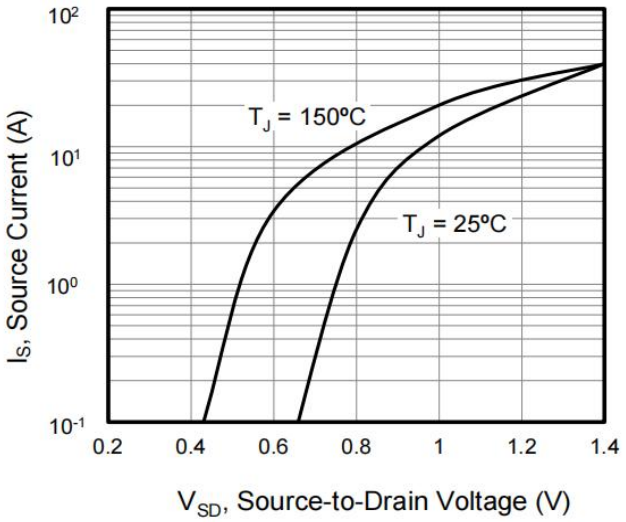


Figure 3. Drain Current vs. Temperature

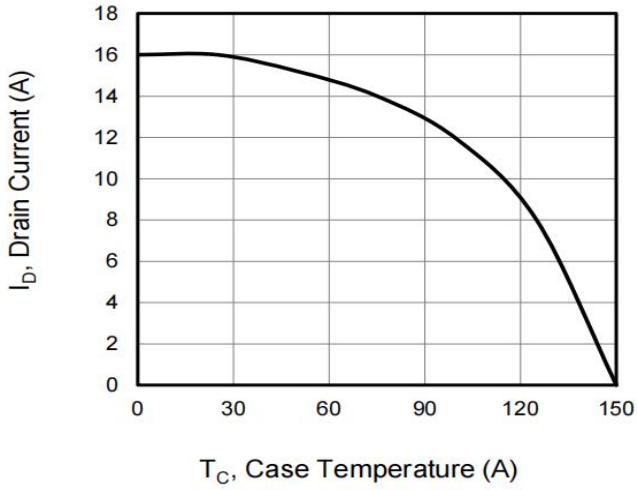


Figure 4. BV_{DSS} Variation vs. Temperature

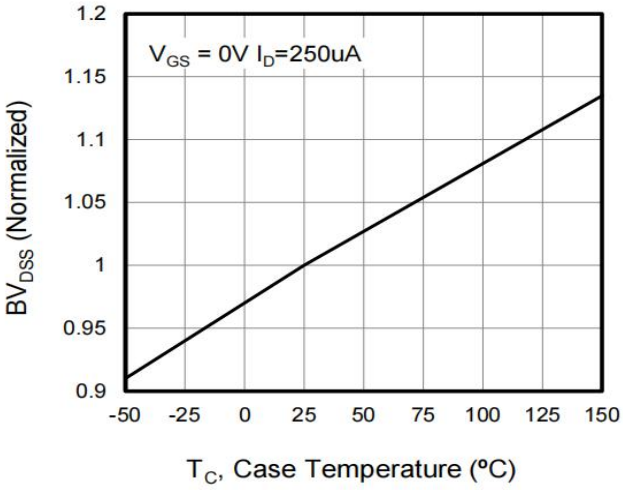


Figure 5. Transfer Characteristics

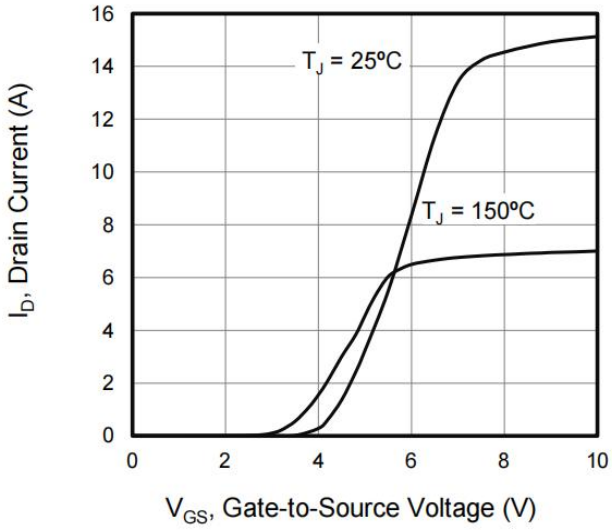


Figure 6. On-Resistance vs. Temperature

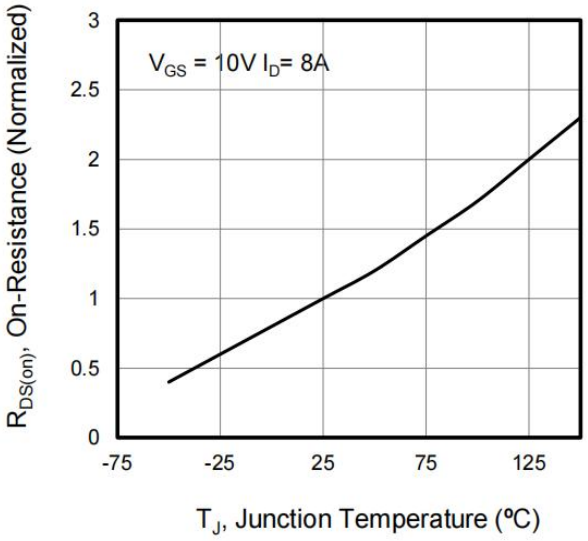


Figure 7. Capacitance

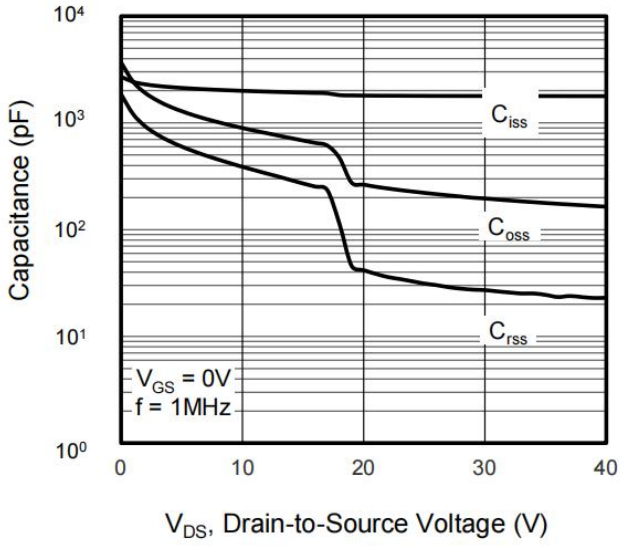


Figure 8. Gate Charge

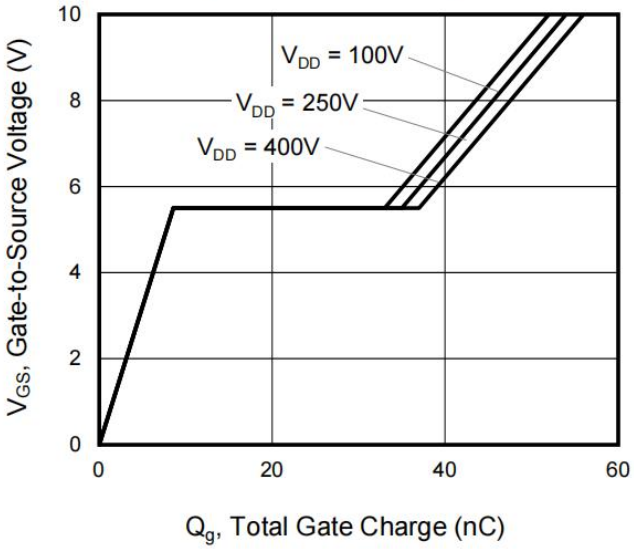
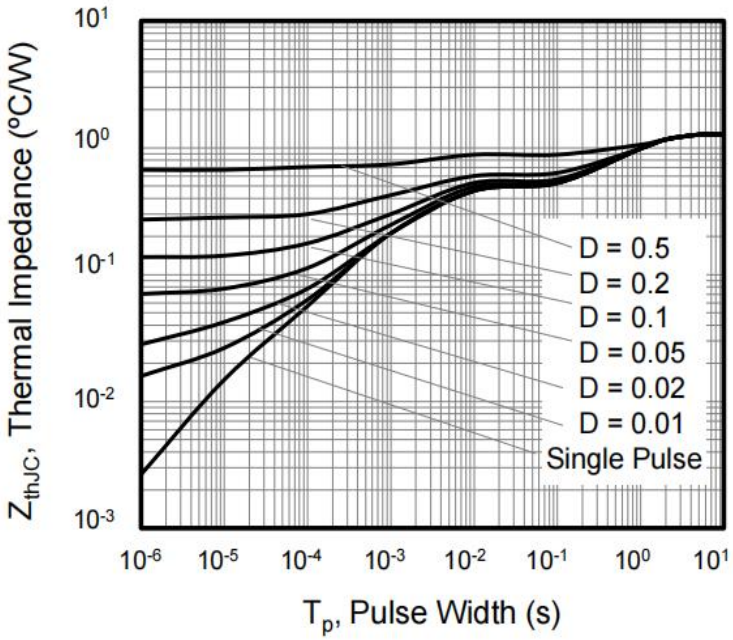


Figure 9. Transient Thermal Impedance



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

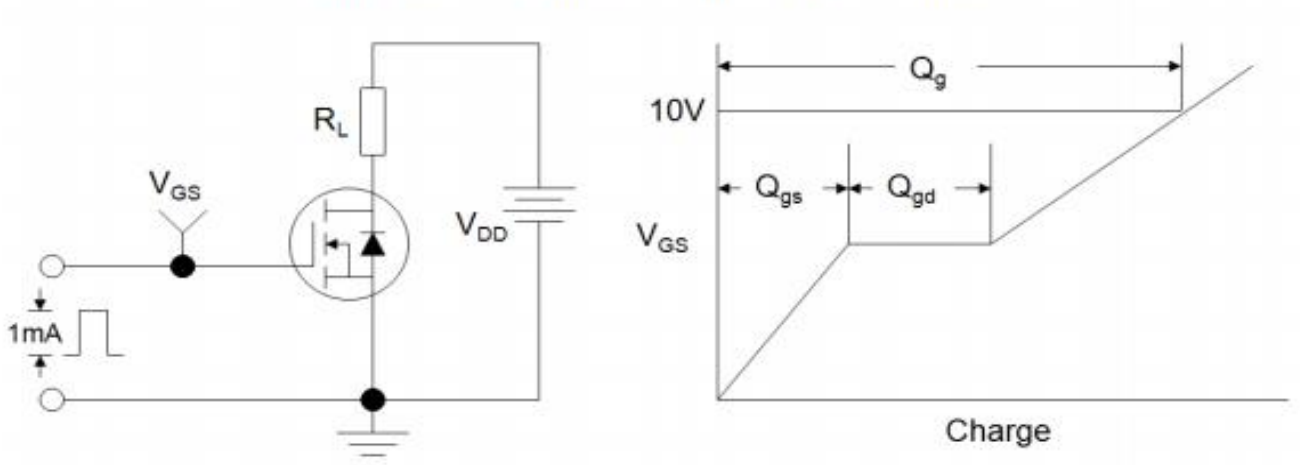


Figure B: Resistive Switching Test Circuit and Waveform

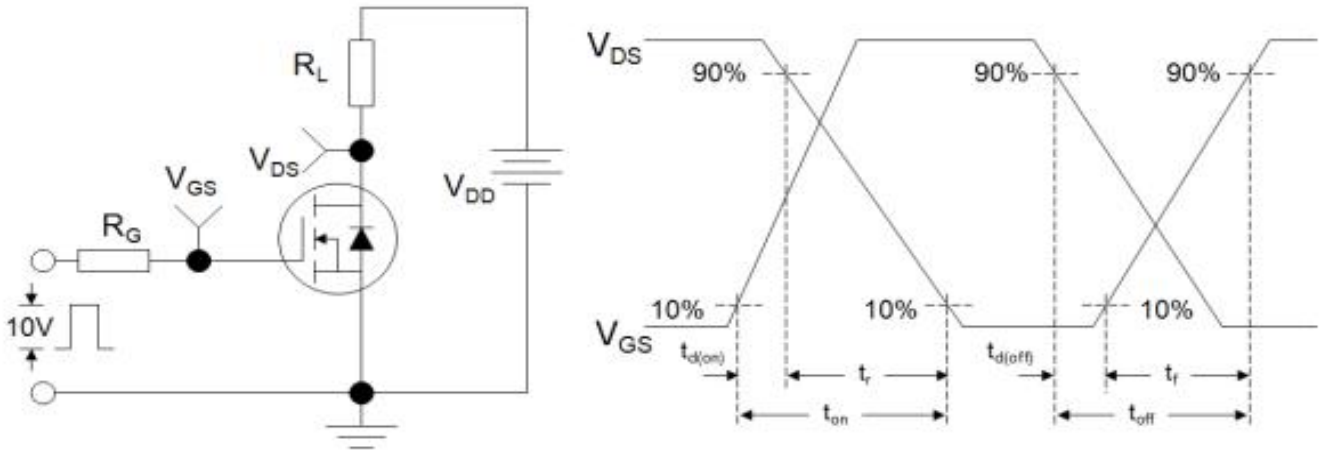
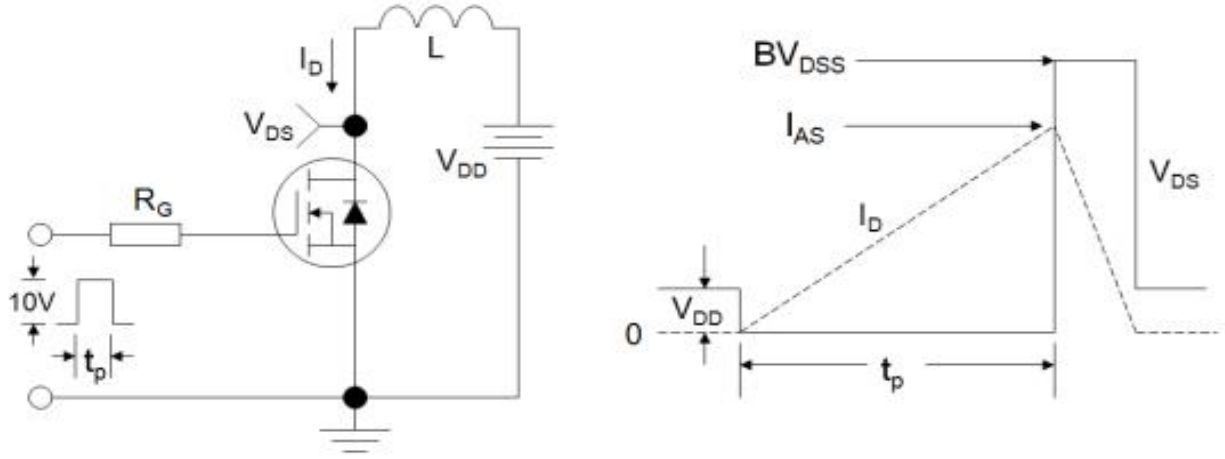
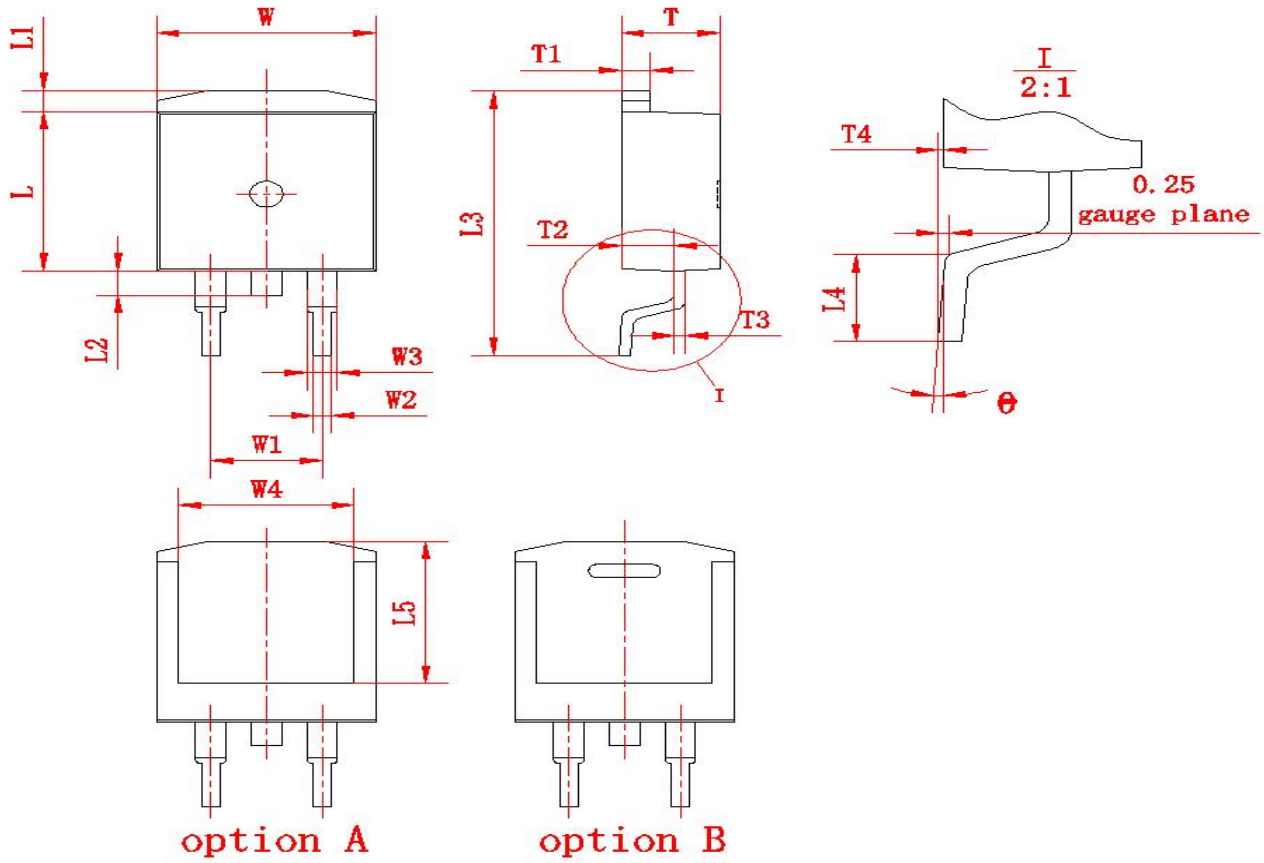


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Package outline drawing(TO-263 Unit: mm)



（单位：mm）

符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
W	9.80	10.20	L1	1.00	1.40	T1	1.20	1.40
W1	(5.08)		L2	1.20	1.60	T2	2.20	2.60
W2	0.70	0.95	L3	15.00	15.60	T3	0.45	0.65
W3	1.17	1.62	L4	2.20	2.80	T4	0	0.25
W4	(8.0)		L5	(8.2)		θ	0°	8°
L	9.00	9.40	T	4.30	4.70			

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