



General Description

- Trench Power AlphaSGT™ technology
- Best in class on-resistance $R_{DS(ON)}$
- Lowers switching loss by lower Q_{rr} than other MOSFET suppliers
- Optimized voltage spike at SSR application
- RoHS and Halogen-Free Compliant

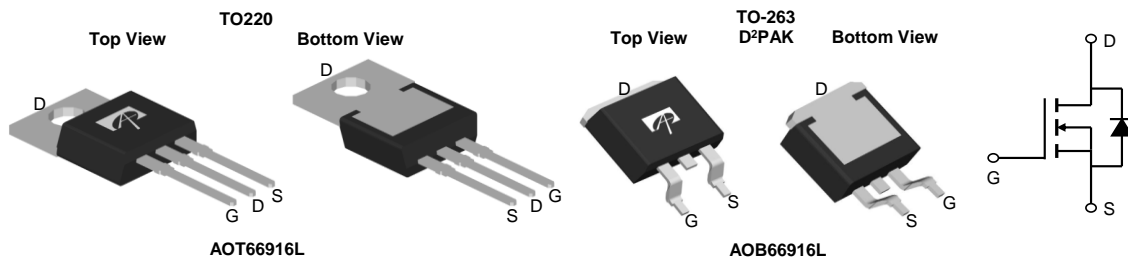
Applications

- High frequency switching and synchronous rectification
- BMS
- Motor

Product Summary

V_{DS}	100V
I_D (at $V_{GS}=10V$)	120A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	< 3.6m Ω
$R_{DS(ON)}$ (at $V_{GS}=6V$)	< 4.8m Ω

100% UIS Tested
100% Rg Tested



Orderable Part Number	Package Type	Form	Minimum Order Quantity
AOT66916L	TO-220	Tube	1000
AOB66916L	TO-263	Tape & Reel	800

Absolute Maximum Ratings $T_A=25^\circ\text{C}$ unless otherwise noted

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ^G	I_D	120	A
$T_C=100^\circ\text{C}$		120	
Pulsed Drain Current ^C	I_{DM}	450	
Continuous Drain Current	I_{DSM}	$T_A=25^\circ\text{C}$	35.5
		$T_A=70^\circ\text{C}$	28.5
Avalanche Current ^C	I_{AS}	80	A
Avalanche energy $L=0.1\text{mH}$ ^C	E_{AS}	320	mJ
Power Dissipation ^B	P_D	$T_C=25^\circ\text{C}$	277
		$T_C=100^\circ\text{C}$	111
Power Dissipation ^A	P_{DSM}	$T_A=25^\circ\text{C}$	8.3
		$T_A=70^\circ\text{C}$	5.3
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Units
Maximum Junction-to-Ambient ^A	$R_{\theta JA}$	12	15	$^\circ\text{C/W}$
$t \leq 10\text{s}$		50	60	
Maximum Junction-to-Ambient ^{A,D}	$R_{\theta JC}$	0.35	0.45	$^\circ\text{C/W}$
Steady-State				

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV _{DSS}	Drain-Source Breakdown Voltage	I _D =250μA, V _{GS} =0V	100			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =100V, V _{GS} =0V T _J =55°C			1 5	μA
I _{GSS}	Gate-Body leakage current	V _{DS} =0V, V _{GS} =±20V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2.5	2.95	3.5	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =20A T _J =125°C		3.0 4.9	3.6 5.9	mΩ
		V _{GS} =6V, I _D =20A		3.6	4.8	mΩ
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =20A		80		S
V _{SD}	Diode Forward Voltage	I _S =1A, V _{GS} =0V		0.68	1	V
I _S	Maximum Body-Diode Continuous Current ^G				120	A
DYNAMIC PARAMETERS						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =50V, f=1MHz		6180		pF
C _{oss}	Output Capacitance			1660		pF
C _{rss}	Reverse Transfer Capacitance			29		pF
R _g	Gate resistance	f=1MHz	0.7	1.5	2.3	Ω
SWITCHING PARAMETERS						
Q _{g(10V)}	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =20A		78		nC
Q _{gs}	Gate Source Charge			22		nC
Q _{gd}	Gate Drain Charge			15		nC
Q _{oss}	Output Charge	V _{GS} =0V, V _{DS} =50V		134		nC
t _{D(on)}	Turn-On DelayTime	V _{GS} =10V, V _{DS} =50V, R _L =2.5Ω, R _{GEN} =3Ω		24		ns
t _r	Turn-On Rise Time			18		ns
t _{D(off)}	Turn-Off DelayTime			52		ns
t _f	Turn-Off Fall Time			22		ns
t _{rr}	Body Diode Reverse Recovery Time	I _F =20A, di/dt=500A/μs		45		ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =20A, di/dt=500A/μs		287		nC

A. The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25° C. The Power dissipation P_{DSM} is based on R_{θJA} ≤ 10s and the maximum allowed junction temperature of 150° C. The value in any given application depends on the user's specific board design.

B. The power dissipation P_D is based on T_{J(MAX)}=150° C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.

C. Single pulse width limited by junction temperature T_{J(MAX)}=150° C.

D. The R_{θJA} is the sum of the thermal impedance from junction to case R_{θJC} and case to ambient.

E. The static characteristics in Figures 1 to 6 are obtained using <300μs pulses, duty cycle 0.5% max.

F. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of T_{J(MAX)}=150° C. The SOA curve provides a single pulse rating.

G. The maximum current rating is package limited.

H. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25° C.

APPLICATIONS OR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS ARE NOT AUTHORIZED. AOS DOES NOT ASSUME ANY LIABILITY ARISING OUT OF SUCH APPLICATIONS OR USES OF ITS PRODUCTS. AOS RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN,FUNCTIONS AND RELIABILITY WITHOUT NOTICE.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

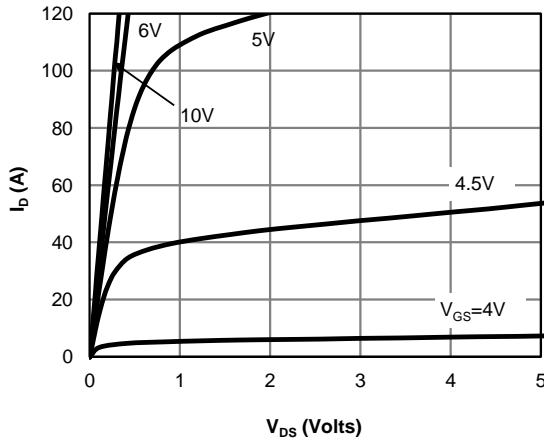


Figure 1: On-Region Characteristics (Note E)

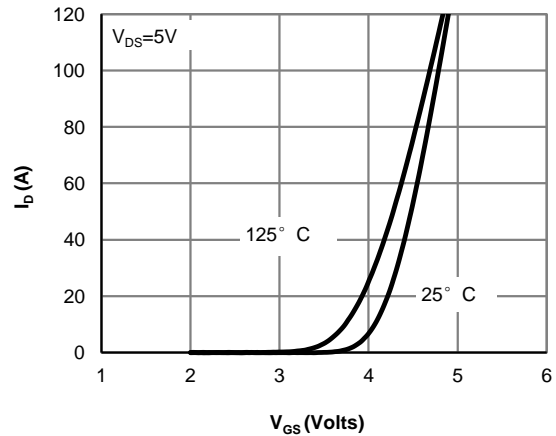


Figure 2: Transfer Characteristics (Note E)

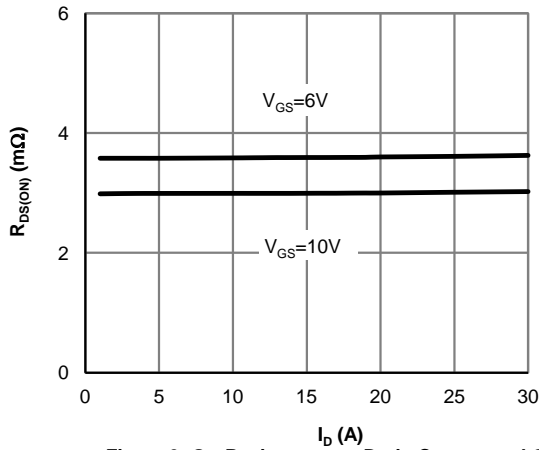


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

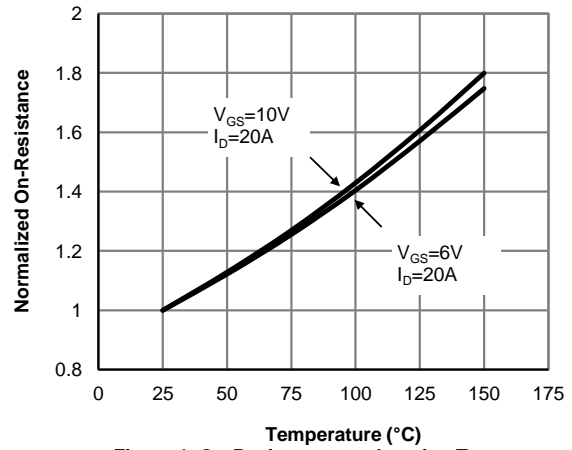


Figure 4: On-Resistance vs. Junction Temperature (Note E)

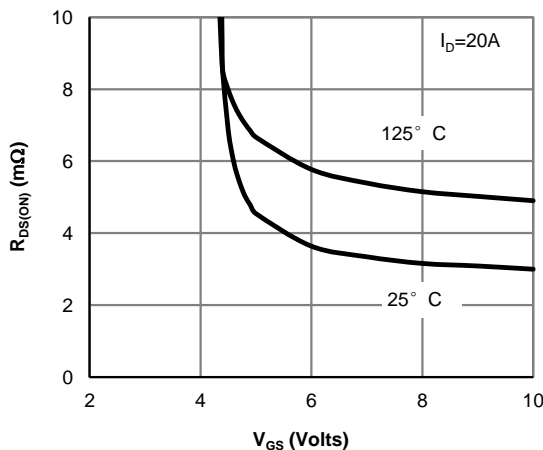


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

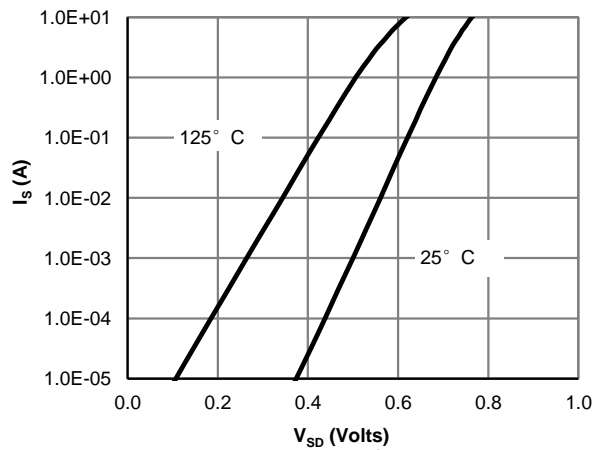


Figure 6: Body-Diode Characteristics (Note E)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

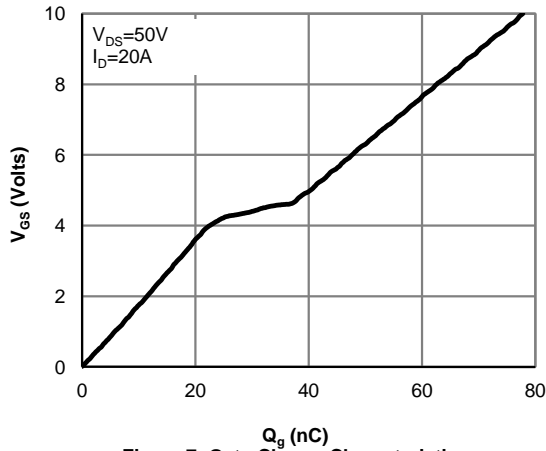


Figure 7: Gate-Charge Characteristics

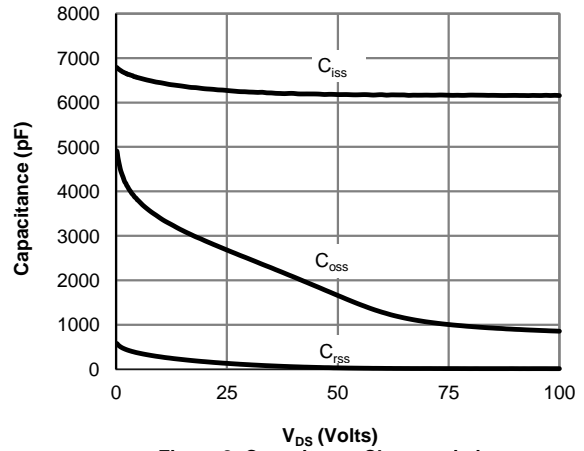


Figure 8: Capacitance Characteristics

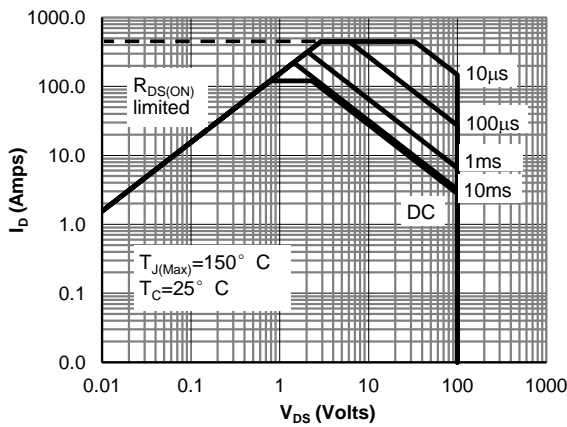


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

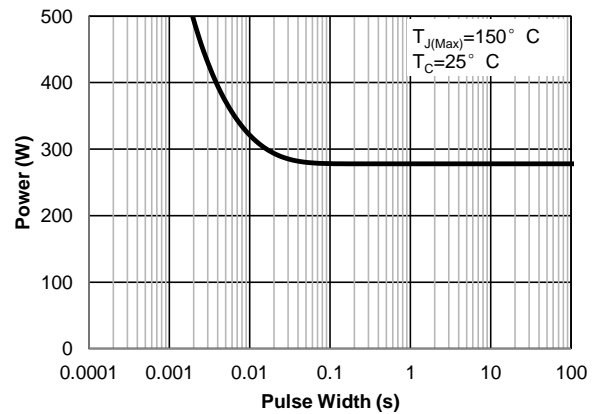


Figure 10: Single Pulse Power Rating Junction-to-Case (Note F)

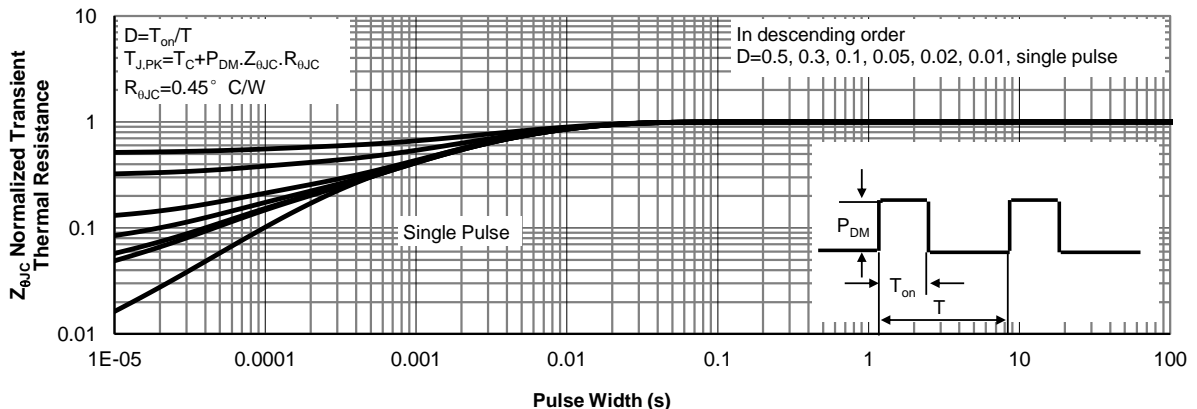


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

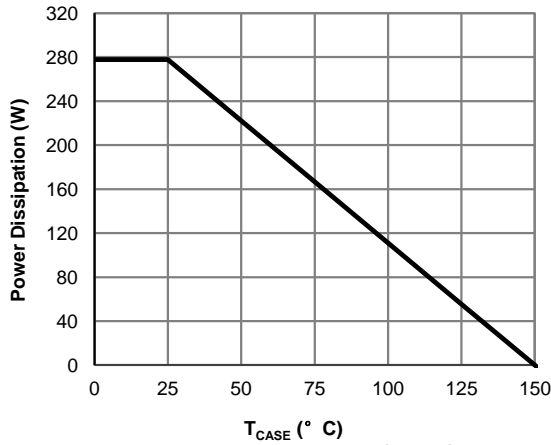


Figure 12: Power De-rating (Note F)

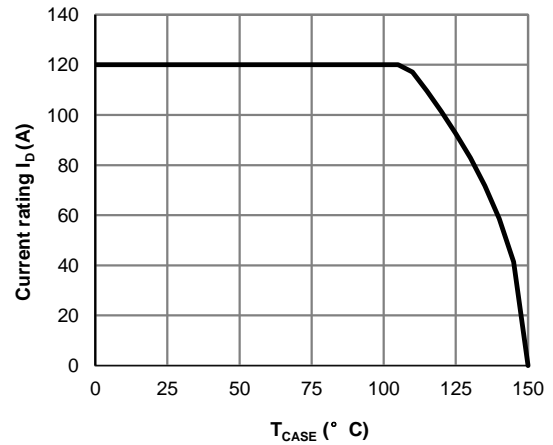


Figure 13: Current De-rating (Note F)

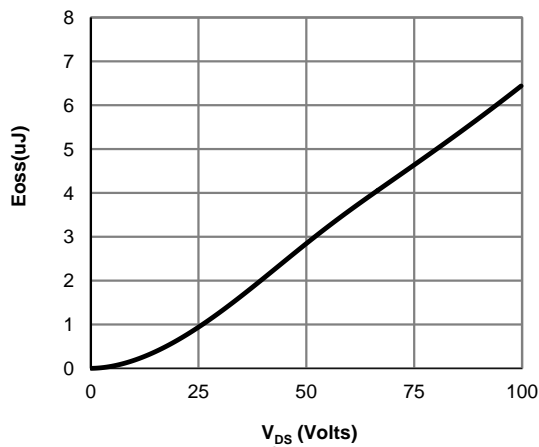


Figure 14: Coss stored Energy

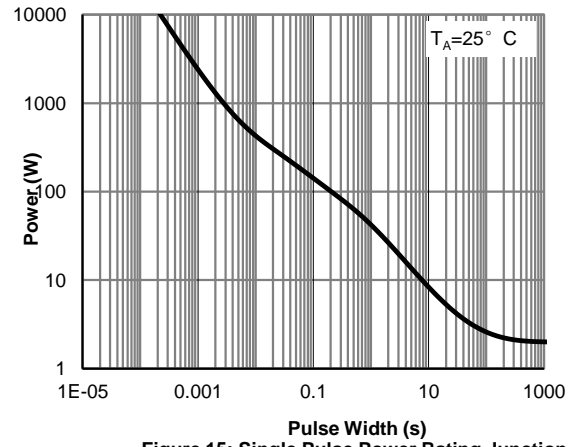


Figure 15: Single Pulse Power Rating Junction-to-Ambient (Note H)

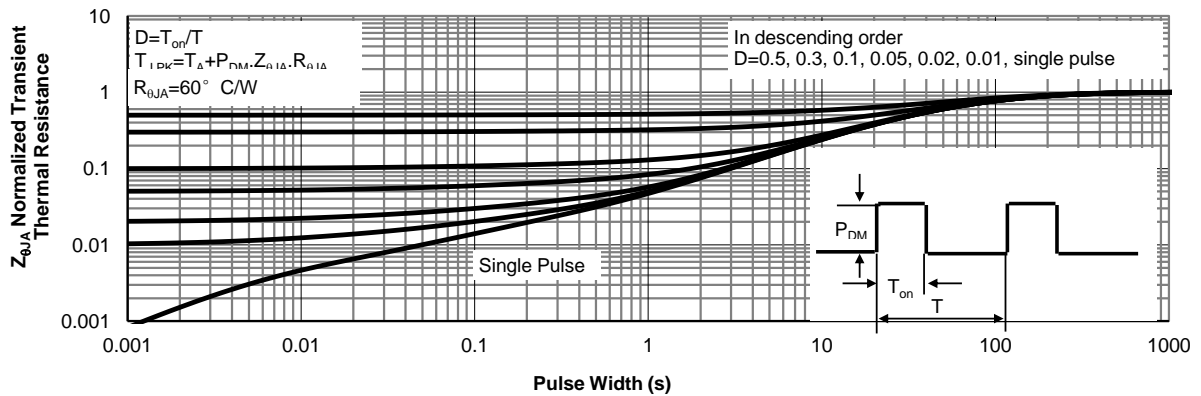


Figure 16: Normalized Maximum Transient Thermal Impedance (Note H)

Figure A: Gate Charge Test Circuit & Waveforms

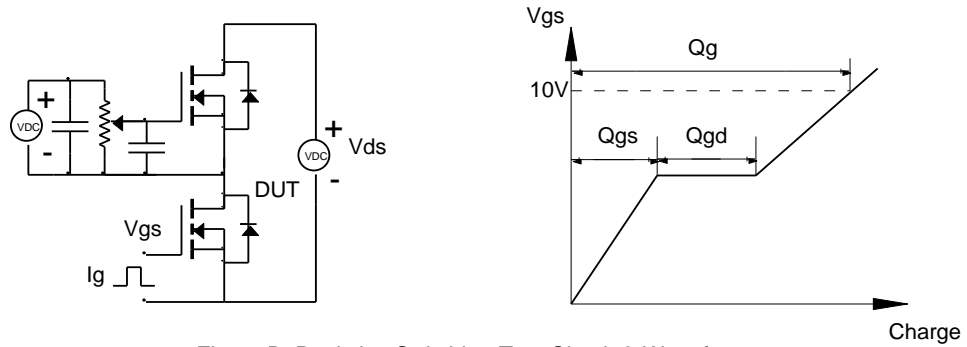


Figure B: Resistive Switching Test Circuit & Waveforms

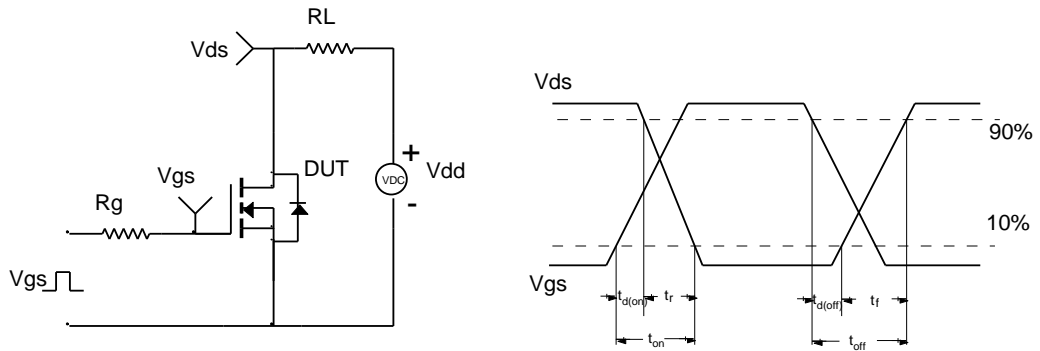


Figure C: Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

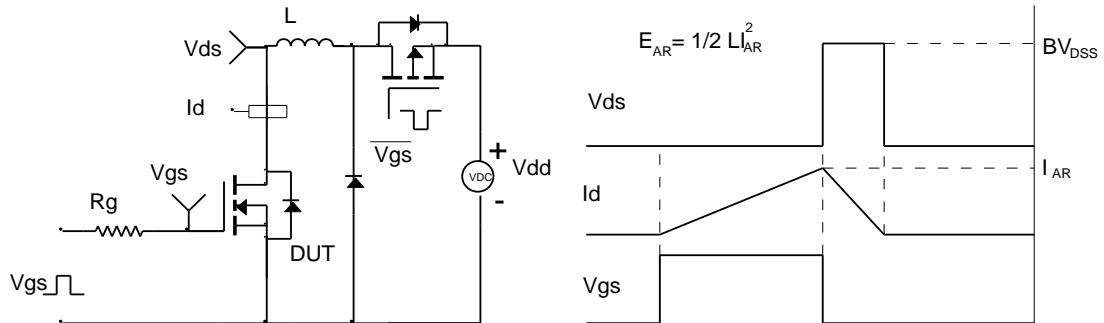
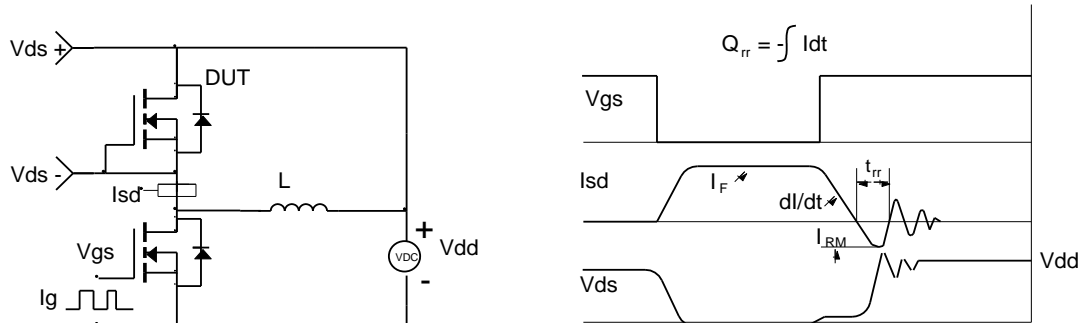


Figure D: Diode Recovery Test Circuit & Waveforms



单击下面可查看定价，库存，交付和生命周期等信息

[>>AOS\(万国半导体\)](#)