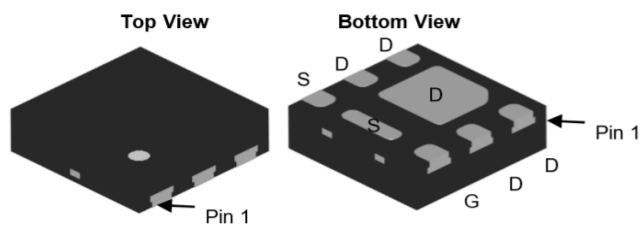
Features

- -15V, -17A
  $R_{DS(ON)}$ *TYP* = 10.0mΩ @ V_{GS} = -4.5V
  $R_{DS(ON)}$ *TYP* = 14.5mΩ @ V_{GS} = -2.5V
- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead Free

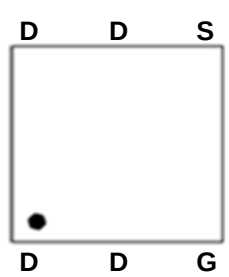


DFN2020-6L

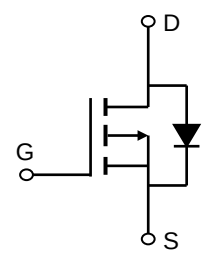
Applications

- Load Switch
- PWM Application
- Power Management

100% UIS TESTED!
100% ΔVds TESTED!



Pin Assignment



Schematic Diagram

Absolute Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Symbol	Parameter		Value	Units
V_{DS}	Drain-to-Source Voltage		-15	V
V_{GS}	Gate-to-Source Voltage		±12	V
I_D	Continuous Drain Current	T_A = 25°C	-17	A
		T_A = 100°C	-10	
I_{DM}	Pulsed Drain Current (1)		-68	A
E_{AS}	Single Pulsed Avalanche Energy (2)		100	mJ
P_D	Power Dissipation	T_A = 25°C	5.9	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case (3)		21	°C/W
T_J, T_{STG}	Junction & Storage Temperature Range		-55 to 150	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	I_D = -250μA, V_{GS} = 0V	-15	-18	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -15V, V_{GS} = 0V	-	-	-1.0	μA
I_{GSS}	Gate-Body Leakage Current	V_{DS} = 0V, V_{GS} = ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250μA	-0.4	-0.6	-1.0	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(4)	V_{GS} = -4.5V, I_D = -8A	-	10.0	14.0	mΩ
		V_{GS} = -2.5V, I_D = -6A	-	14.5	18.5	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS} = 0V, V_{DS} = -10V, f = 1MHz	-	1324	-	pF
C_{oss}	Output Capacitance		-	238	-	pF
C_{rss}	Reverse Transfer Capacitance		-	207	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to -4.5V, V_{DS} = -10V, I_D = -3A	-	15.3	-	nC
Q_{gs}	Gate Source Charge		-	2.2	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	4.4	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	V_{GS} = -4.5V, V_{DD} = -10V, I_D= -7A, R_{GEN} = 3Ω	-	10	-	ns
t_r	Turn-On Rise Time		-	31	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	28	-	ns
t_f	Turn-Off Fall Time		-	8	-	ns
Drain-Source Diode Characteristics and Max Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-17	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-68	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = -15A	-	-	-1.2	V

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. EAS condition: Starting T_J=25C, V_{DD}=-15V, V_G=-10V, R_G=25ohm, L=0.5mH, I_{AS}=-10A
3. $R_{\theta Jc}$ is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Performance Characteristics

Figure 1: Output Characteristics

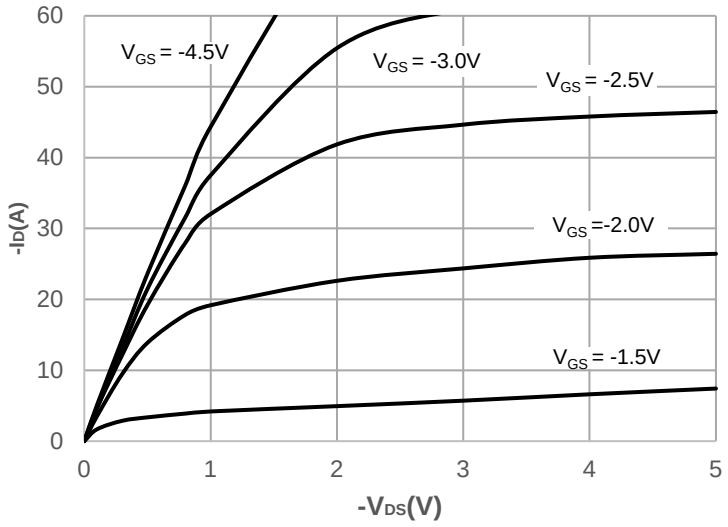


Figure 2: Typical Transfer Characteristics

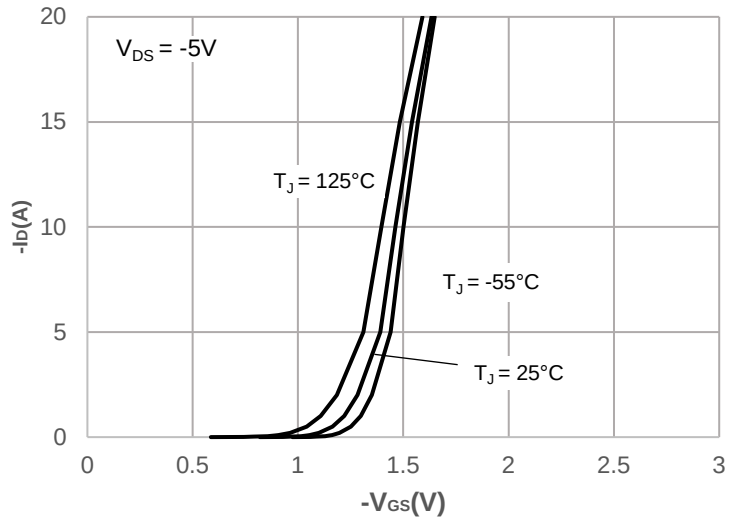


Figure 3: On-resistance vs. Drain Current

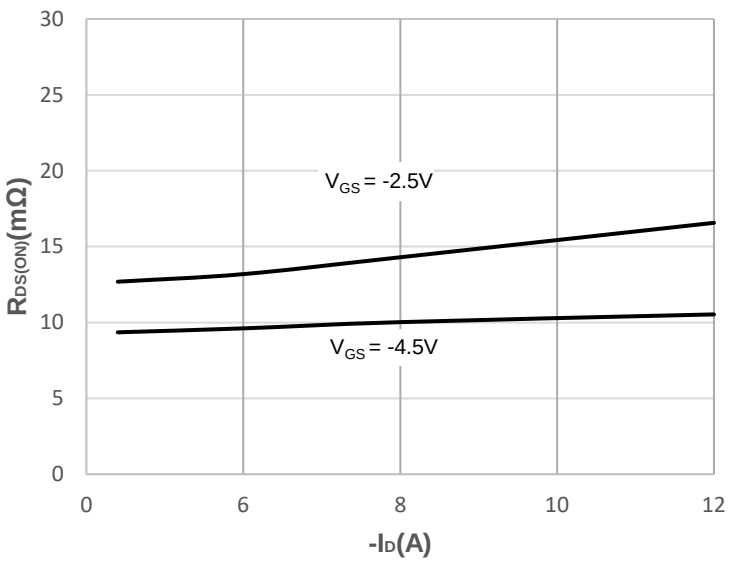


Figure 4: Body Diode Characteristics

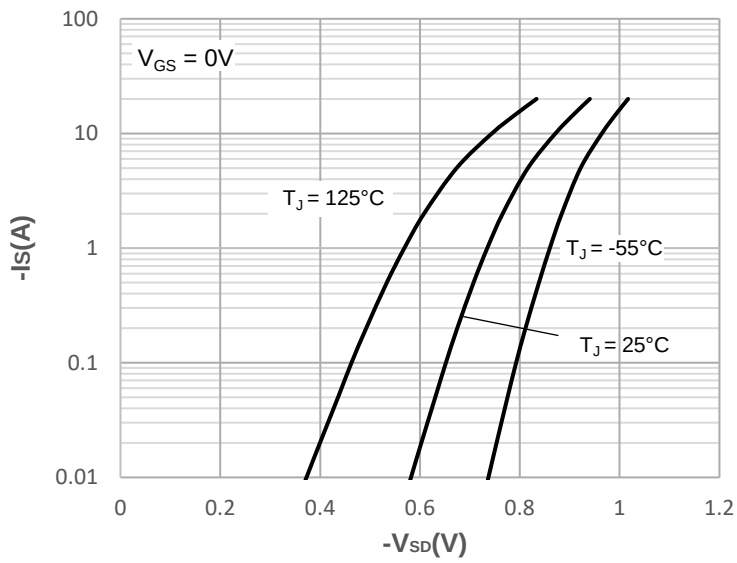


Figure 5: Gate Charge Characteristics

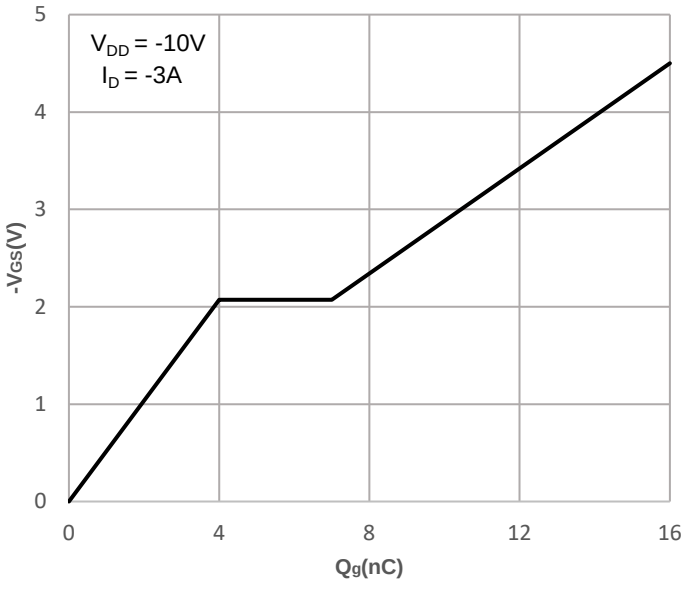
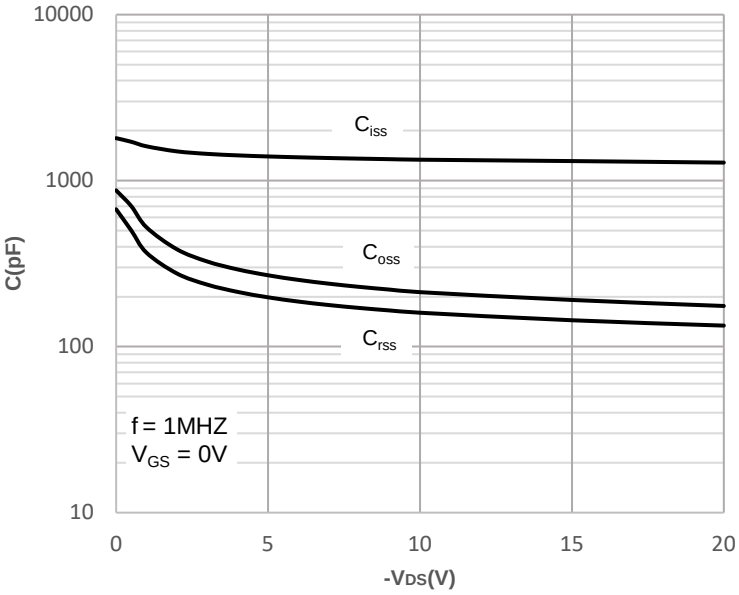


Figure 6: Capacitance Characteristics



Typical Performance Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

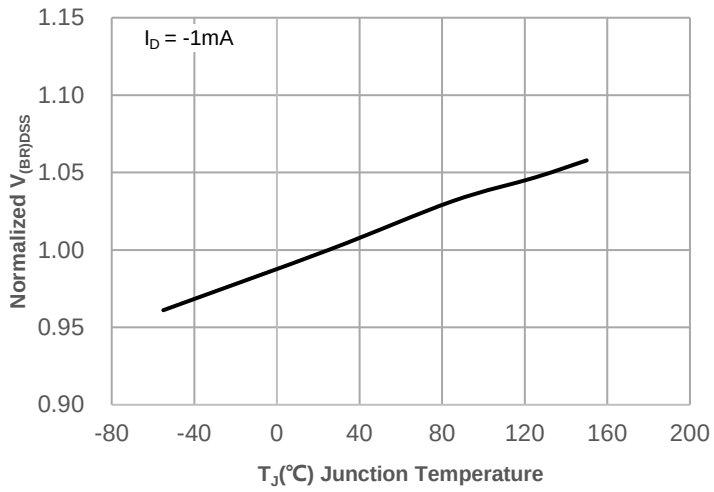


Figure 8: Normalized on Resistance vs. Junction Temperature

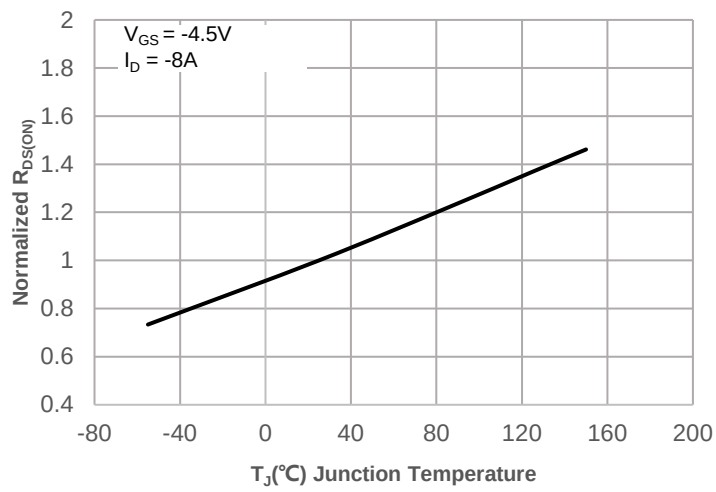


Figure 9: Maximum Safe Operating Area

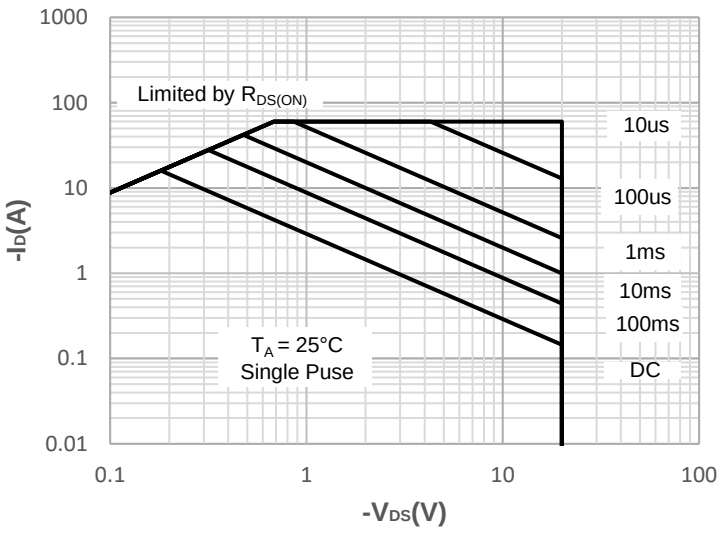


Figure 10: Maximum Continuous Drian Current vs. Ambient Temperature

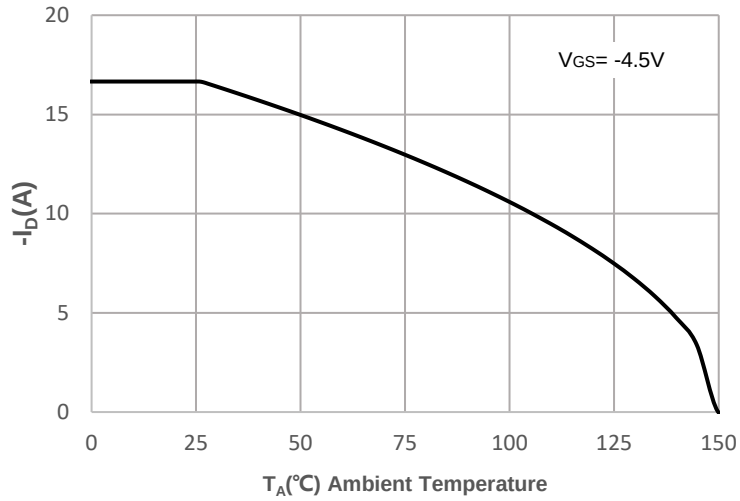


Figure 11: Normalized Maximum Transient Thermal Impedance

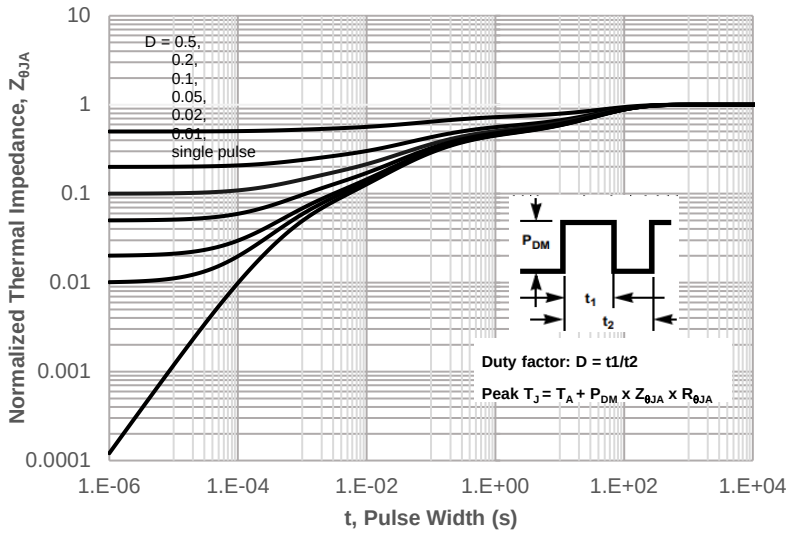
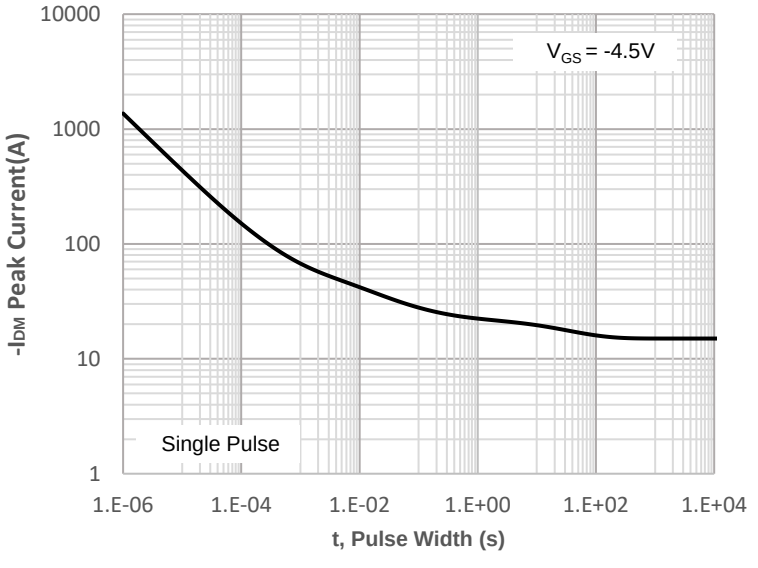


Figure 12: Peak Current Capacity



Test Circuit

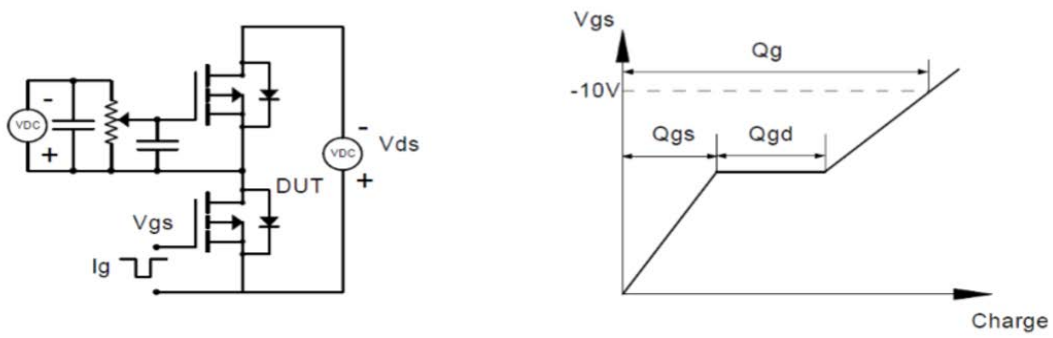


Figure 1: Gate Charge Test Circuit & Waveform

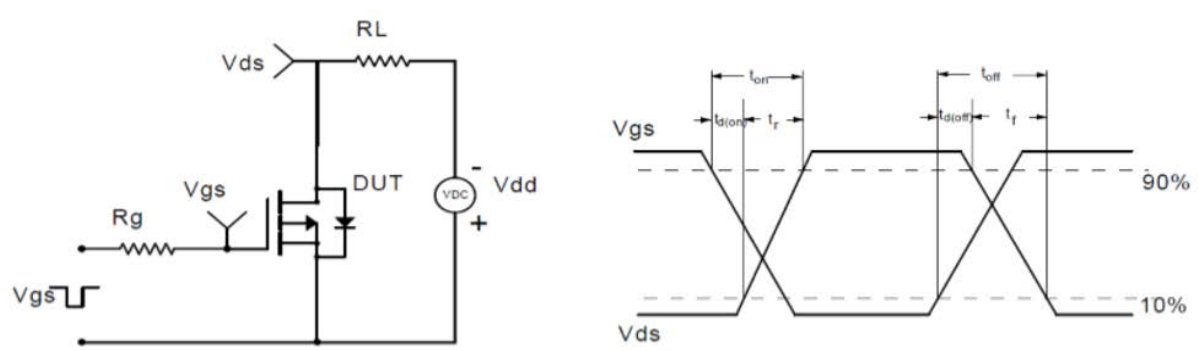


Figure 2: Resistive Switching Test Circuit & Waveform

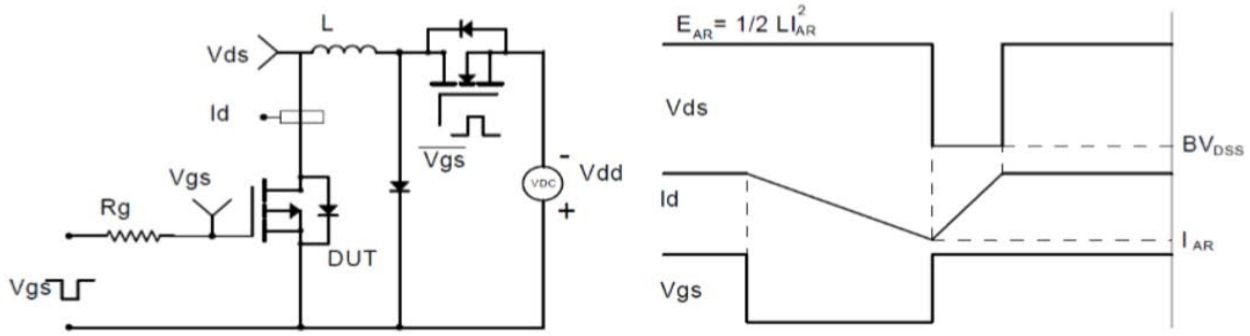


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

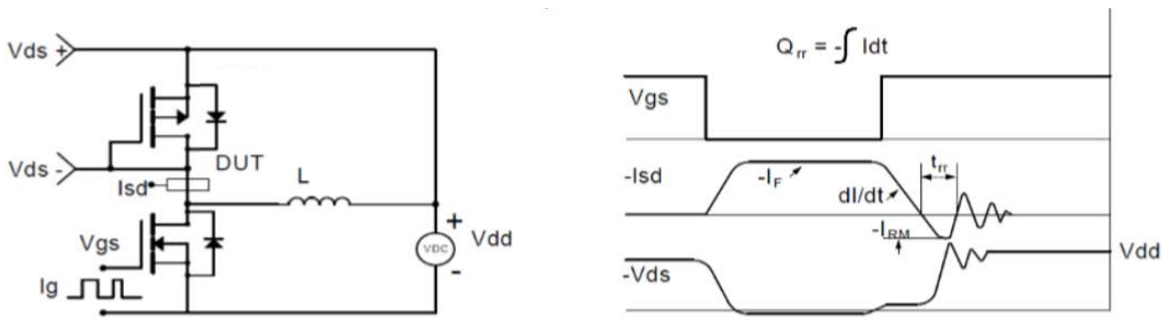
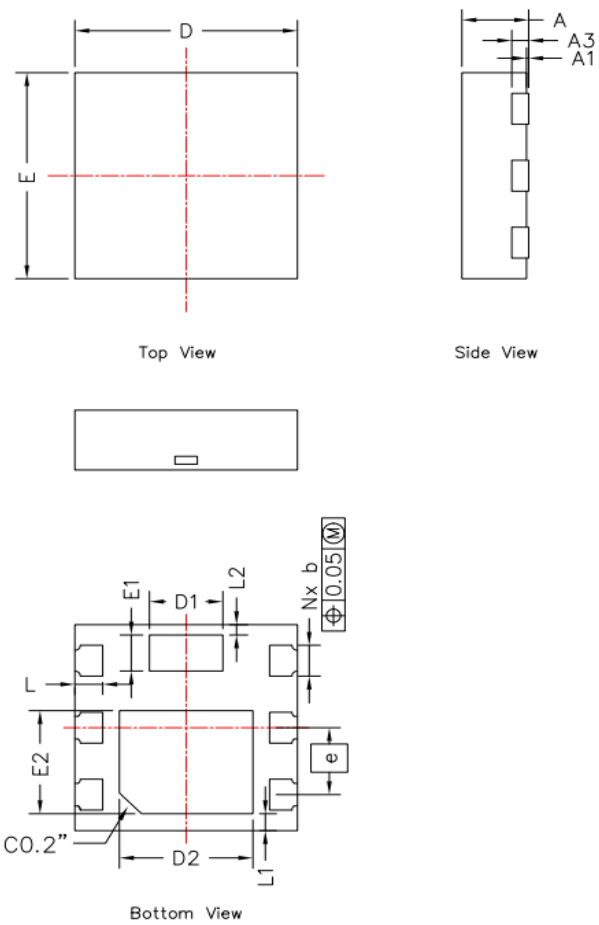


Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(DFN2020-6L)



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.750	0.800	0.028	0.030	0.031
A1	---	---	0.050	-----	-----	0.002
A3	0.195	0.203	0.211	0.008	0.008	0.008
b	0.250	0.300	0.350	0.010	0.012	0.014
e	0.65BSC			0.026 BSC		
D	1.900	2.000	2.100	0.075	0.079	0.083
E	1.900	2.000	2.100	0.075	0.079	0.083
D1	0.560	0.660	0.760	0.022	0.026	0.030
E1	0.250	0.350	0.450	0.010	0.014	0.018
D2	1.100	1.200	1.300	0.043	0.047	0.051
E2	0.900	1.000	1.100	0.035	0.039	0.043
L	0.150	0.250	0.350	0.006	0.010	0.014
L1	0.065	0.165	0.265	0.003	0.006	0.010
L2	0.000	0.100	0.200	0.000	0.004	0.008