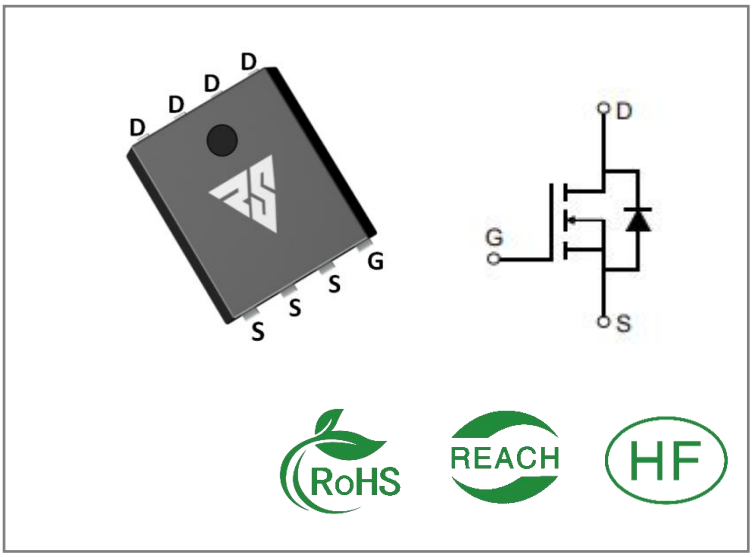
ID	R_{DS}(ON)(Typ)	VDSS
100A	6.5mΩ	100V



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.
RS100N100UHG	PDFN5*6	RS100N100UHG	Tape&reel	5000 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS100N100UHG	Units
VDSS	Drain-to-Source Voltage	100	V
ID	Continuous Drain Current TC=25℃	100	A
ID	Continuous Drain Current TC=100℃	60	
IDM	Pulsed Drain Current	400	
PD	Power Dissipation	147	W
VGS	Gate- to- Source Voltage	±20	V
EAS	Single Pulse Avalanche Engergy Tj = 25℃ L=0.5mH,VDD=50V, VG=10V,RG=25Ω, IAS=24A	144	mJ
TL TPKG	Maximum Temperature for Soldering	300	℃
	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.

Thermal Resistance

Symbol	Parameter	RS100N100UHG	Units	Test Conditions
RθJC	Junction-to-Case	0.85	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃

OFF Characteristics TJ= 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	100	--	--	V	VGS=0V ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=100V 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	--	6.5	8.4	mΩ	VGS=10V ID=30A
VGS (TH)	Gate Threshold Voltage	2.4	3	3.6	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	--	8.4	--	nS	VDS=50V ID=20A RG=6Ω VGS=10V
trise	Rise Time	--	9.4	--		
td(OFF)	Turn- OFF Delay Time	--	27	--		
tfall	Fall Time	--	18	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1757	--	pF	VGS= 0V VDS=50V f=1MHz
Coss	Output Capacitance	--	985	--		
Crss	Reverse Transfer Capacitance	--	12	--		
Qg	Total Gate Charge	--	29	--	nC	VDS=50V ID=20A VGS=0 to 10V
Qgs	Gate- to- Source Charge	--	6.8	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	8.4	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	100	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	400	A	
VSD	Diode Forward Voltage	--	--	1.2	V	IS=30A,VGS=0V
trr	Reverse Recovery Time	--	45	--	nS	VGS=0V IS=15A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	53	--	nC	

Notes:

* 1. Repetitive rating, pulse width limited by maximum junction temperature.
* 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 0.5%

Typical Feature Curve

Figure 1: Output Characteristics

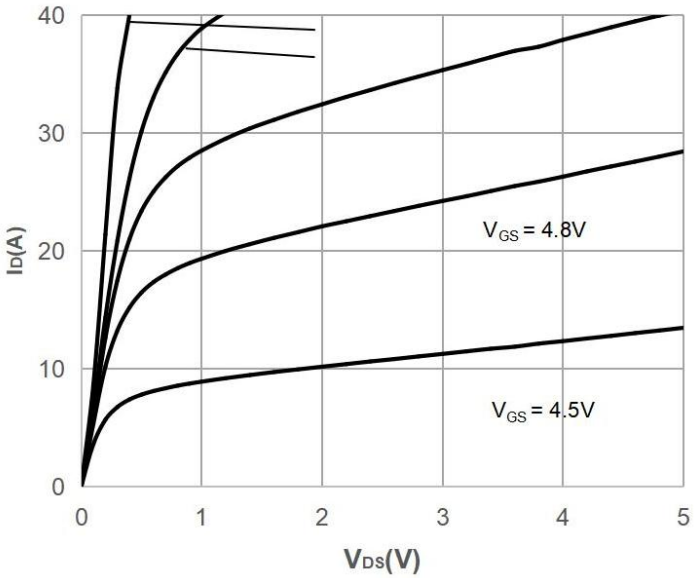


Figure 2: Typical Transfer Characteristics

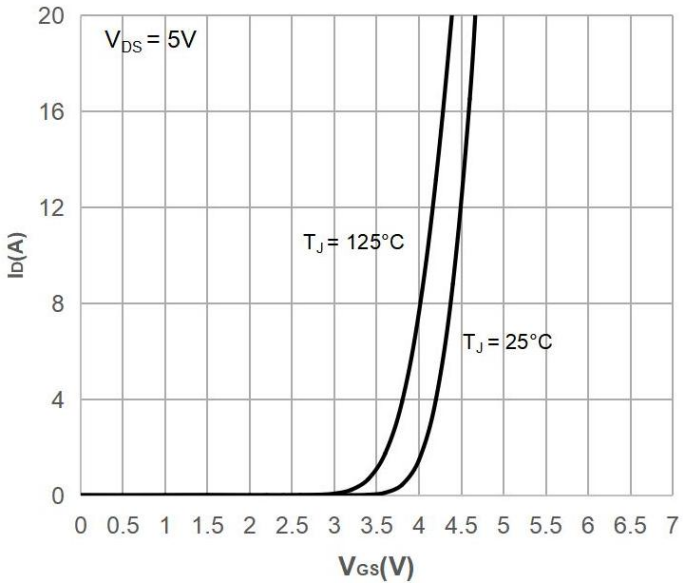


Figure 4: Body Diode Characteristics

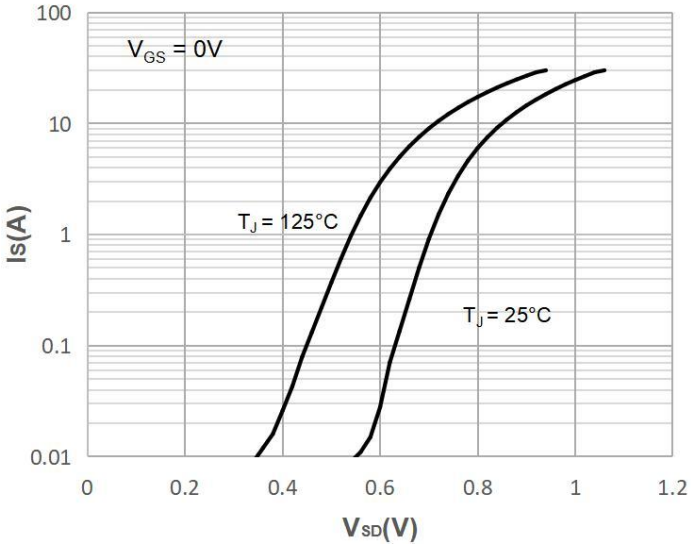


Figure 3: On-resistance vs. Drain Current

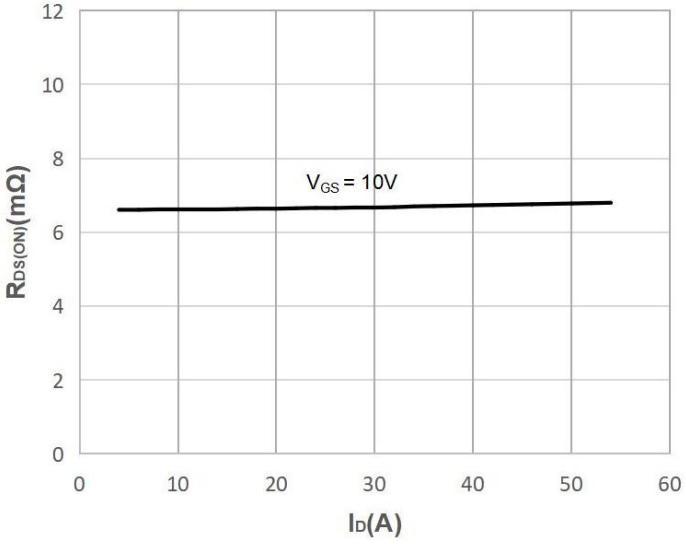


Figure 5: Gate Charge Characteristics

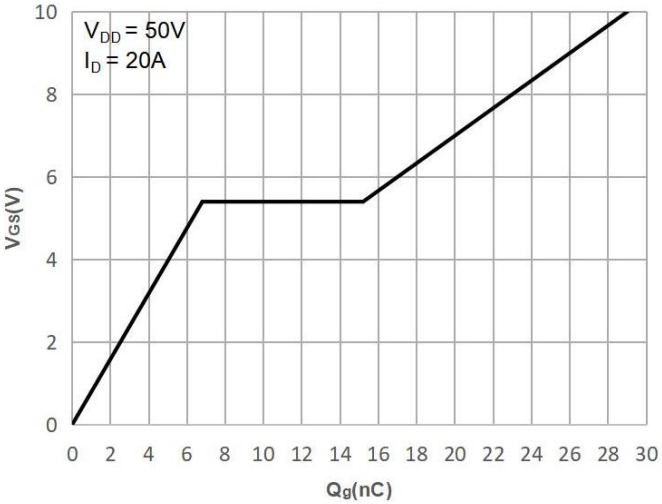


Figure 6: Capacitance Characteristics

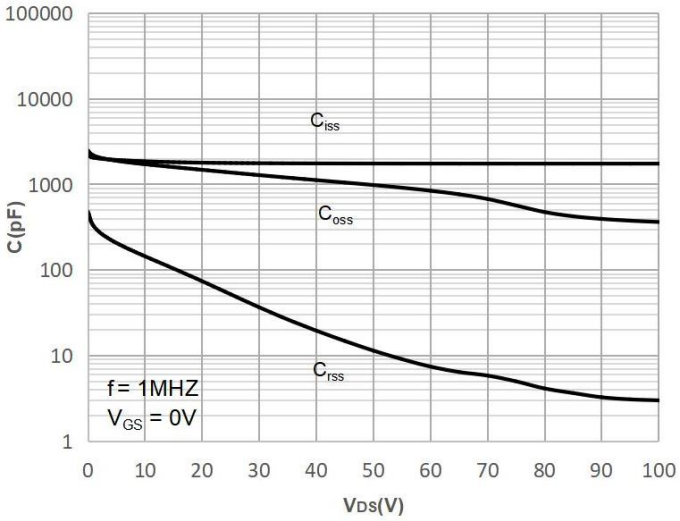


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

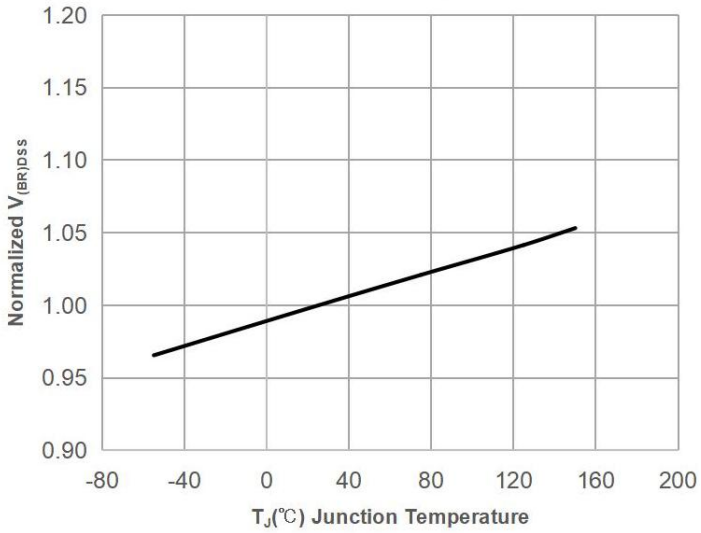


Figure 8: Normalized on Resistance vs. Junction Temperature

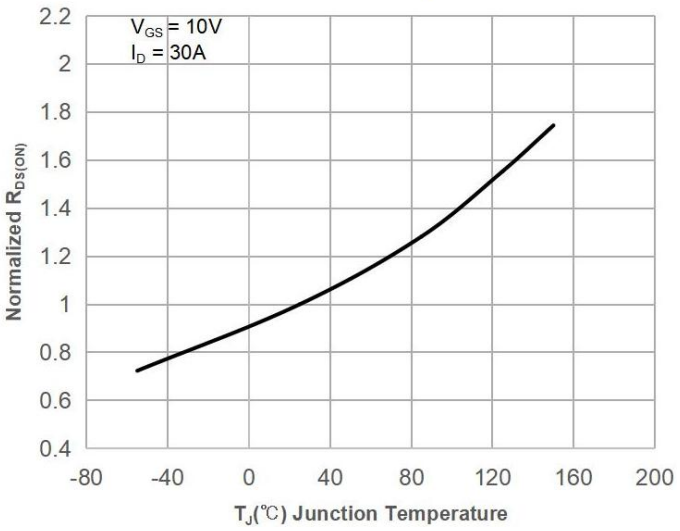


Figure 9: Maximum Safe Operating Area

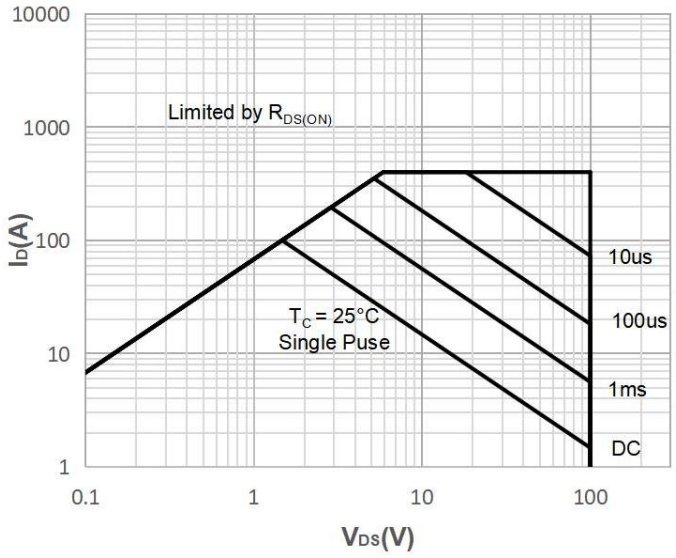


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

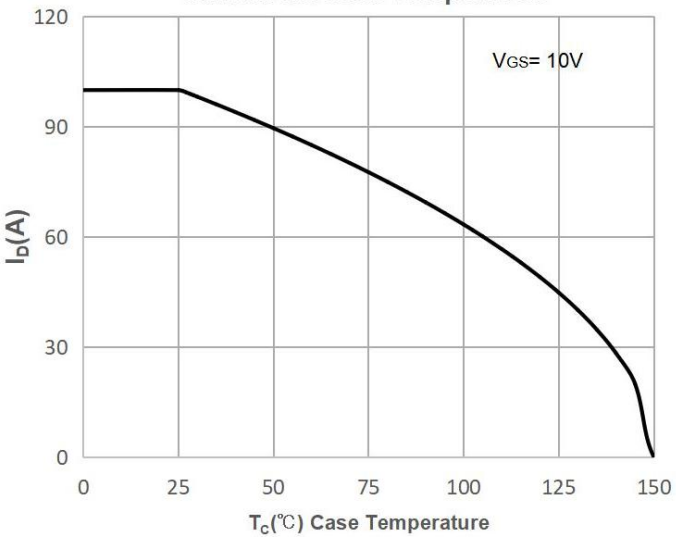


Figure 11: Normalized Maximum Transient Thermal Impedance

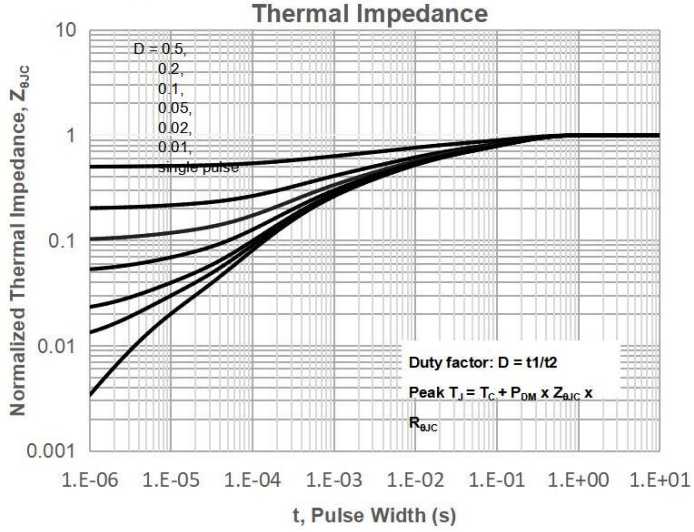
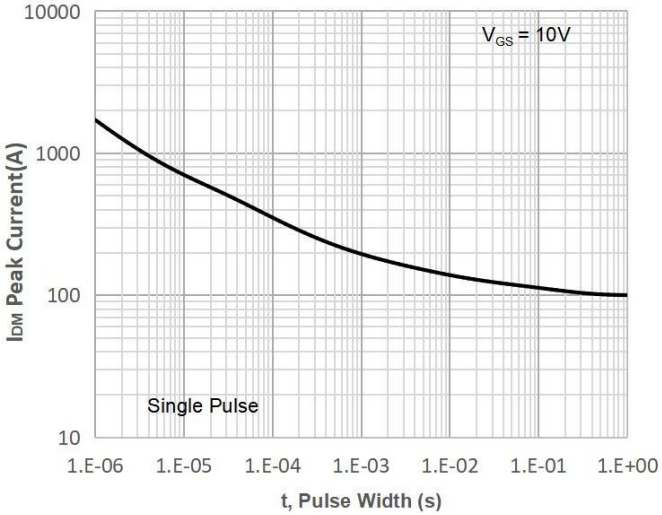
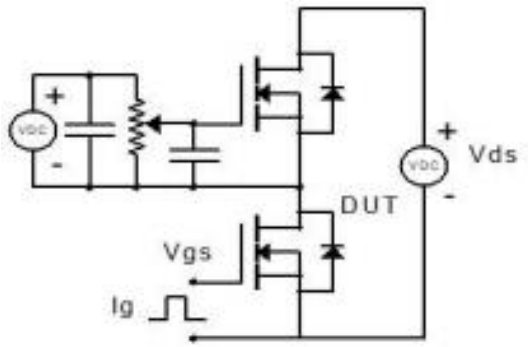
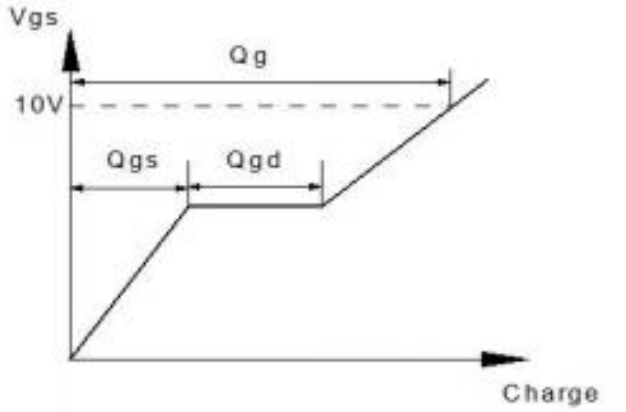


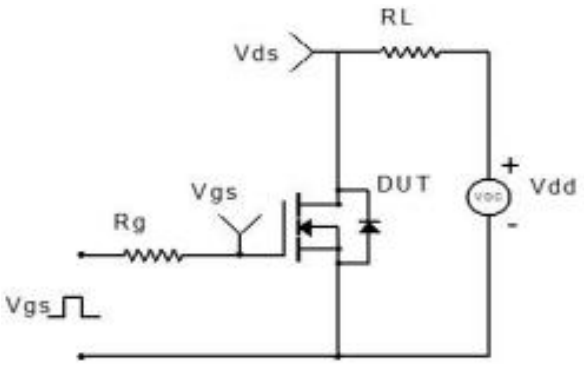
Figure 12: Peak Current Capacity

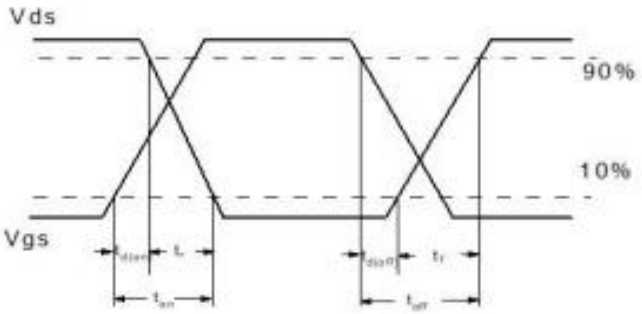


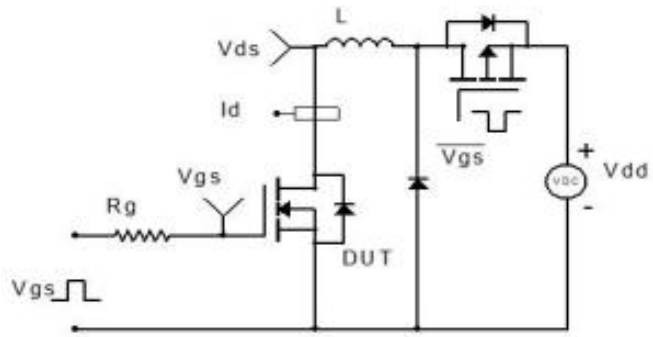
Test ircuits and Waveforms

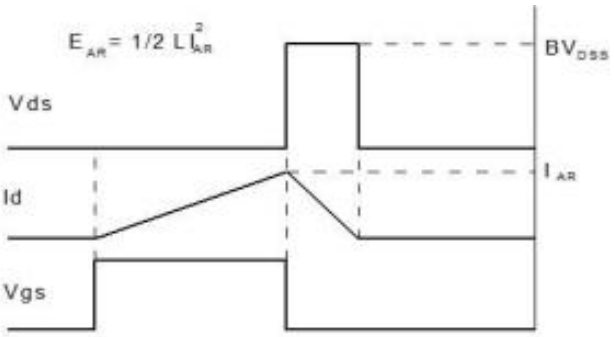


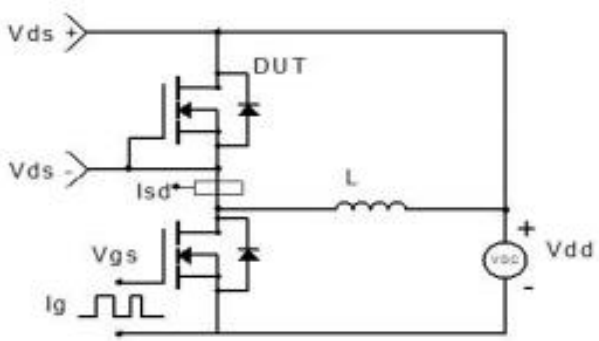


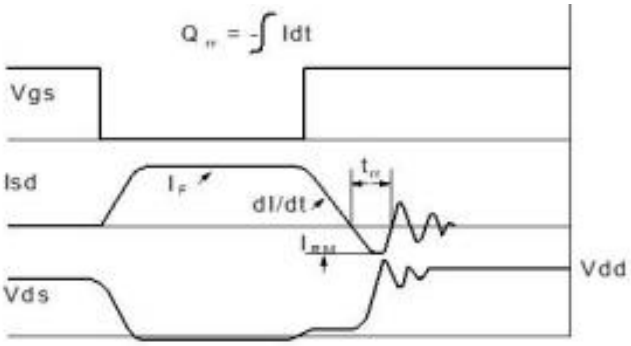




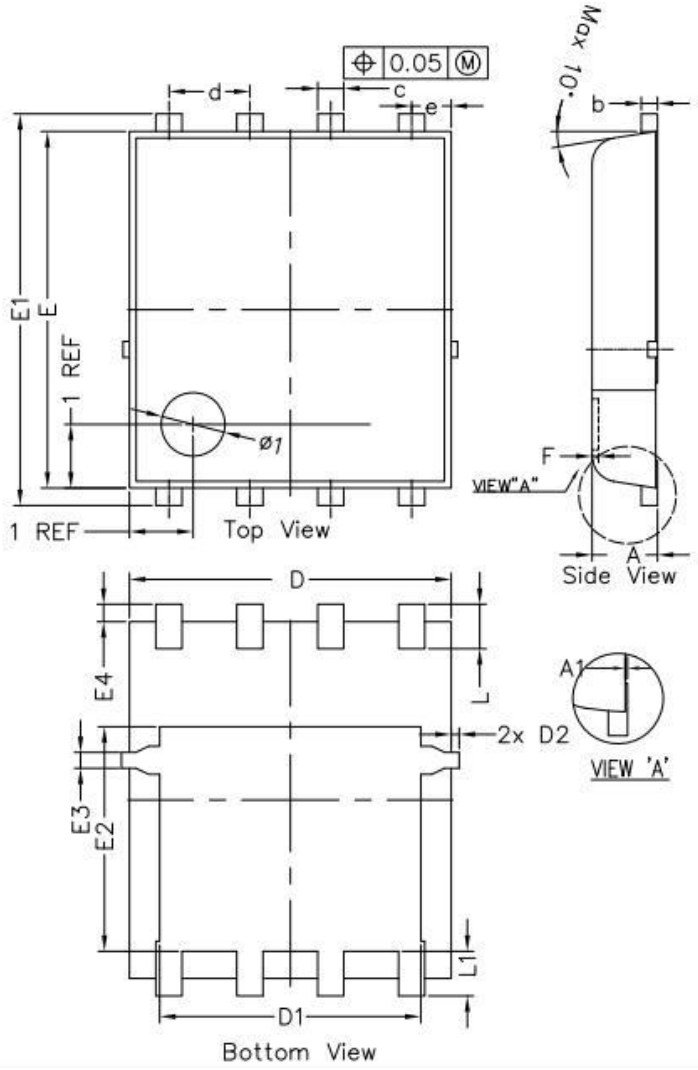








Package outline drawing(PDFN5*6 Unit: mm)



SYMBOLS	DIMENSION IN MM			DIMENSION IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
* A	0.900	1.000	1.100	0.035	0.039	0.043
A1	0.000	---	0.050	0.000	----	0.002
b	0.246	0.254	0.312	0.010	0.010	0.012
* c	0.310	0.410	0.510	0.012	0.016	0.020
d		1.27 BSC			0.050 BSC	
* D	4.950	5.050	5.150	0.195	0.199	0.203
D1	4.000	4.100	4.200	0.157	0.161	0.165
⚠ * D2	---	---	0.125	---	---	0.005
e		0.62 BSC			0.024 BSC	
* E	5.500	5.600	5.700	0.217	0.220	0.224
* E1	6.050	6.150	6.250	0.238	0.242	0.246
E2	3.425	3.525	3.625	0.135	0.139	0.143
E3	0.150	0.250	0.350	0.006	0.010	0.014
* E4	0.175	0.275	0.375	0.007	0.011	0.015
F	-	-	0.100	-	-	0.004
⚠ * L	0.500	0.600	0.700	0.02	0.02	0.03
L1	0.600	0.700	0.800	0.02	0.03	0.03

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