

Features

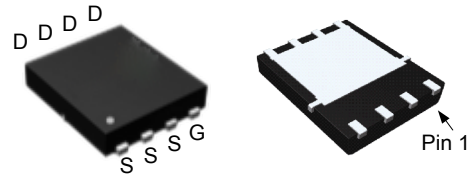
- 30V/80A,
 $R_{DS(ON)} = 3.9m\Omega$ (typ .) @ $V_{GS}=10V$
 $R_{DS(ON)} = 6.8m\Omega$ (typ .) @ $V_{GS}=4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lower Q_g and Q_{gd} for high-speed switching
- Lower $R_{DS(ON)}$ to Minimize Conduction Losses
- Lead Free and Green Devices Available

(RoHS Compliant)

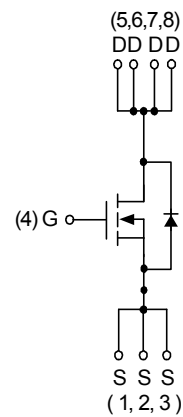
Applications

- Power Management in Desktop Computer or DC/DC Converters.

Pin Description



PDFN5*6-8L



N-Channel MOSFET

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		30	V
V _{GSS}	Gate-Source Voltage		±20	
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-55 to 150	
I _S	Diode Continuous Forward Current	T _C =25°C	80	A
I _D	Continuous Drain Current	T _C =25°C	80	
		T _C =100°C	60	
I _{DM} ^a	Pulsed Drain Current	T _C =25°C	240	
P _D	Maximum Power Dissipation	T _C =25°C	29.8	W
		T _C =100°C	11.9	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	4.2	°C/W
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	t ≤ 10s	20	°C/W
		Steady State	50	
I _{AS}	Avalanche Current, Single pulse	L=0.1mH	35	A
E _{AS}	Avalanche Energy, Single pulse	L=0.1mH	61	mJ

Note a : Pulse width is limited by max. junction temperature.

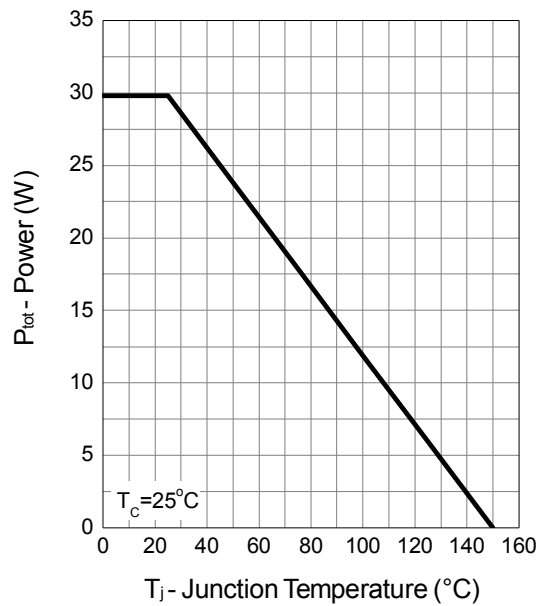
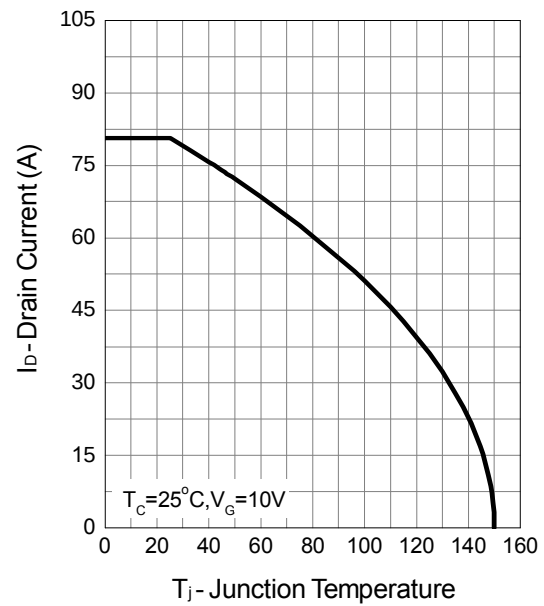
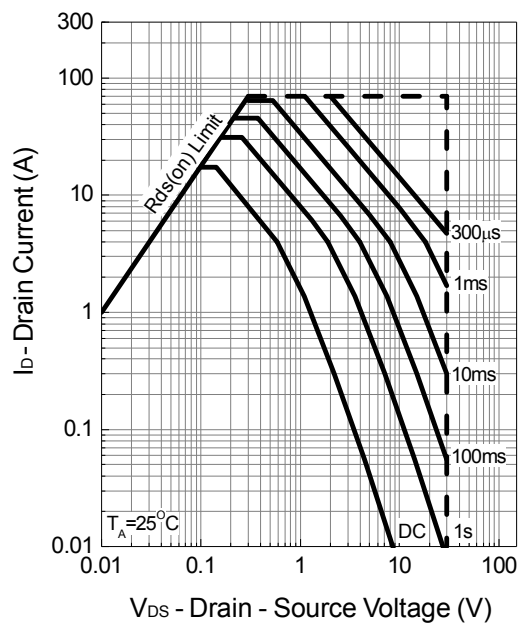
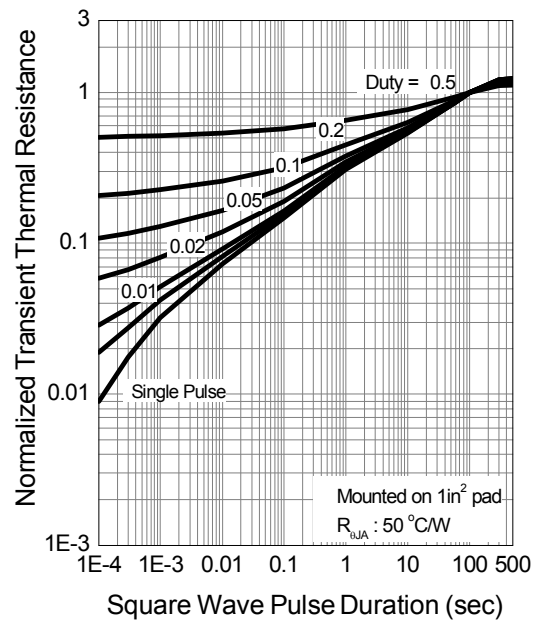
Note b : R_{θJA} steady state t=100s.

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

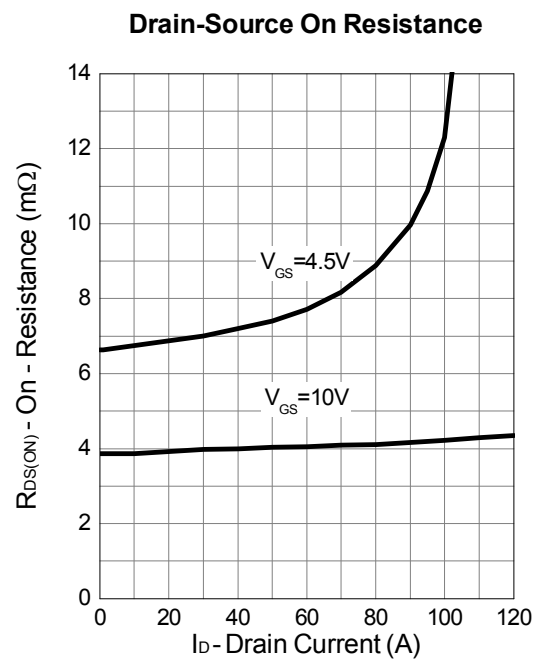
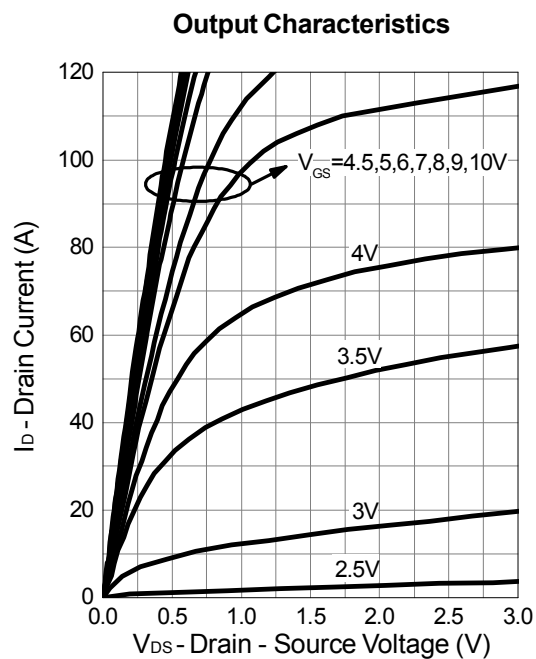
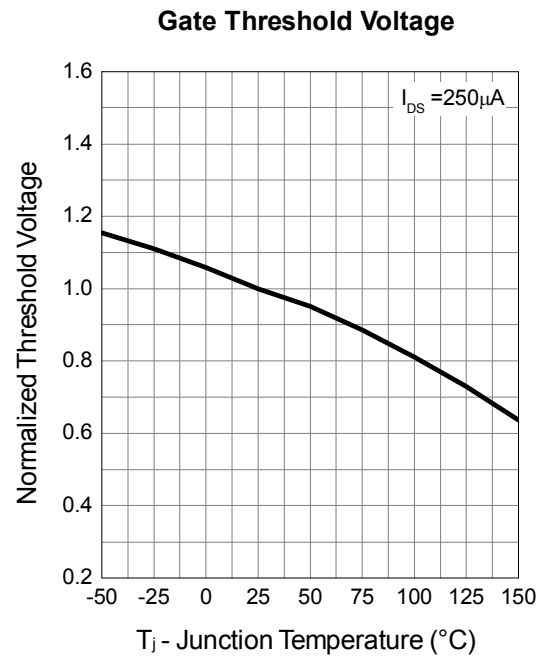
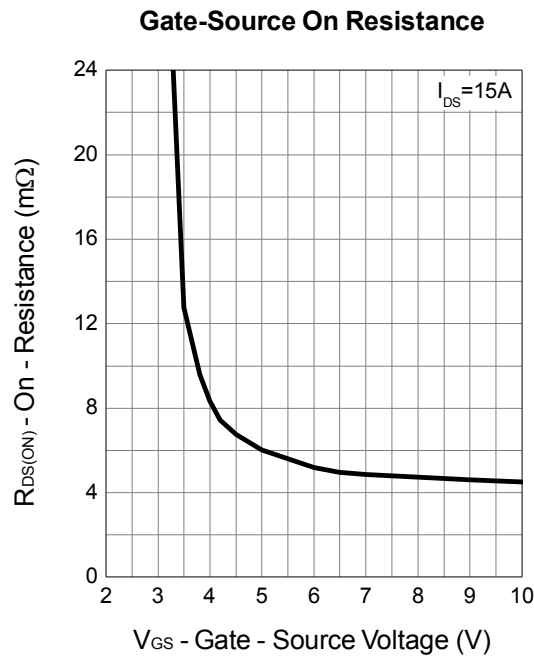
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
BV _{DSS} t	Drain-Source Breakdown Voltage (transient)	V _{GS} =0V, I _{D(aval)} =20A T _{case} =25°C, t _{transient} =100ns	34	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1.0	1.6	2.2	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =15A	-	3.9	5	mΩ
		T _J =125°C	-	5.75	-	
		V _{GS} =4.5V, I _{DS} =10A	-	6.8	9	
Gfs	Forward Transconductance	V _{DS} =6V, I _{DS} =5A	-	18	-	S
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =10A, V _{GS} =0V	-	0.8	1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =5A, dI _{SD} /dt=100A/μs	-	25	-	ns
t _a	Charge Time		-	11	-	
t _b	Discharge Time		-	14	-	
Q _{rr}	Reverse Recovery Charge		-	11.8	-	nC
Dynamic Characteristics						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	1.6	2.5	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =15V, Frequency=1.0MHz	-	1188	1900	pF
C _{oss}	Output Capacitance		-	210	-	
C _{rss}	Reverse Transfer Capacitance		-	179	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =15V, R _L =15Ω, I _{DS} =1A, V _{GEN} =10V, R _G =1Ω	-	11	-	ns
t _r	Turn-on Rise Time		-	8	-	
t _{d(OFF)}	Turn-off Delay Time		-	19.6	-	
t _f	Turn-off Fall Time		-	17	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _{DS} =15A	-	12.5	17	nC
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =4.5V, I _{DS} =15A	-	5.8	-	
Q _{gth}	Threshold Gate Charge		-	1.4	-	
Q _{gs}	Gate-Source Charge		-	3	-	
Q _{gd}	Gate-Drain Charge		-	1.5	-	

Note d : Pulse test ; pulse width≤300μs, duty cycle≤2%.

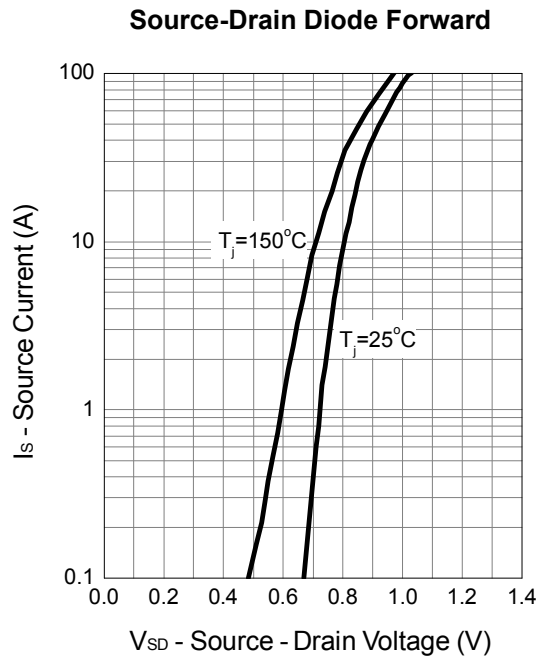
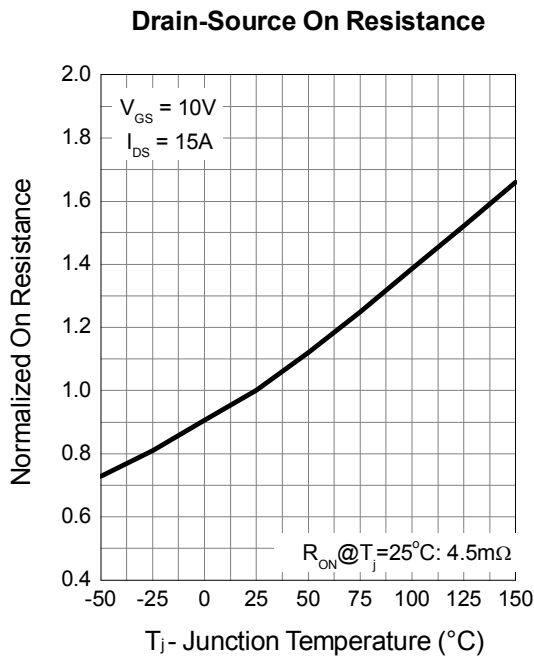
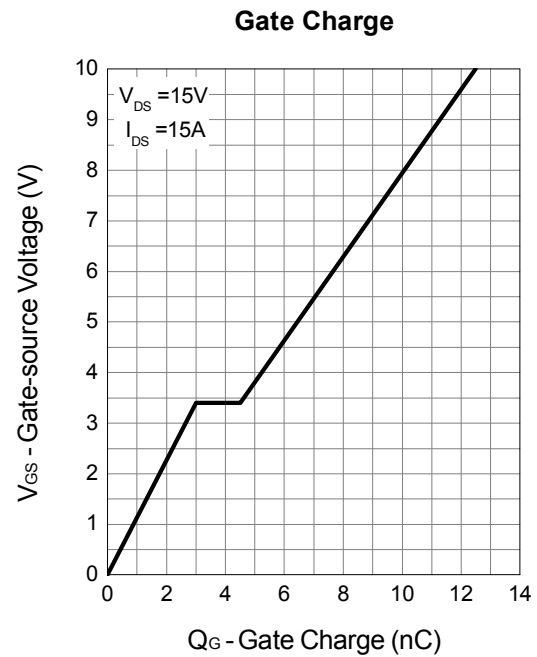
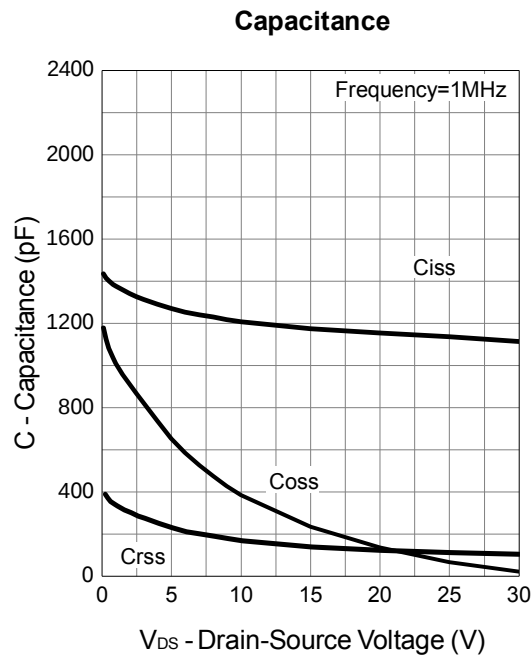
Typical Operating Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


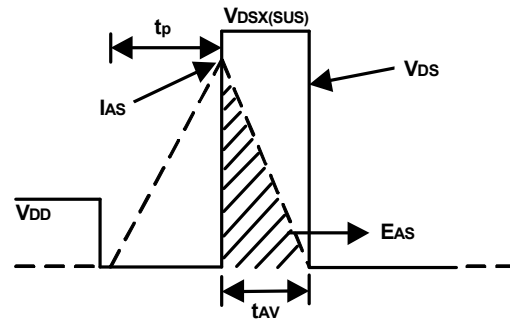
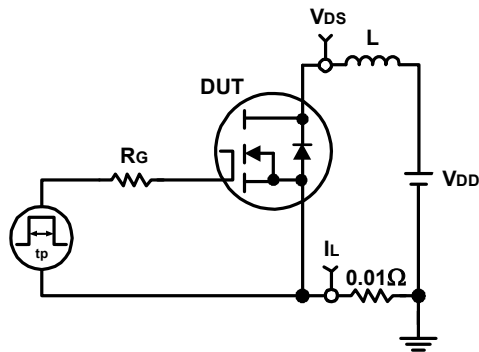
Typical Operating Characteristics (Cont.)



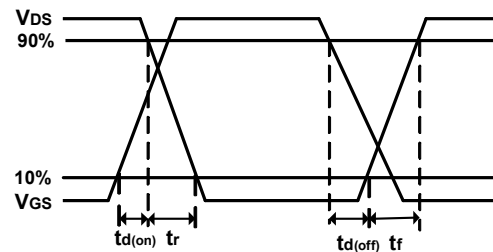
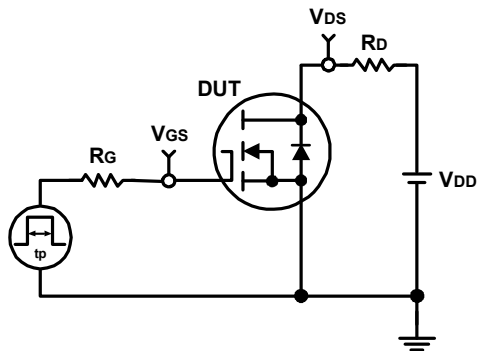
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

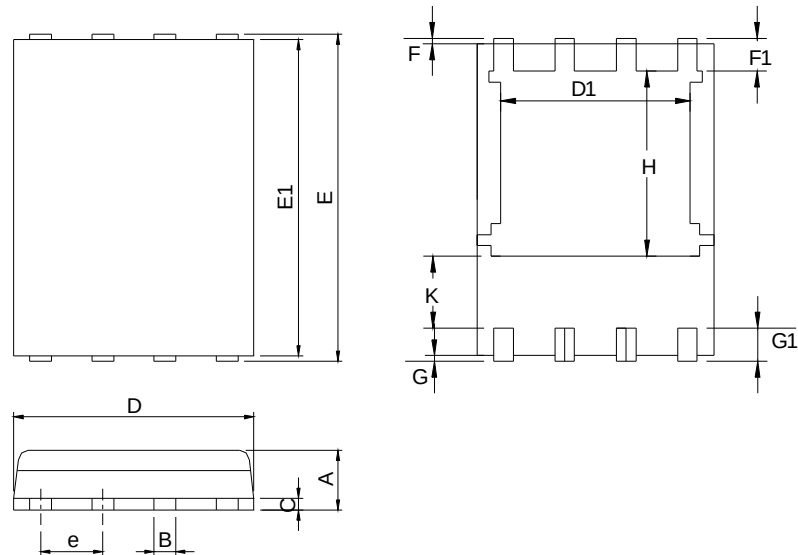


Switching Time Test Circuit and Waveforms



Package Information

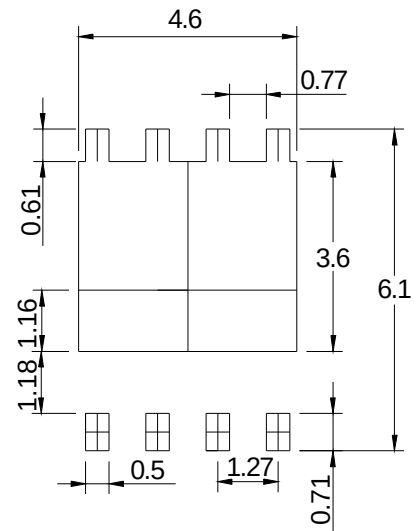
PDFN5*6-8L



SYMBOL	PDFN5*6-8L			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.90	1.20	0.035	0.047
B	0.3	0.51	0.012	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.30	0.189	0.209
D1	4.00	4.40	0.157	0.173
E	5.90	6.20	0.232	0.244
E1	5.50	5.80	0.217	0.228
e	1.27 BSC		0.050 BSC	
F	0.05	0.30	0.002	0.012
F1	0.35	0.75	0.014	0.030
G	0.05	0.30	0.002	0.012
G1	0.35	0.75	0.014	0.030
H	3.34	3.9	0.131	0.154
K	0.762	-	0.03	-

Note : 1.Dimension D, D1,D2 and E1 do not include mold flash or protrusions.
Mold flash or protrusions shall not exceed 10 mil.

RECOMMENDED LAND PATTERN



UNIT: mm