

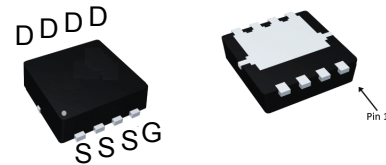
Features

- 30V/-50A,
 $R_{DS(ON)} = 7.5m\Omega (typ.) @ V_{GS} = -10V$
 $R_{DS(ON)} = 12m\Omega (typ.) @ V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)
- HBM ESD protection level pass 2KV

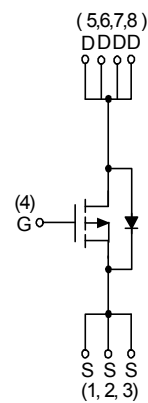
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



PDFN3x3-8L



P Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ 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	-50	A
I _D	Continuous Drain Current	T _C =25°C	-50	
		T _C =100°C	-38	
I _{DM}	Pulsed Drain Current	T _C =25°C	-150	
P _D	Maximum Power Dissipation	T _C =25°C	35.7	W
		T _C =100°C	14.3	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	3.5	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	t ≤ 10s	30	°C/W
		Steady State	75	
I _{AS} ^a	Avalanche Current, Single pulse	L=0.1mH	38	A
E _{AS} ^a	Avalanche Energy, Single pulse	L=0.1mH	72	mJ

Note a : UIS tested and pulse width are limited by maximum junction temperature 150°C (initial temperature $T_J = 25^\circ\text{C}$).

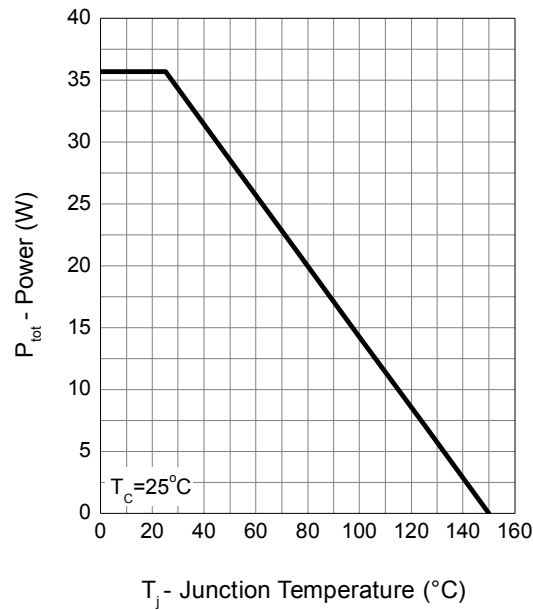
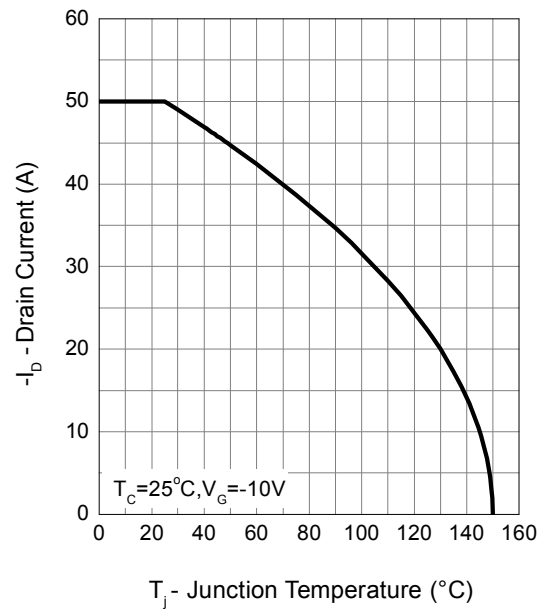
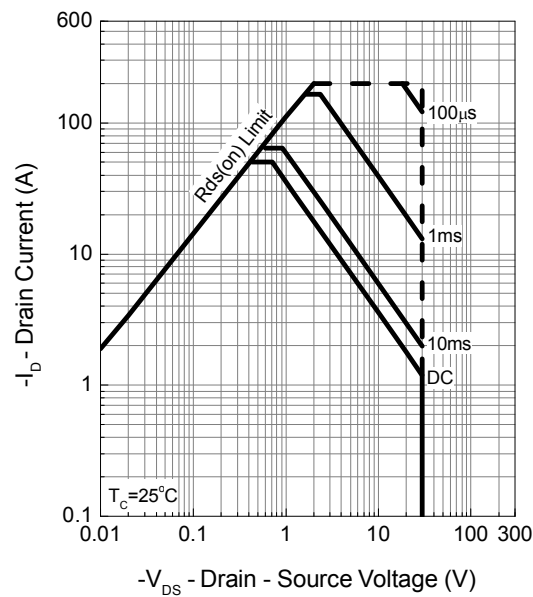
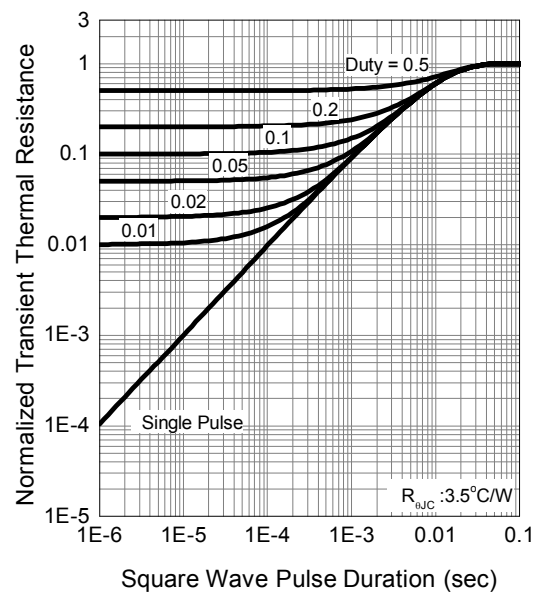
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-30	-	-	V
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	-1.3	-1.8	-2.3	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±10	μA
R _{DS(ON)} ^b	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-17.1A	-	7.5	9.5	mΩ
		V _{GS} =-4.5V, I _{DS} =-10A	-	12	16	
Diode Characteristics						
V _{SD} ^b	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr} ^c	Reverse Recovery Time	I _{SD} =-17.1A,	-	24	-	ns
Q _{rr} ^c	Reverse Recovery Charge	dI _{SD} /dt=100A/μs	-	16	-	nC
Dynamic Characteristics ^c						
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V,F=1MHz	-	8	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V,	-	2110	-	pF
C _{oss}	Output Capacitance	V _{DS} =-15V,	-	450	-	
C _{rss}	Reverse Transfer Capacitance	Frequency=1.0MHz	-	330	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-15V, R _L =15Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	12	-	ns
t _r	Turn-on Rise Time		-	14	-	
t _{d(OFF)}	Turn-off Delay Time		-	98	-	
t _f	Turn-off Fall Time		-	60	-	
Gate Charge Characteristics ^c						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _{DS} =-17.1A	-	45	-	nC
Q _{gs}	Gate-Source Charge		-	5	-	
Q _{gd}	Gate-Drain Charge		-	12.7	-	

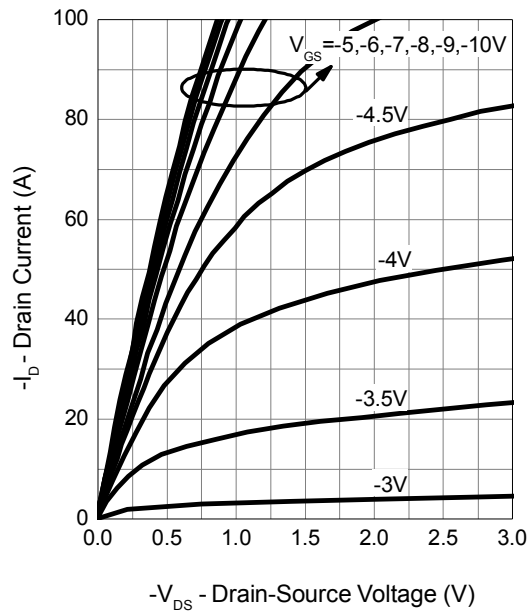
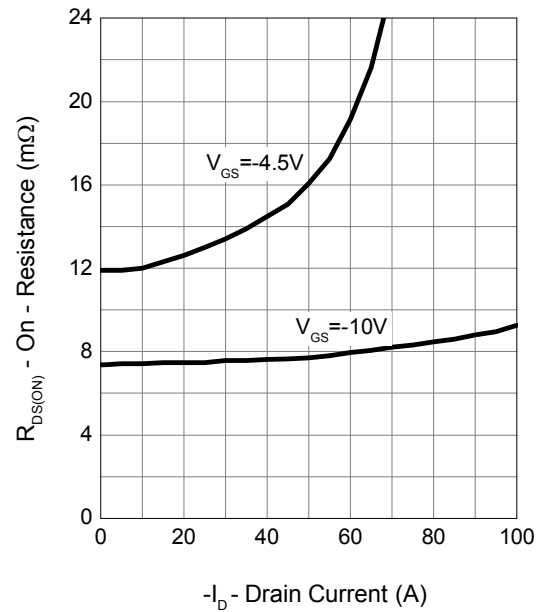
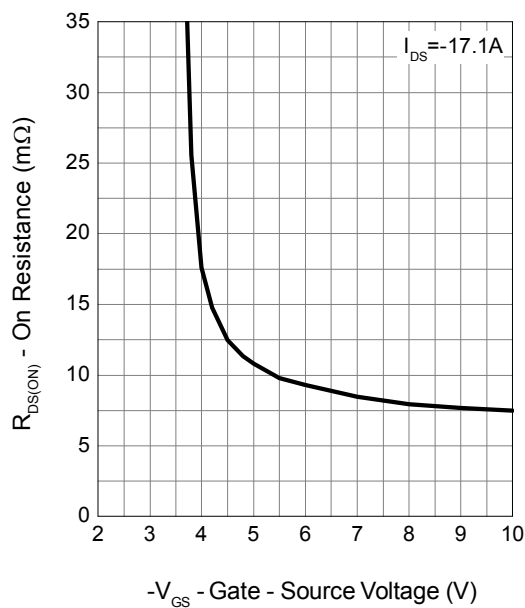
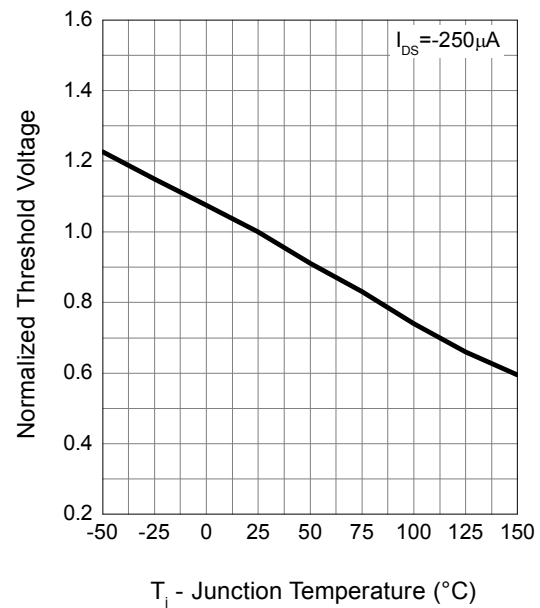
Note b : Pulse test ; pulse width≤300μs, duty cycle≤2%.

Note c : Guaranteed by design, not subject to production testing.

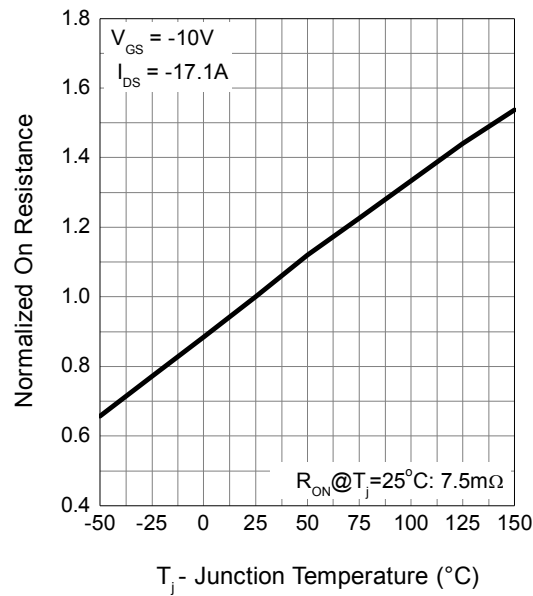
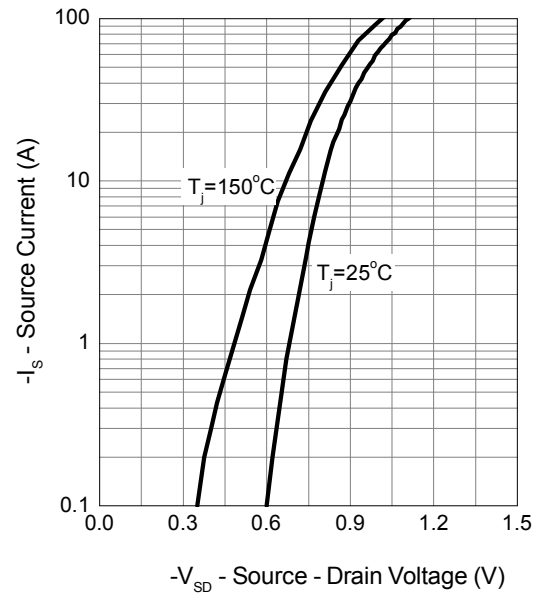
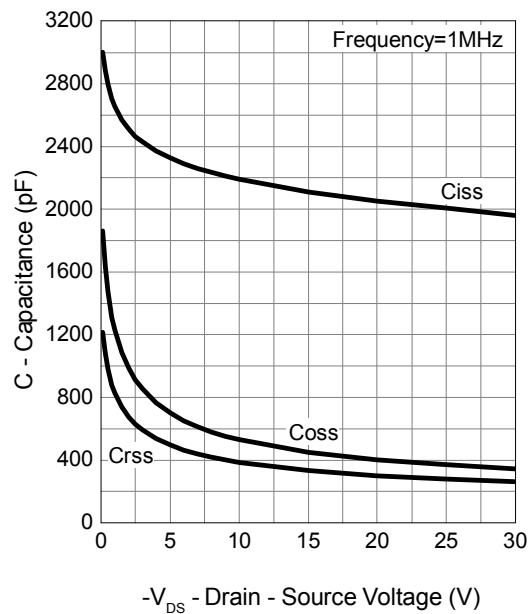
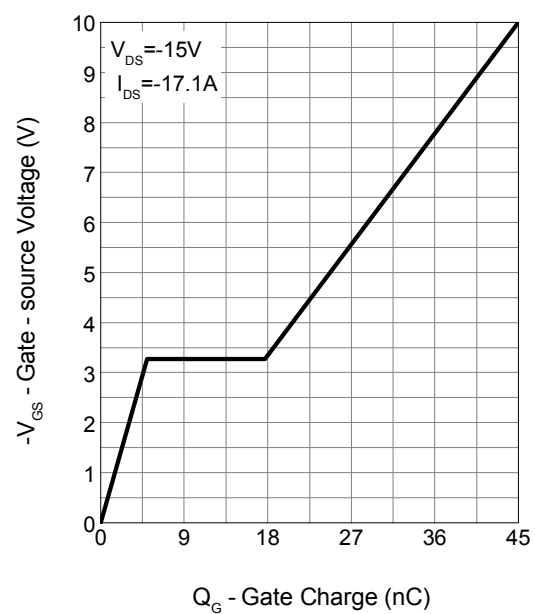
Typical Operating Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


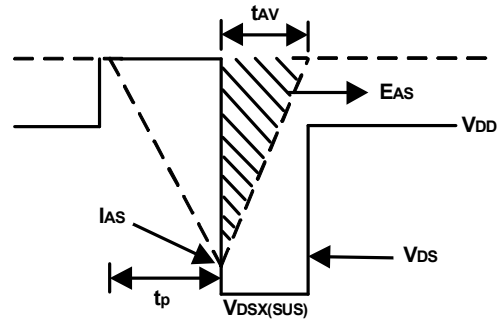
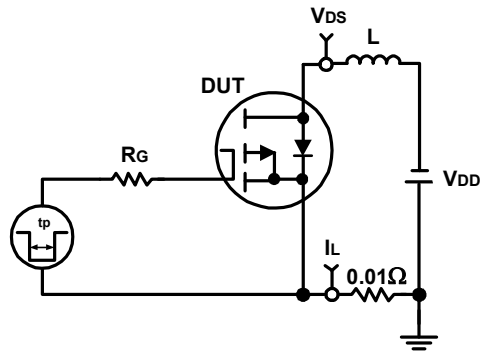
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


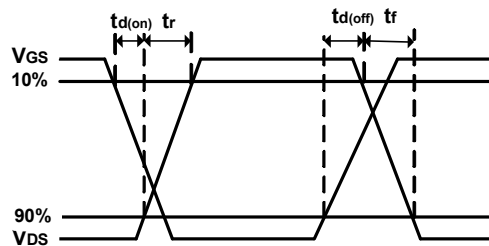
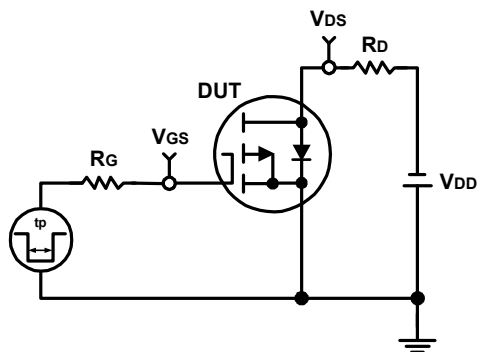
Typical Operating Characteristics (Cont.)

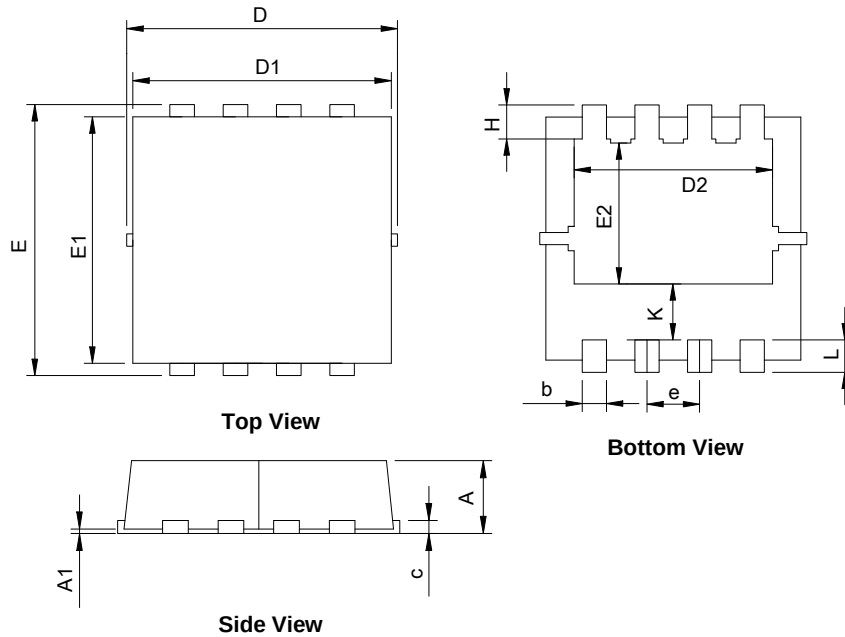
Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Avalanche Test Circuit and Waveforms

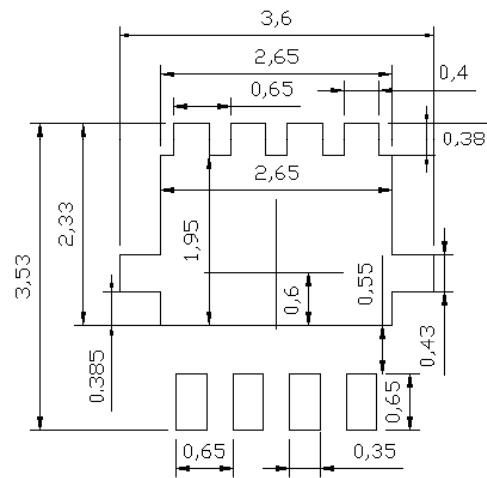


Switching Time Test Circuit and Waveforms





SYMBOL	PDFN3x3-8L			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.70	1.00	0.028	0.039
A1	0.00	0.05	0.000	0.002
b	0.25	0.35	0.010	0.014
c	0.10	0.25	0.004	0.010
D	3.10	3.50	0.122	0.138
D1	3.05	3.25	0.120	0.128
D2	2.35	2.59	0.093	0.102
E	3.10	3.50	0.122	0.138
E1	2.90	3.10	0.114	0.122
E2	1.64	1.98	0.065	0.078
e	0.65 BSC		0.026 BSC	
H	0.32	0.52	0.013	0.020
K	0.59	0.79	0.023	0.031
L	0.25	0.55	0.010	0.022

RECOMMENDED LAND PATTERN


UNIT: mm