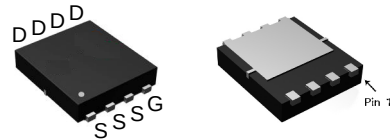


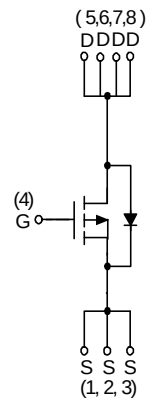
Features

- -30V/-39A,
 $R_{DS(ON)} = 9\text{ m}\Omega(\text{typ.}) @ V_{GS} = -10\text{V}$
 $R_{DS(ON)} = 12\text{m}\Omega(\text{typ.}) @ V_{GS} = -4.5\text{V}$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Pin Description



PDFN3.3*3.3-8L



P-Channel MOSFET

Applications

- Load Switch.
- Battery Pack Power Management.

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		±25	
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	-39	A
I _D	Continuous Drain Current	T _C =25°C	-39	
		T _C =100°C	-29	
I _{DM}	Pulsed Drain Current	T _C =25°C	-117	
P _D	Maximum Power Dissipation	T _C =25°C	32.9	W
		T _C =100°C	13.2	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	3.8	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	t ≤ 10s	40	°C/W
		Steady State	75	
I _{AS} ^a	Avalanche Current, Single pulse	L=0.5mH	18	A
E _{AS} ^a	Avalanche Energy, Single pulse	L=0.5mH	81	mJ

Note * : Current limited by bond wire.

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

Note b : $t < 10\text{s}$.

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

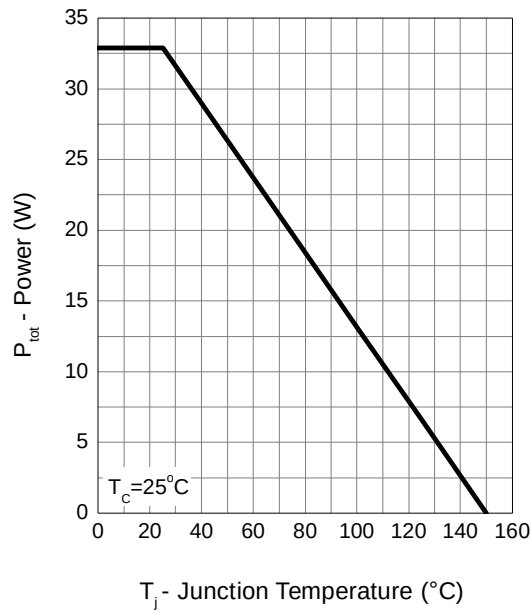
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V	-	-	-1	μA
		T _J =85°C	-	-	-30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0	-1.5	-2.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^c	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-20A	-	9	12	mΩ
		V _{GS} =-4.5V, I _{DS} =-10A	-	12	16	
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr} ^d	Reverse Recovery Time	I _{SD} =-20A, dI _{SD} /dt=100A/μs	-	20	-	ns
Q _{rr} ^d	Reverse Recovery Charge		-	8	-	nC
Dynamic Characteristics ^d						
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V,F=1MHz	-	9	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, Frequency=1.0MHz	-	1380	-	pF
C _{oss}	Output Capacitance		-	280	-	
C _{rss}	Reverse Transfer Capacitance		-	217	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-15V, R _L =15Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	11	-	ns
t _r	Turn-on Rise Time		-	11	-	
t _{d(OFF)}	Turn-off Delay Time		-	101	-	
t _f	Turn-off Fall Time		-	60	-	
Gate Charge Characteristics ^d						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _{DS} =-20A	-	30	-	nC
Q _{gs}	Gate-Source Charge		-	1.2	-	
Q _{gd}	Gate-Drain Charge		-	11	-	

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

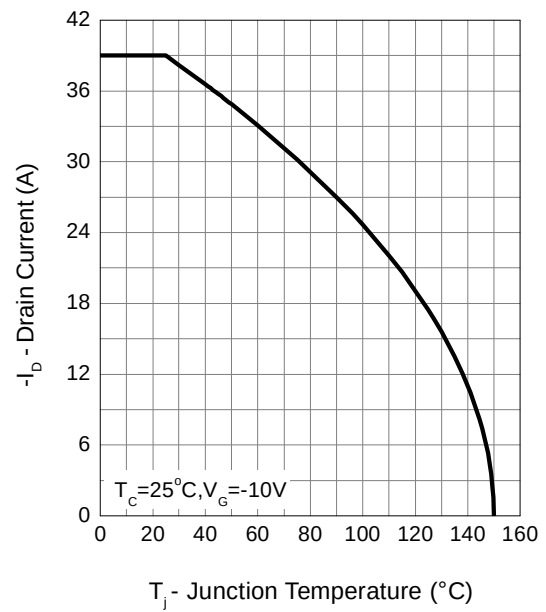
Note d : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

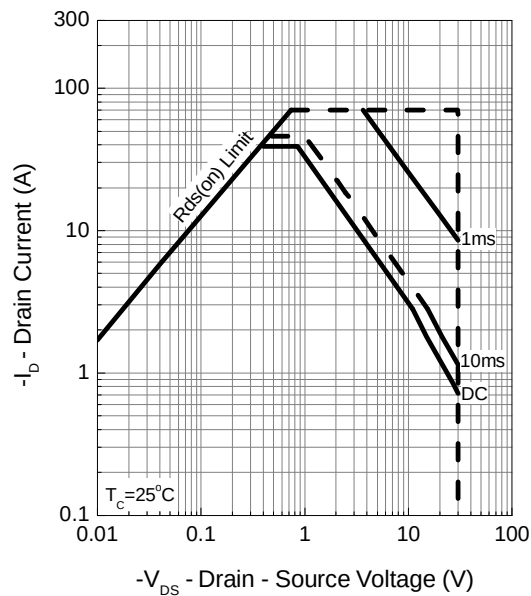
Power Dissipation



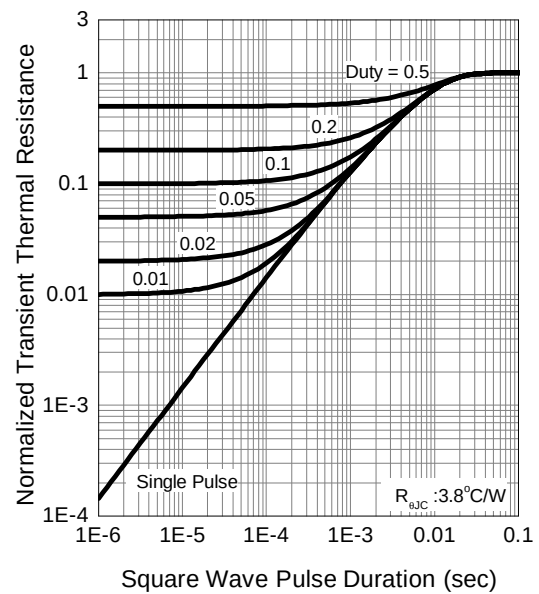
Drain Current



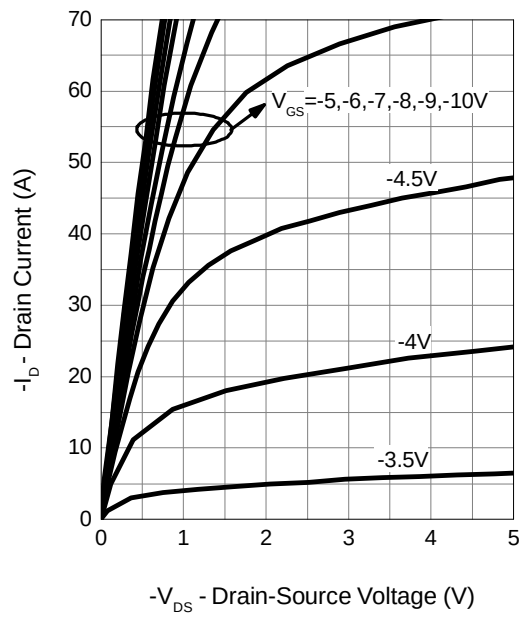
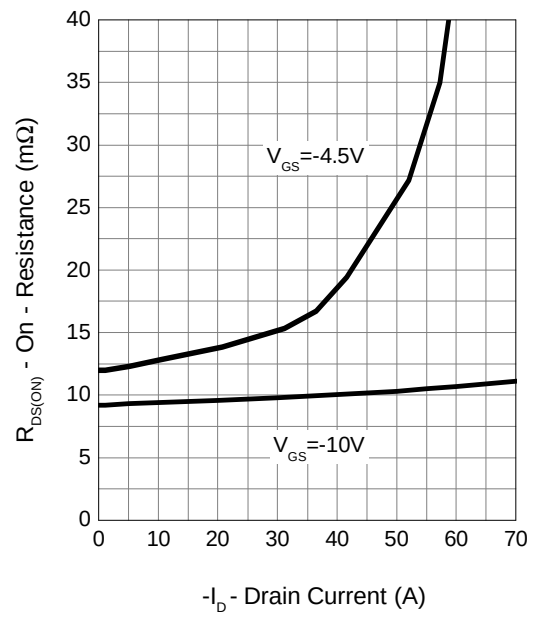
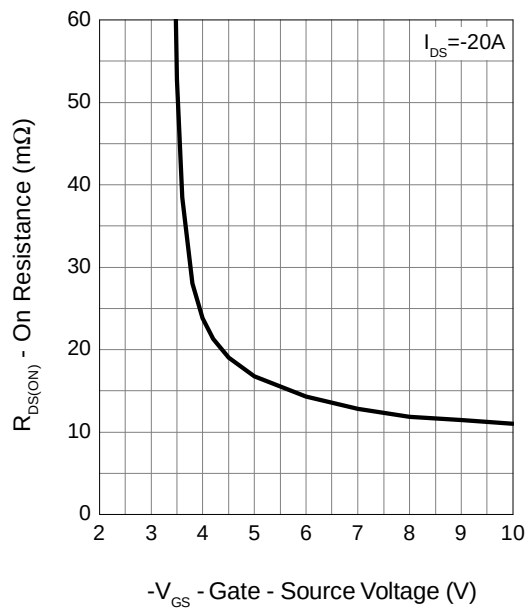
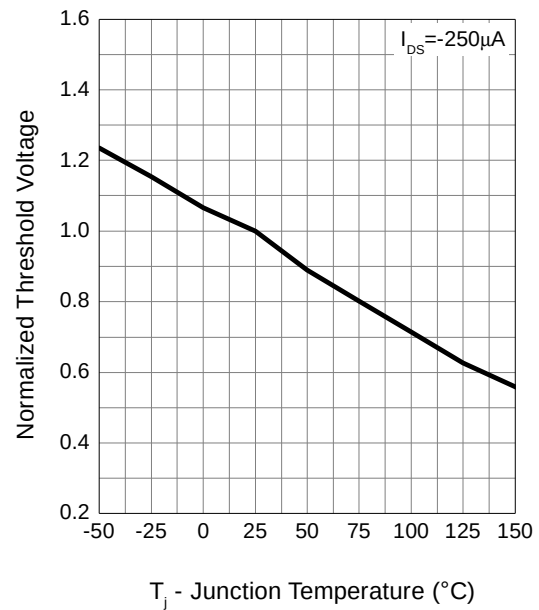
Safe Operation Area



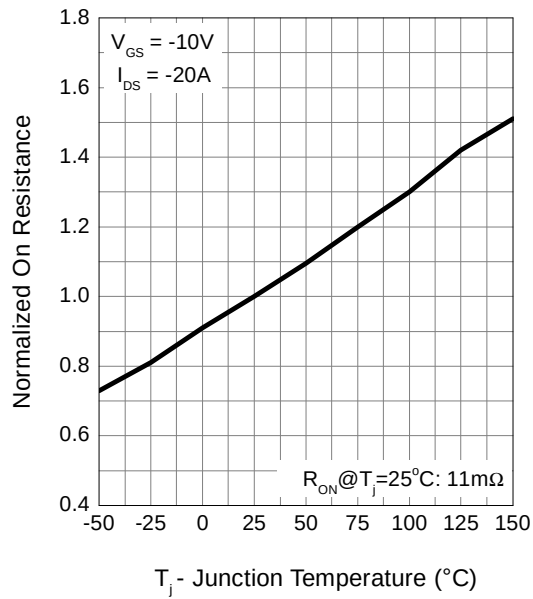
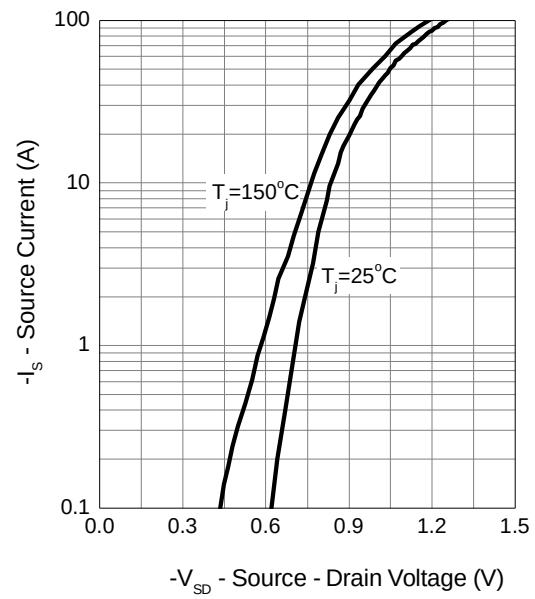
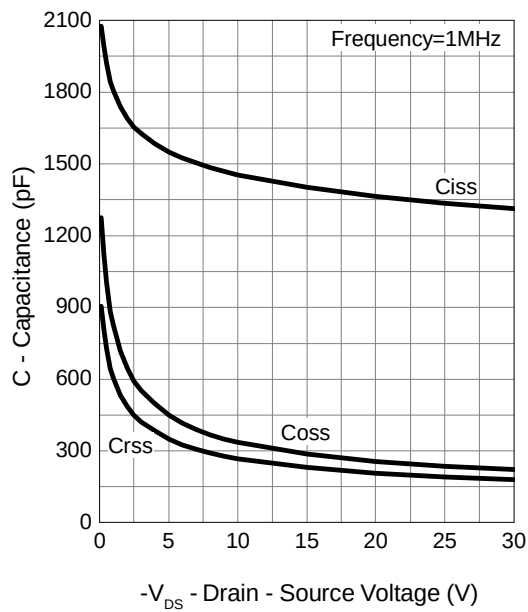
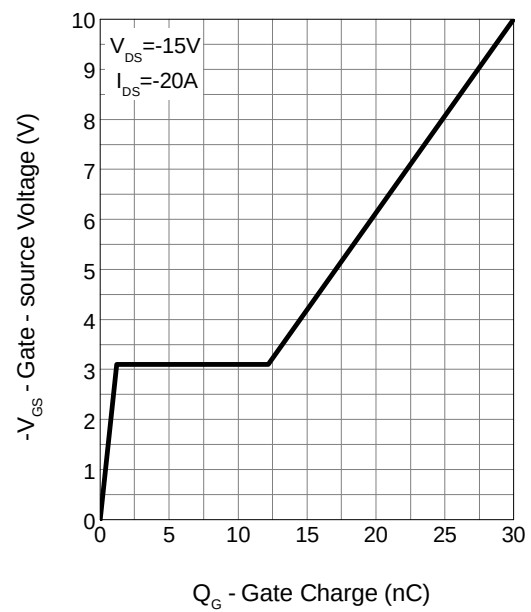
Thermal Transient Impedance



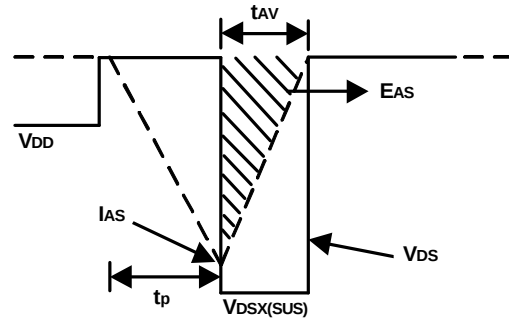
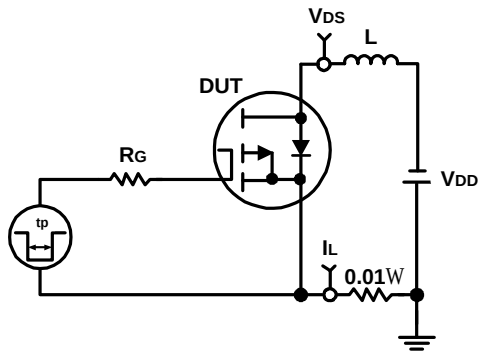
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


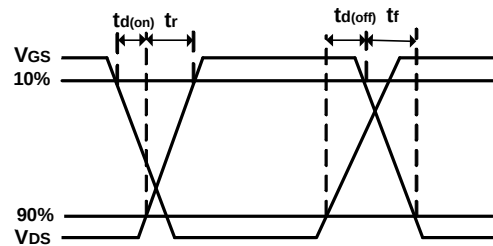
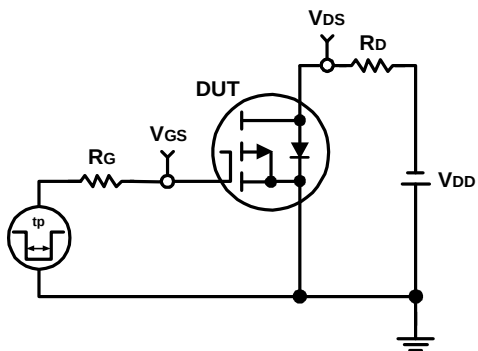
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


Avalanche Test Circuit and Waveforms

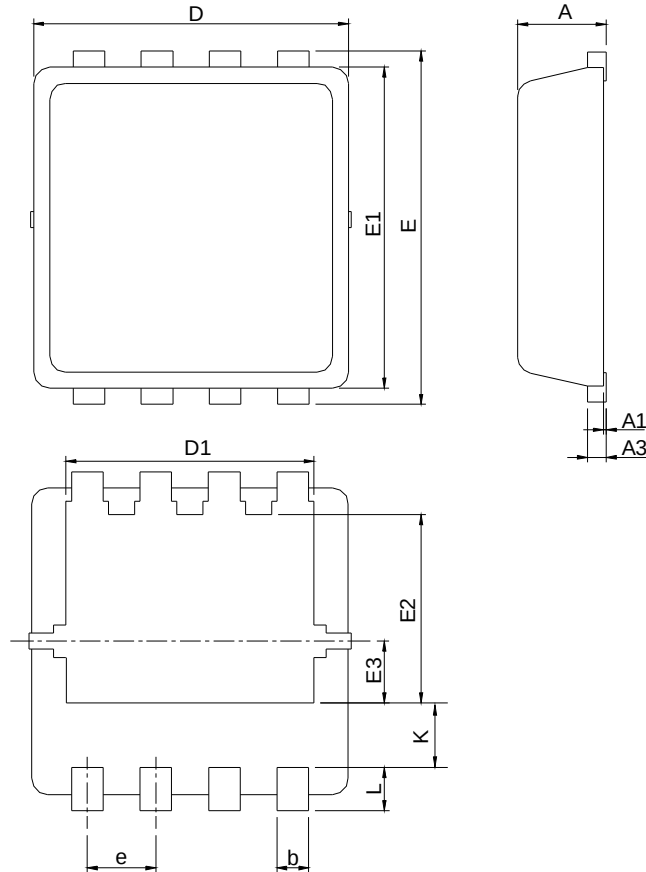


Switching Time Test Circuit and Waveforms



Package Information

PDFN3.3*3.3-8L



SYMBOL	PDFN3.3*3.3-8L			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
A3	0.10	0.25	0.004	0.010
b	0.24	0.35	0.009	0.014
D	2.90	3.10	0.114	0.122
D1	2.25	2.45	0.089	0.096
E	3.10	3.30	0.122	0.130
E1	2.90	3.10	0.114	0.122
E2	1.65	1.85	0.065	0.073
E3	0.56	0.58	0.022	0.023
e	0.65 BSC		0.026 BSC	
K	0.475	0.775	0.019	0.031
L	0.30	0.50	0.012	0.020

RECOMMENDED LAND PATTERN

