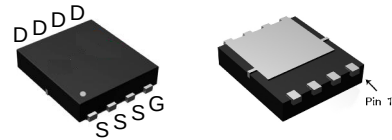


- -20V/-70A
- $R_{DS(ON)} = 6.5m\Omega$ (typ) @VGS=4.5V
 $R_{DS(ON)} = 9m\Omega$ (typ) @VGS=2.5V
- 100% UIS & RG Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

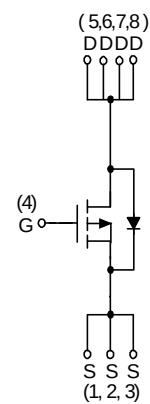
Applications

- Power Management for Industrial DC/DC Converters

Pin Description



PDFN3.3*3.3-8L



P-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-20	V
V _{GSS}	Gate-Source Voltage		±12	
I _D	Continuous Drain Current ¹	T _A =25°C	-30	A
		T _A =70°C	-23	
I _D	Continuous Drain Current ¹	T _C =25°C	-70	
		T _C =100°C	-45	
I _{DM}	Pulsed Drain Current ²		-200	A
I _S ^a	Diode Continuous Forward Current		-10	A
P _D ^a	Power Dissipation	T _A =25°C	5.2	W
P _D ^c	Power Dissipation	T _C =25°C	83	
I _{AS}	Single pulsed avalanlce current		60	A
E _{AS}	Single pulsed avalanlce energy ³		180	mJ
R _{θJC}	Thermal Resistance-Junction to Case		1.5	°C/W
R _{θJA} ^{a,b}	Thermal Resistance-Junction to Ambient ¹	t≤10S	20	°C/W
		Stesdy State	55	
T _{STG} , T _J	Storage Temperature Range		-55 to 150	°C

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper,t≤10sec.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=-10V,V_{GS}=-10V,L=0.1mH,I_{AS}=-16A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The Min. value is 100% EAS tested guarantee.
- 6.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

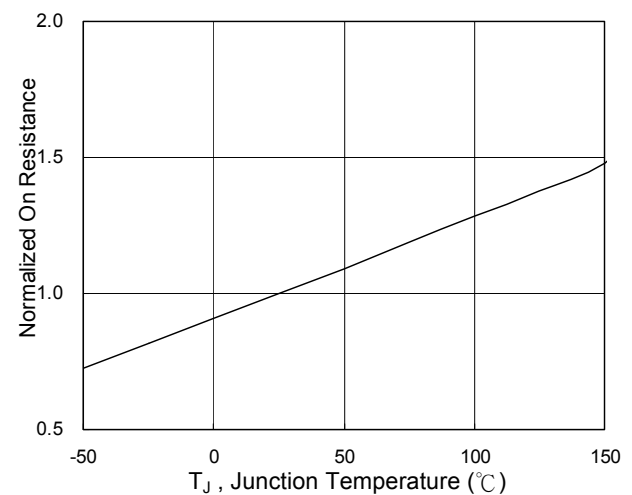
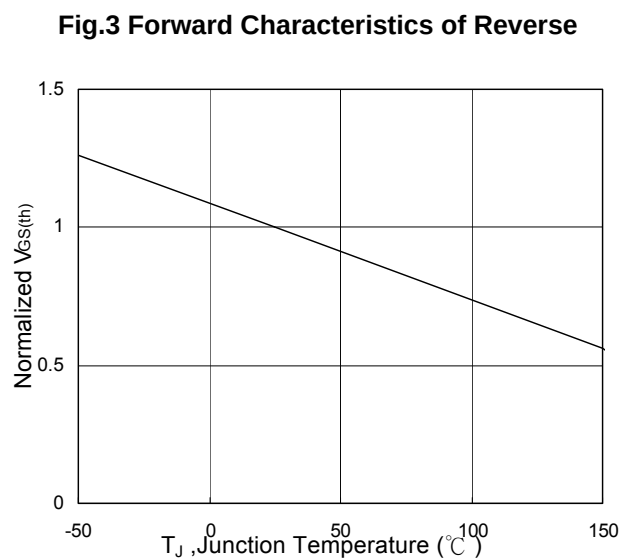
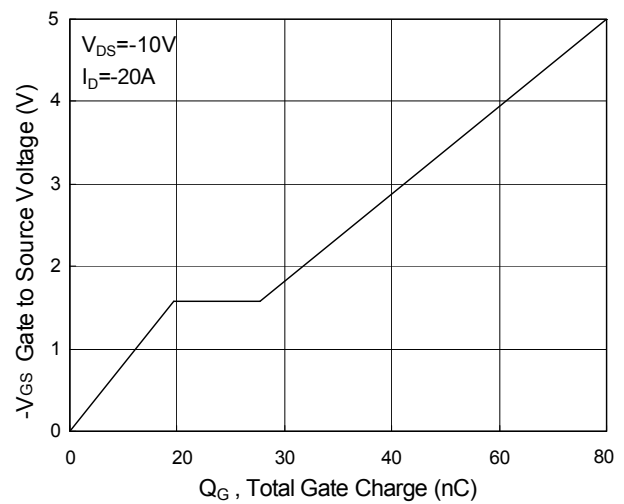
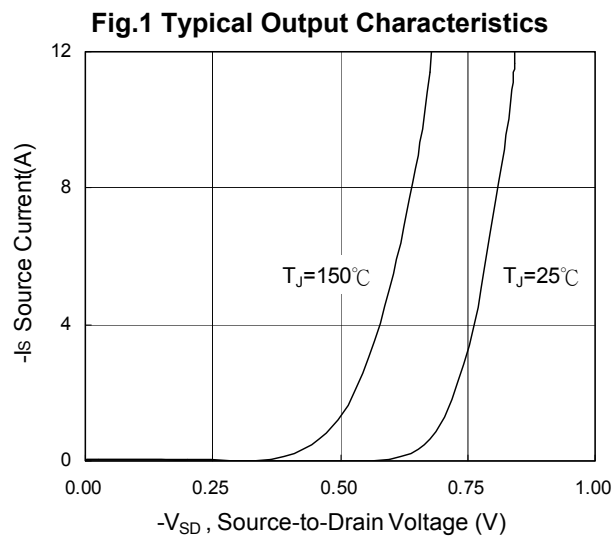
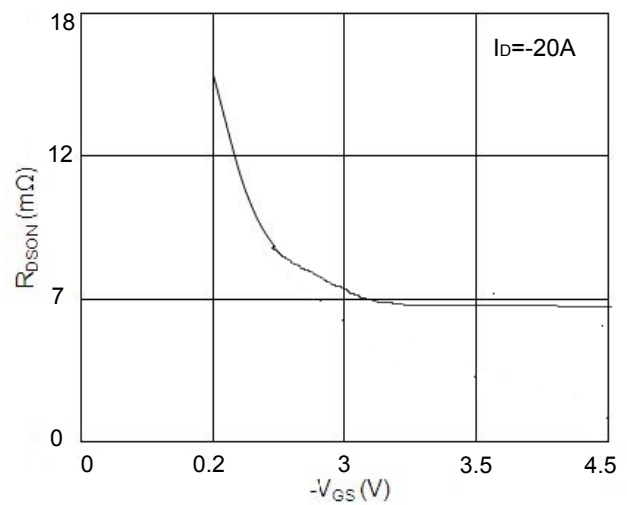
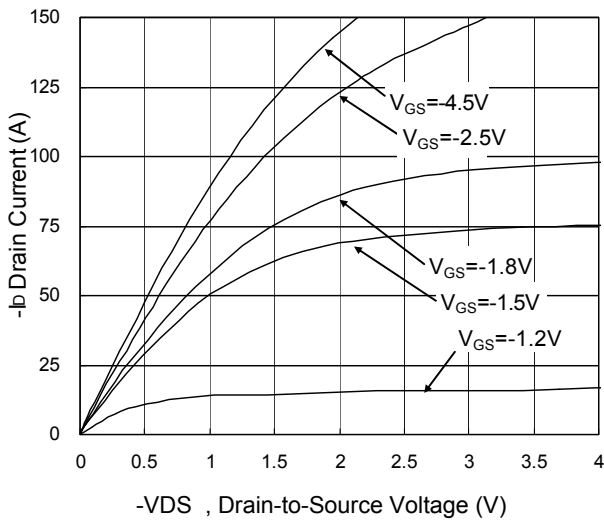
Electrical Characteristics (T_A= 25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V	-	-	-1	μA
		T _j =85°C	-	-	-5	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-0.5	-0.6	-1	V
I _{GSS}	Gate Leakage Current	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance ²	V _{GS} =-4.5V, I _{DS} =-20A	-	6.5	8	mΩ
		V _{GS} =-2.5V, I _{DS} =-20A	-	9	12	
Body Diode Characteristics						
V _{SD}	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-	-1.0	V
t _{rr}	Reverse Recovery Time	V _R =10V I _{DS} =20A, dI _{SD} /dt=100A/μs	-	78	-	ns
Q _{rr}	Reverse Recovery Charge		-	495	-	nC
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =-15V V _{GS} =0V,f=1MHz	-	2925	-	pF
C _{oss}	Output Capacitance		-	427	-	
C _{rss}	Reverse transfer capacitance		-	316	-	
t _{d(ON)}	Turn-on delay Time	V _{DS} =-10V,V _{GS} =-4.5V, R _G =3Ω, I _D =-1A,R _L =0.5Ω	-	18	-	nS
t _r	Turn-on rise Time		-	52	-	
t _{d(OFF)}	Turn-off delay Time		-	285	-	
t _f	Turn-off rise Time		-	123	-	
Gate Charge Characteristics						
Q _g	Total Gate Charge	V _{DS} =-10V, V _{GS} =-4.5V I _{DS} =-20A	-	70	100	nC
Q _{gs}	Gate-Source Charge		-	9.2	-	
Q _{gd}	Gate-Drain Charge		-	18.4	-	

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper,t≤10sec.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=-10V,V_{GS}=-10V,L=0.1mH,I_{AS}=-16A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The Min. value is 100% EAS tested guarantee.
- 6.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics



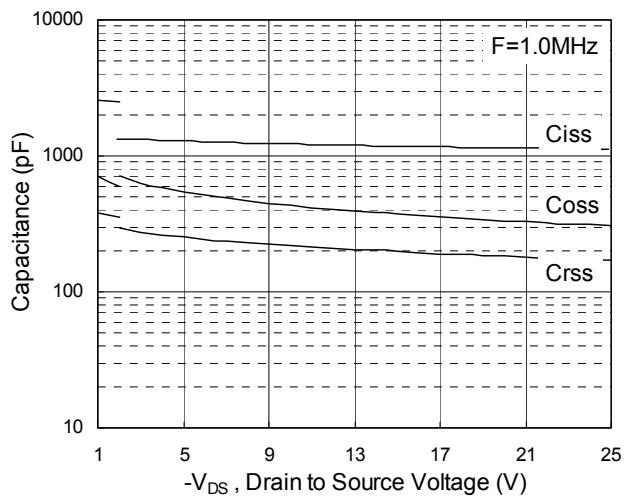


Fig.7 Capacitance

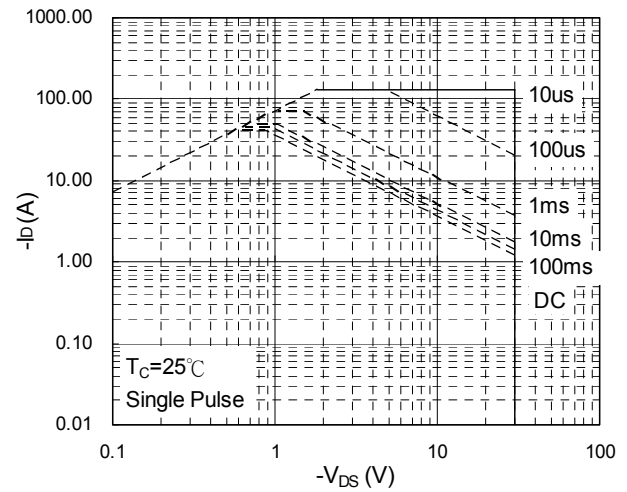


Fig.8 Safe Operating Area

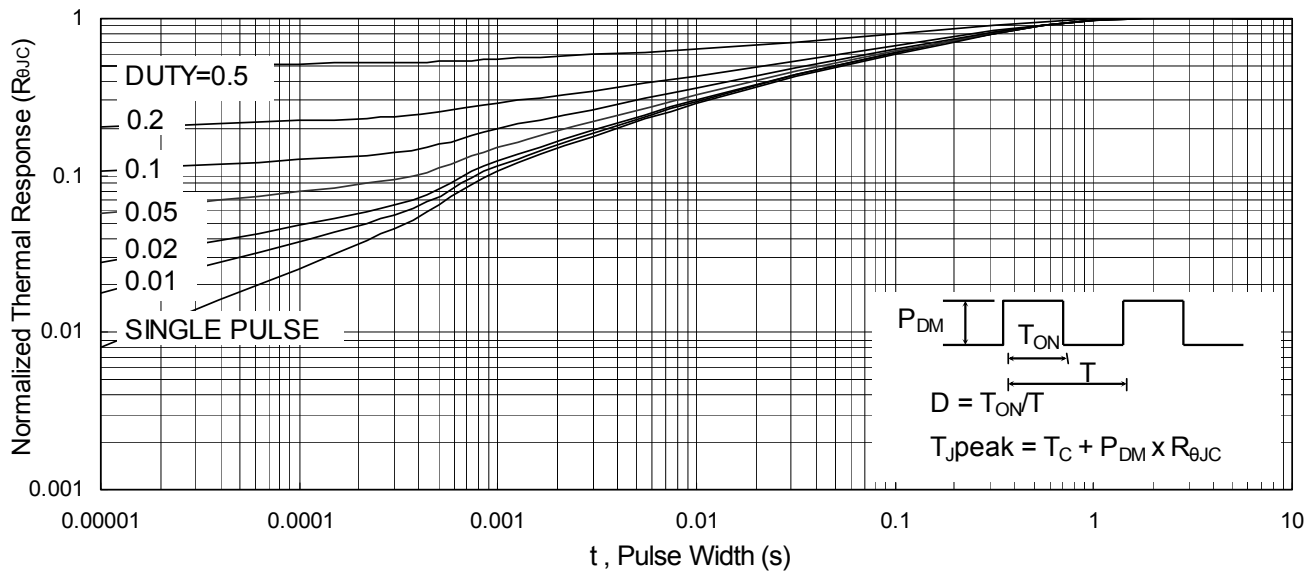
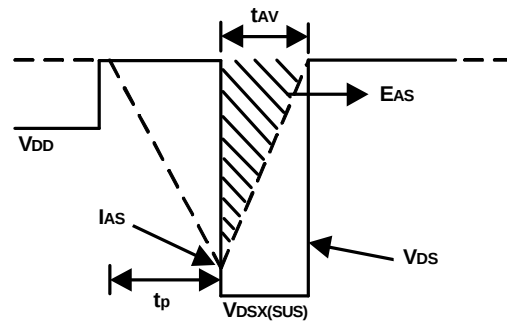
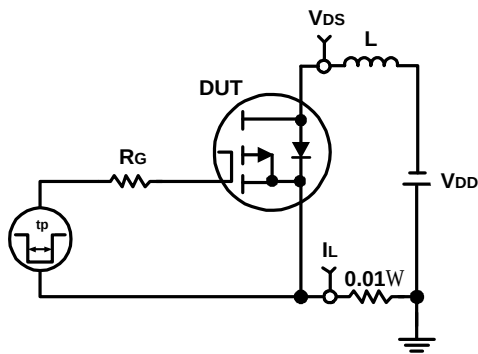
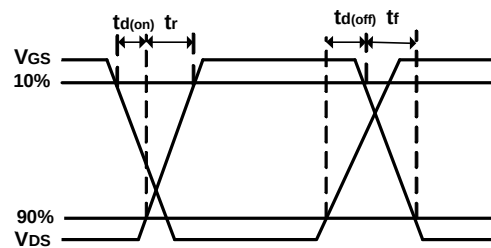
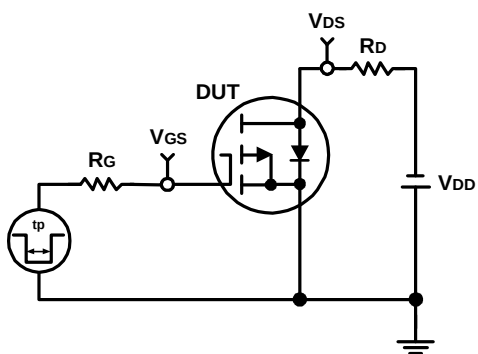


Fig.9 Normalized Maximum Transient Thermal Impedance

Avalanche Test Circuit and Waveforms

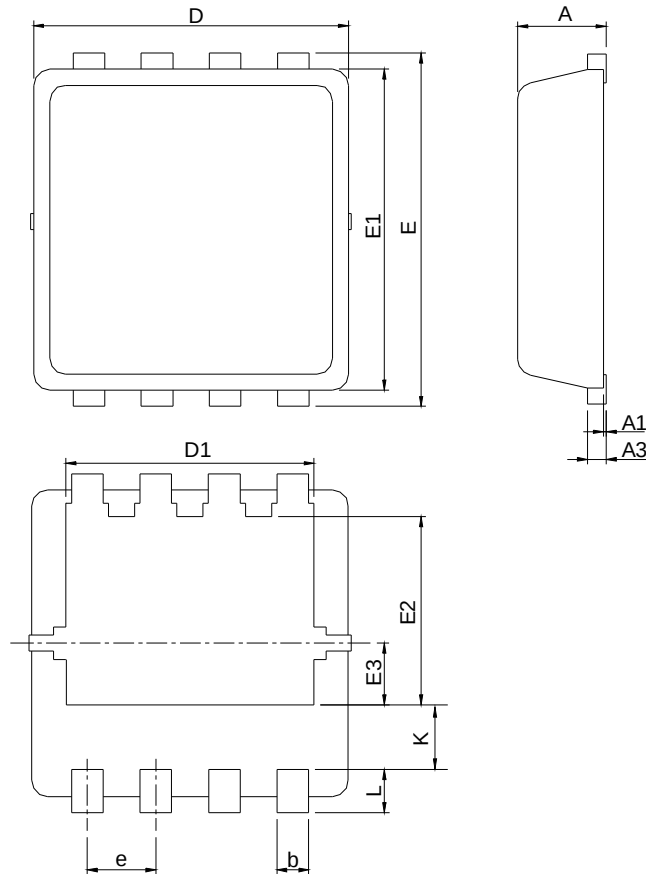


Switching Time Test Circuit and Waveforms



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

