

**GENERAL FEATURES**

- $V_{DS} = -60V, I_D = -16A$   
 $R_{DS(ON)} = 50m\Omega @ V_{GS} = -10V (typ)$   
 $R_{DS(ON)} = 60m\Omega @ V_{GS} = -4.5V (typ)$

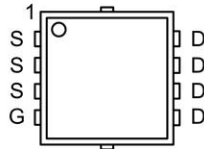
**Application**

- Power management
- Load switch

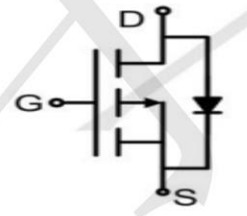
**Package and Pin Configuration**



PDFN3X3-8L



**Circuit diagram**



**Marking**



Or



XXX is internal code

**Absolute Maximum Ratings ( $T_C = 25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	$V_{DS}$	-60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous	$I_D$	-16	A
Pulsed Drain Current	$I_{DM}$	-64	A
Maximum Power Dissipation	$P_D$	30	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ C$

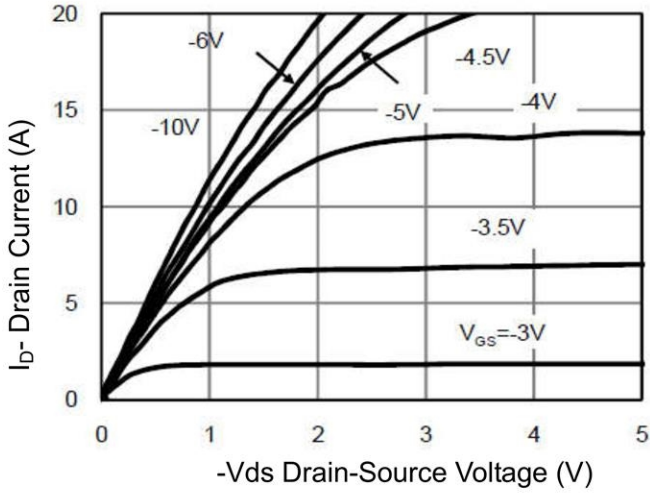
**Thermal Characteristic**

Thermal Resistance, Junction-to-Case <sup>(Note 2)</sup>	$R_{\theta JA}$	4.2	$^\circ C/W$
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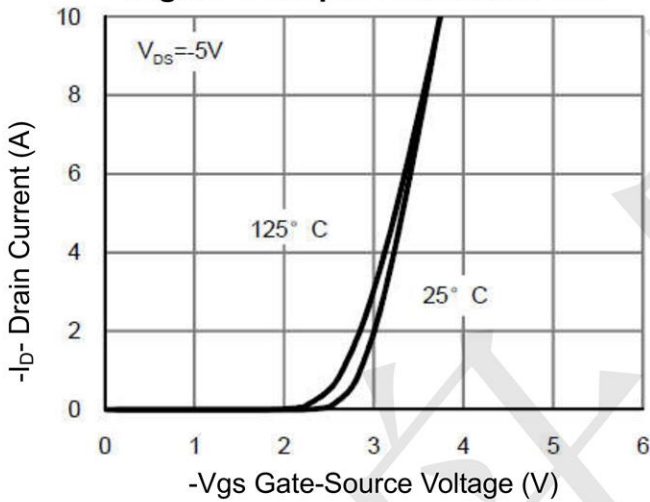
**Electrical Characteristics ( $T_C=25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-60V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b> (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.0	-1.5	-2.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-8A$	-	50	60	m $\Omega$
		$V_{GS}=-4.5V, I_D=-8A$	-	60	80	m $\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=-5V, I_D=-8A$	-	10	-	S
<b>Dynamic Characteristics</b> (Note 4)						
Input Capacitance	$C_{ISS}$	$V_{DS}=-30V, V_{GS}=0V,$ $F=1.0\text{MHz}$	-	1153	-	PF
Output Capacitance	$C_{OSS}$		-	93.7	-	PF
Reverse Transfer Capacitance	$C_{RSS}$		-	77.7	-	PF
<b>Switching Characteristics</b> (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, R_L=6\Omega,$ $V_{GS}=-10V, R_G=3\Omega$	-	8	-	nS
Turn-on Rise Time	$t_r$		-	5	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	32	-	nS
Turn-Off Fall Time	$t_f$		-	8	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=-30V, I_D=-8A,$ $V_{GS}=-10V$	-	15.8	-	nC
Gate-Source Charge	$Q_{gs}$		-	2.7	-	nC
Gate-Drain Charge	$Q_{gd}$		-	3.5	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage (Note 3)	$V_{SD}$	$V_{GS}=0V, I_S=-8A$	-	-	-1.2	V
Diode Forward Current (Note 2)	$I_S$		-	-	-16	A
Reverse Recovery Time	$t_{rr}$	$T_J = 25^\circ\text{C}, I_F = -8A$	-	27	-	nS
Reverse Recovery Charge	$Q_{rr}$	$di/dt = -100A/\mu s$ (Note 3)	-	32	-	nC

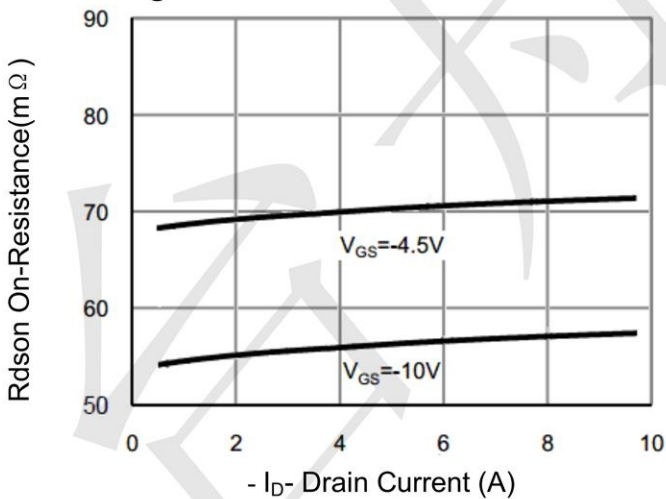
**Typical Electrical and Thermal Characteristics (Curves)**



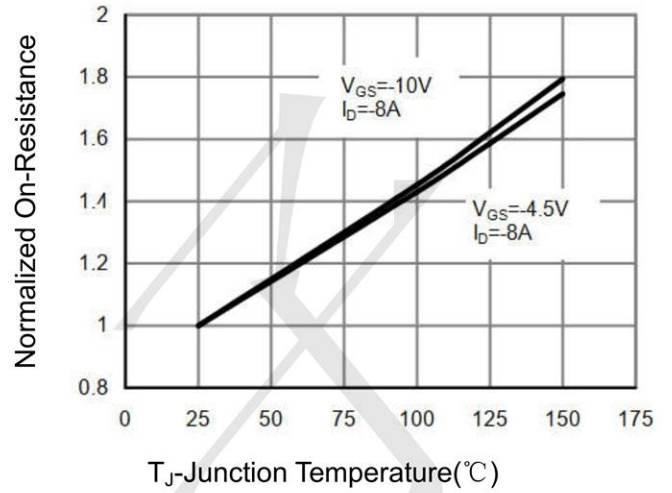
**Figure 1 Output Characteristics**



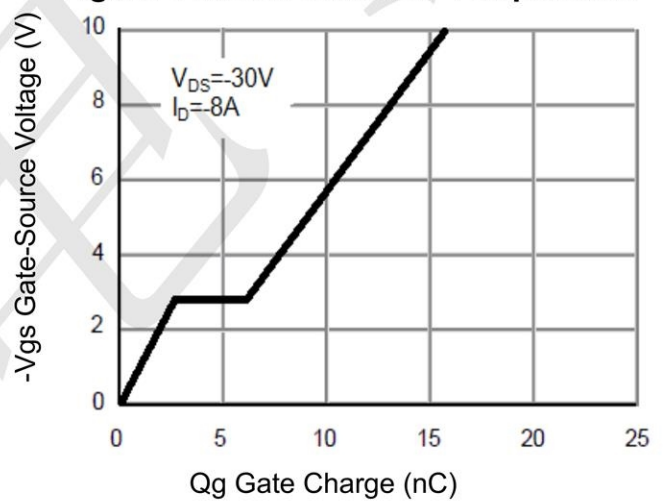
**Figure 2 Transfer Characteristics**



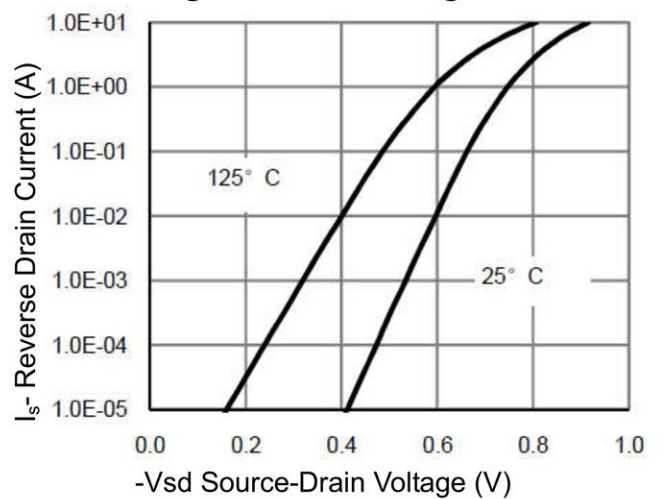
**Figure 3 Rdson- Drain Current**



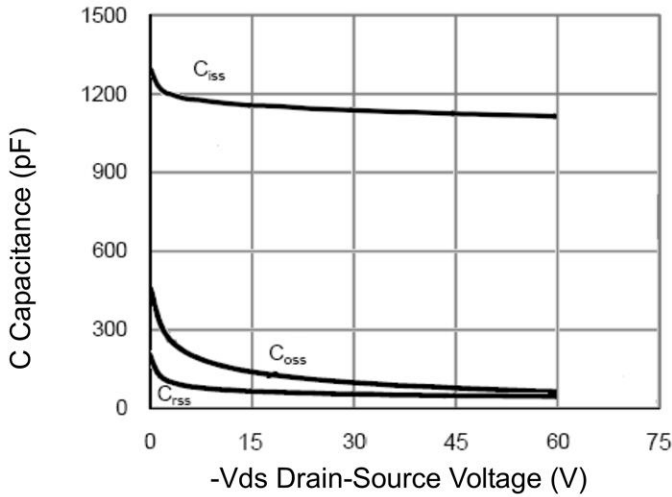
**Figure 4 Rdson-Junction Temperature**



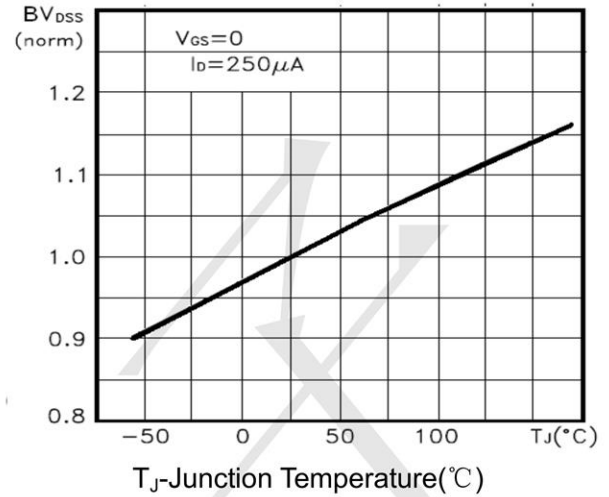
**Figure 5 Gate Charge**



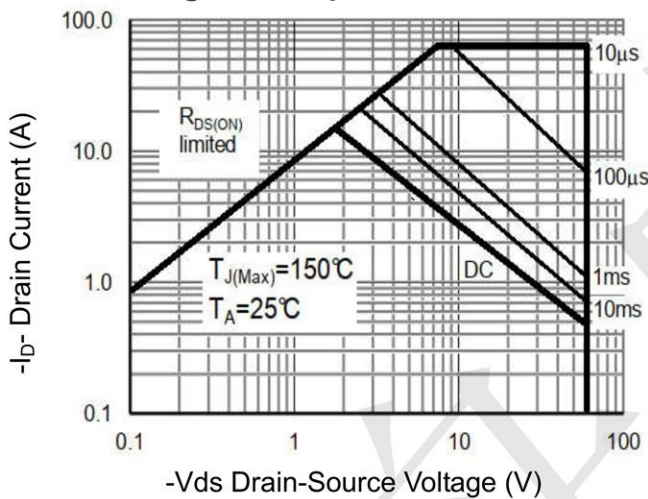
**Figure 6 Source- Drain Diode Forward**



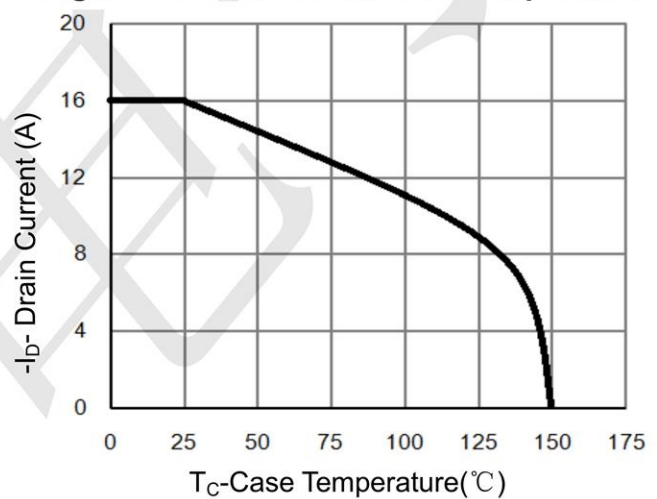
**Figure 7 Capacitance vs Vds**



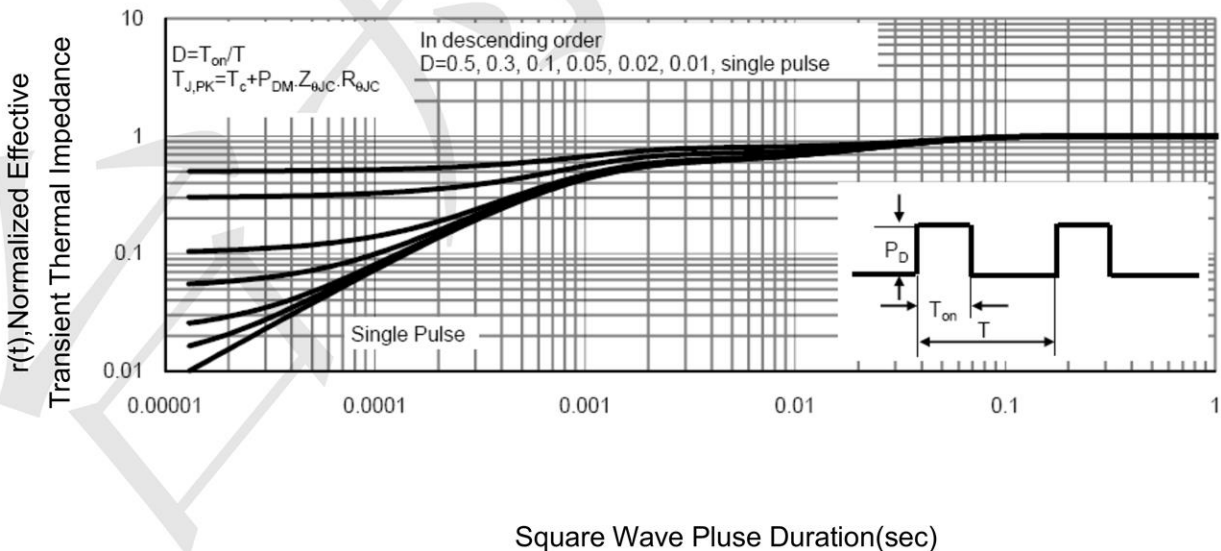
**Figure 9  $BV_{DSS}$  vs Junction Temperature**



**Figure 8 Safe Operation Area**



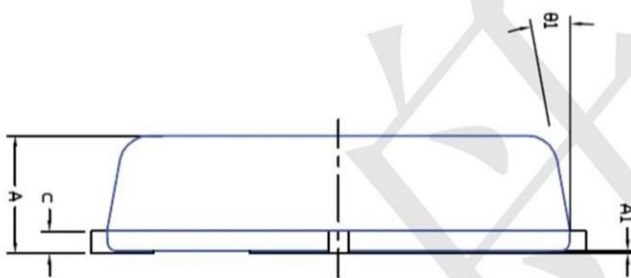
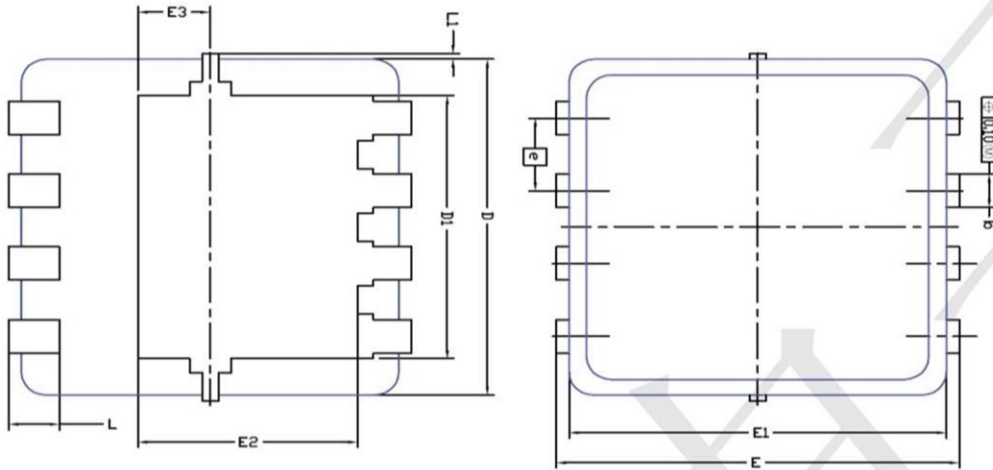
**Figure 10  $I_D$  Current De-rating**



**Figure 11 Normalized Maximum Transient Thermal Impedance**

Package information

PDFN3X3-8L



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.152	0.25	0.004	0.006	0.010
D	3.00 BSC			0.118 BSC		
D1	2.35 BSC			0.093 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	1.75 BSC			0.069 BSC		
E3	0.575 BSC			0.023 BSC		
e	0.65 BSC			0.026 BSC		
L	0.30	0.40	0.50	0.0118	0.0157	0.0197
L1	0	---	0.100	0	---	0.004
θ1	0°	10°	12°	0°	10°	12°

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