GENERAL FEATURES

- V_{DS} = -60V, I_D = -16A

  $R_{DS(ON)}$ <65mΩ @ V_{GS}=-10V

  $R_{DS(ON)}$ <85mΩ @ V_{GS}=-4.5V

## Application

- Power management
- Load switch

Package and Pin Configuration

PDFN3X3-8L

S 1			8 D
S 2			7 D
S 3			6 D
G 4			5 D
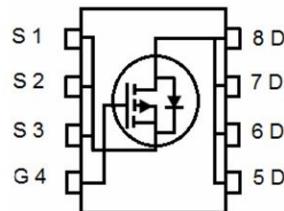
Circuit diagram

Marking

5116   Or   5116
                    xxx

XXX is internal code
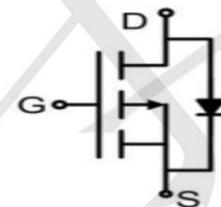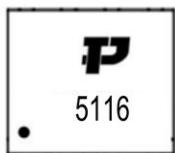
Absolute Maximum Ratings (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate-Source Voltage	V_{GS}	±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	℃

Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction-to-Case[Note 2]	$R_{\theta JA}$	4.2	℃/W

Electrical Characteristics (T_C=25℃ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V,V_{GS}=0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On Characteristics [Note 3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-1.5	-2.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-8A	-	55	65	mΩ
		V_{GS}=-4.5V, I_D=-8A	-	70	85	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-8A	-	10	-	S
Dynamic Characteristics [Note4]						
Input Capacitance	C_{Iss}	V_{DS}=-30V,V_{GS}=0V, F=1.0MHz	-	1153	-	PF
Output Capacitance	C_{oss}		-	93.7	-	PF
Reverse Transfer Capacitance	C_{rss}		-	77.7	-	PF
Switching Characteristics [Note 4]						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-30V, R_L=6Ω, V_{GS}=-10V,R_G=3Ω	-	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}=-30,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
Drain-Source Diode Characteristics						
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°C, I_F =- 8A	-	27		nS
Reverse Recovery Charge	Q_{rr}	di/dt = -100A/μs [Note3]	-	32		nC

Typical Electrical and Thermal Characteristics (Curves)
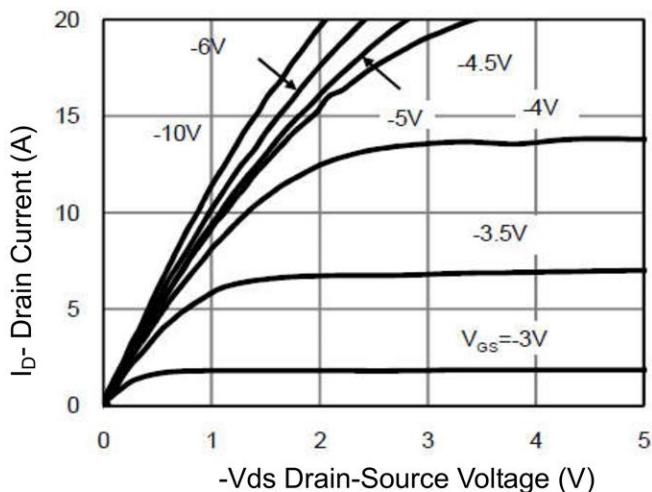

Figure 1 Output Characteristics

Figure 4 Rdson-Junction Temperature

Figure 2 Transfer Characteristics
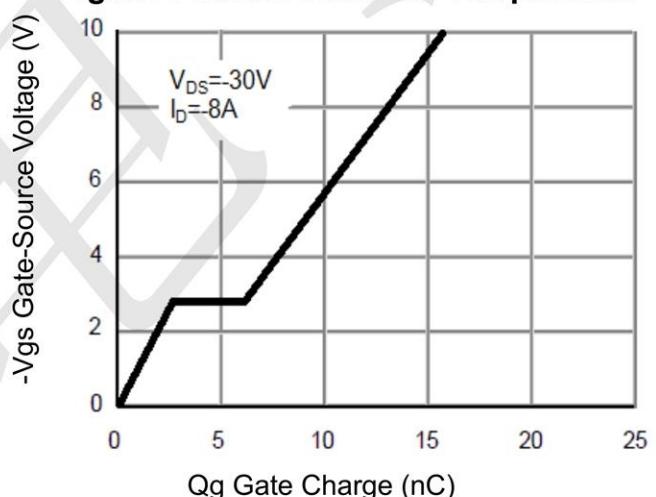
Figure 5 Gate Charge

Figure 3 Rdson- Drain Current
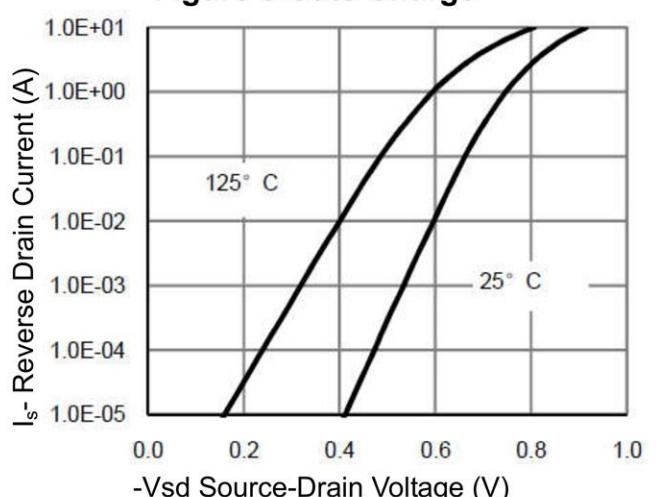
Figure 6 Source- Drain Diode Forward
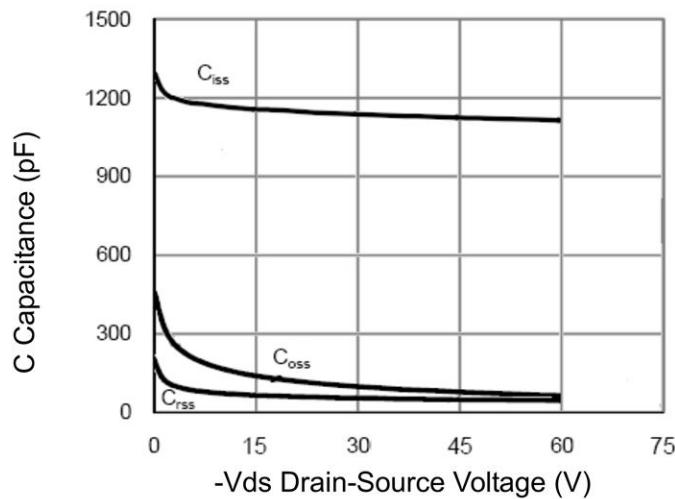
**Figure 7 Capacitance vs Vds**
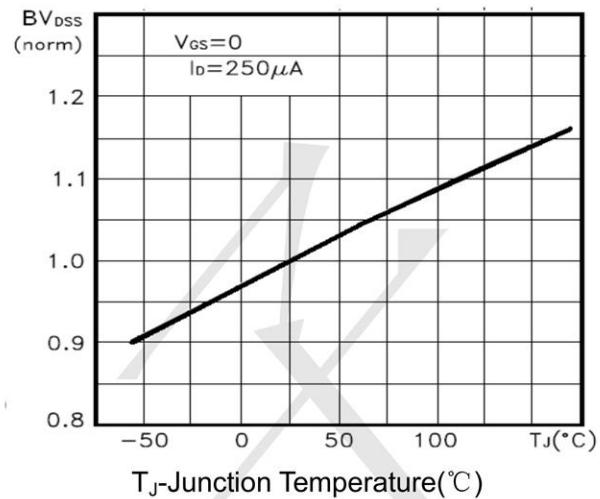
Figure 9 BV$_{DSS}$ vs Junction Temperature
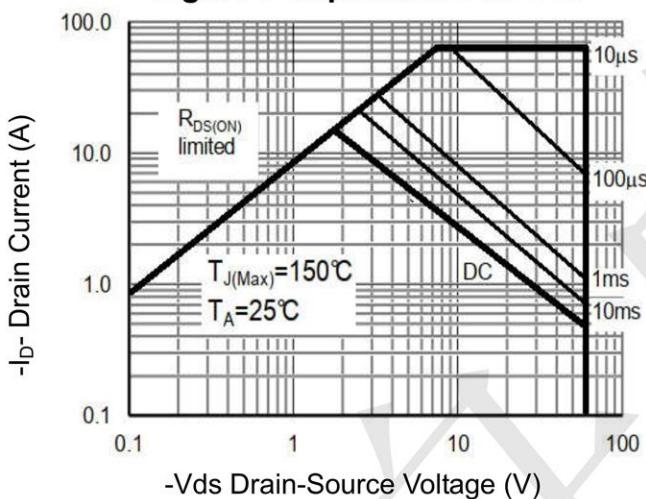
Figure 8 Safe Operation Area
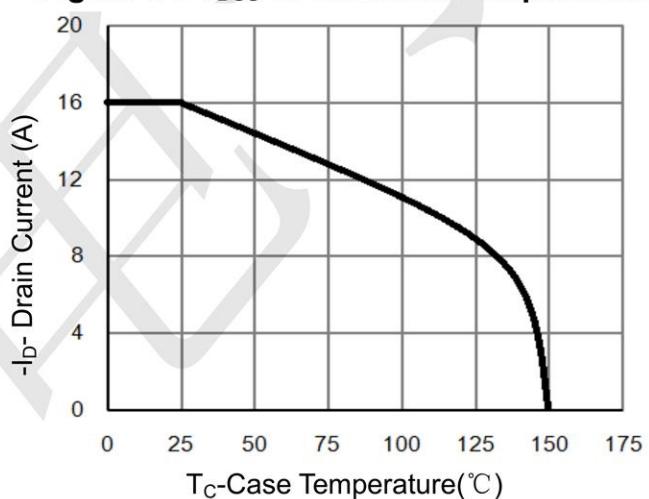
Figure 10 ID Current De-rating

Square Wave Pluse Duration(sec)
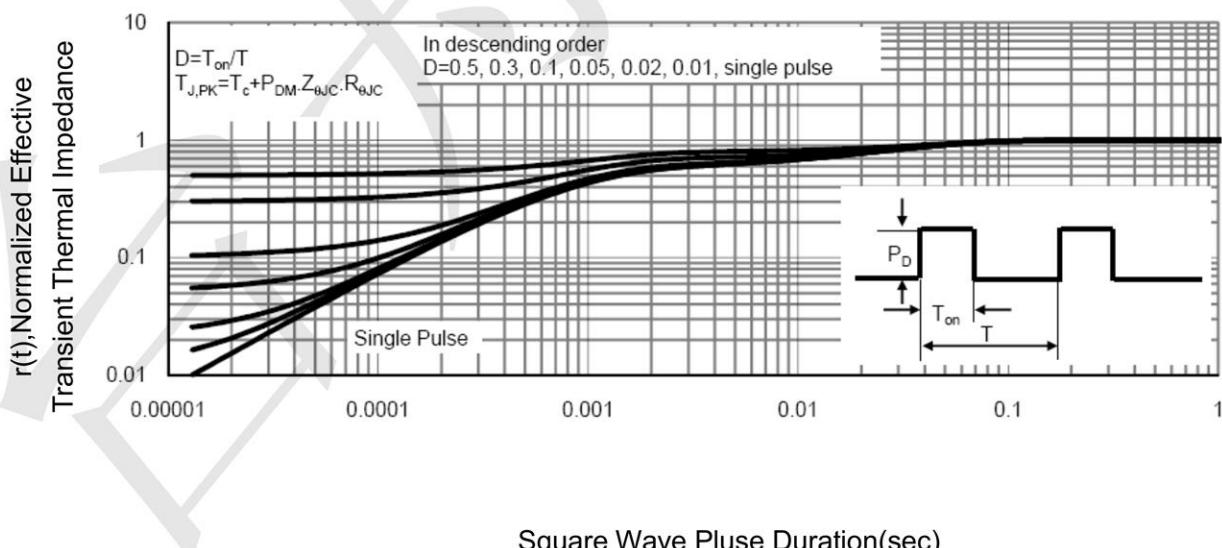
Figure 11 Normalized Maximum Transient Thermal Impedance

Package informantion

PDFN3X3-8L
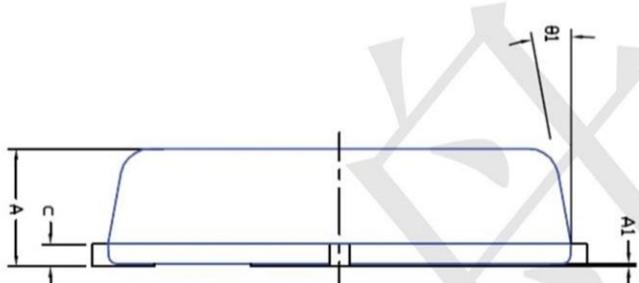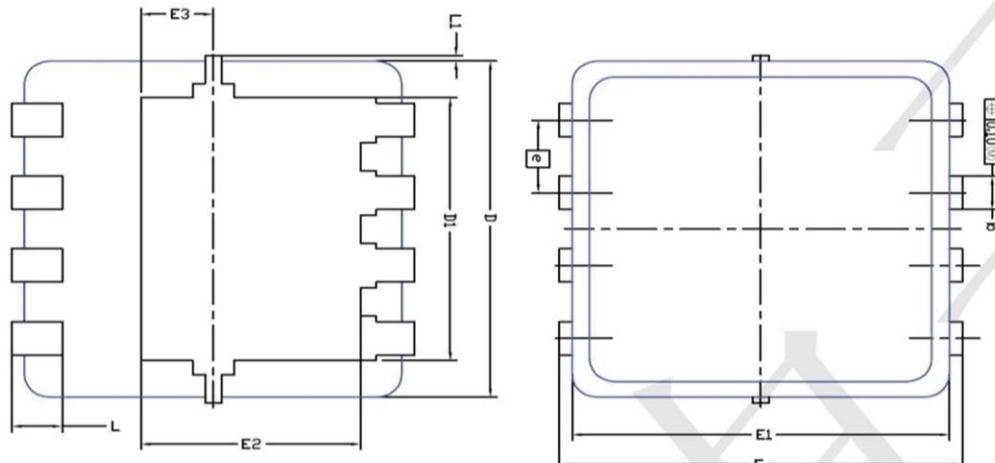
DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.10	0.152	0.25	0.004	0.006	0.010
D	3.00 BSC			0.118 BSC		
D1	2.35 BSC			0.093 BSC		
E	3.20 BSC			0.126 BSC		
E1	3.00 BSC			0.118 BSC		
E2	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°