

GENERAL FEATURES

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

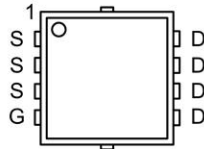
Application

- Power management
- Load switch

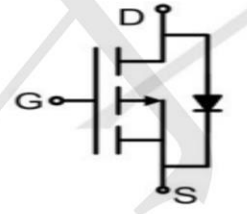
Package and Pin Configuration



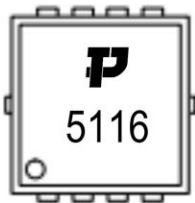
PDFN3X3-8L



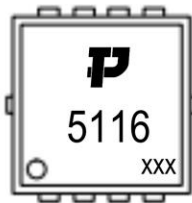
Circuit diagram



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}	± 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 ^(Note 2)	$R_{\theta JA}$	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
Off Characteristics						
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	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics (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 Ω
		$V_{GS}=-4.5V, I_D=-8A$	-	60	80	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-8A$	-	10	-	S
Dynamic Characteristics (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
Switching Characteristics (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	$V_{DS}=-30, I_D=-8A,$ $V_{GS}=-10V$	-	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}	$T_J = 25^\circ\text{C}, I_F = -8A$	-	27	-	nS
Reverse Recovery Charge	Q_{rr}	$di/dt = -100A/\mu s$ (Note 3)	-	32	-	nC

Typical Electrical and Thermal Characteristics (Curves)

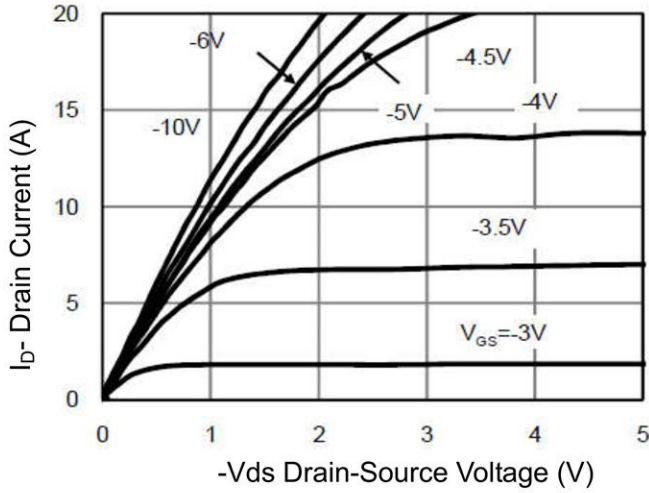


Figure 1 Output Characteristics

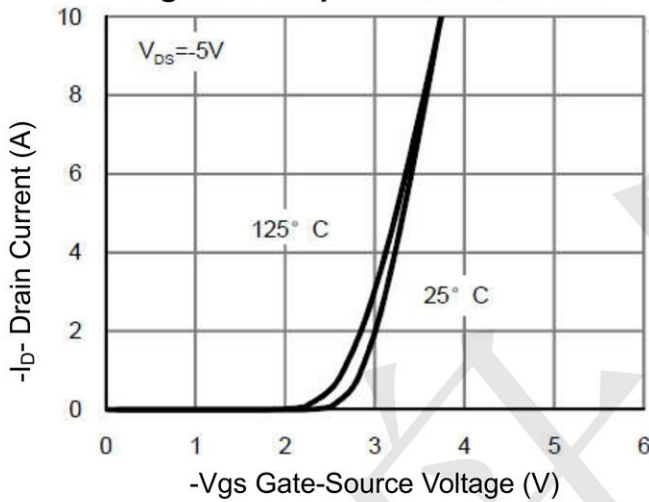


Figure 2 Transfer Characteristics

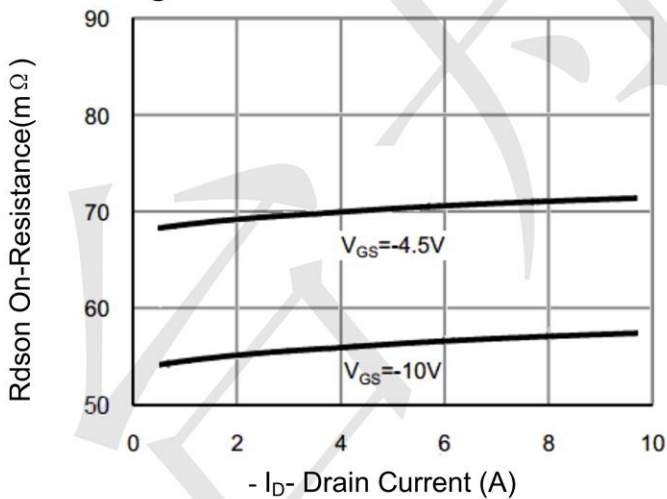


Figure 3 Rdson- Drain Current

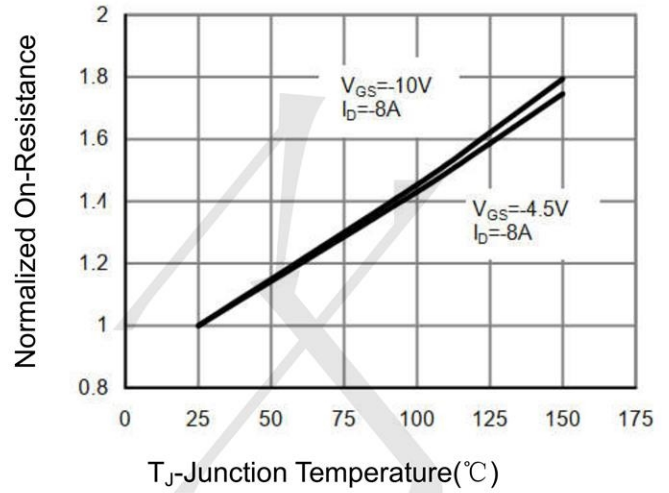


Figure 4 Rdson-Junction Temperature

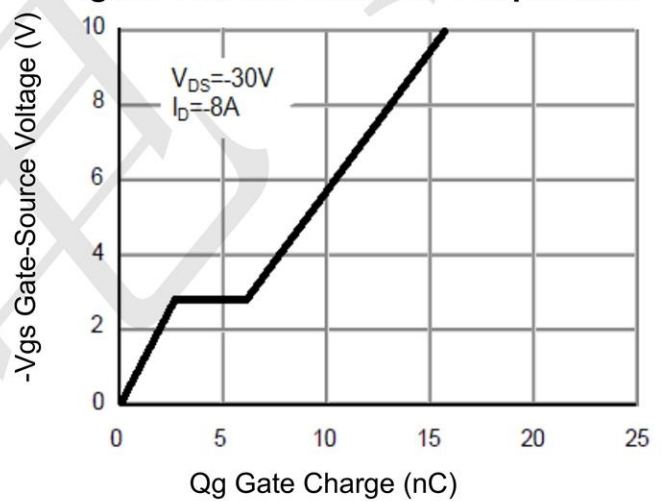


Figure 5 Gate Charge

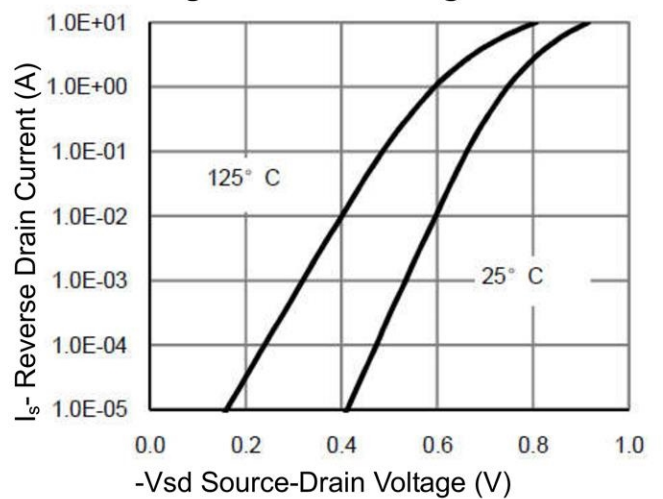


Figure 6 Source- Drain Diode Forward

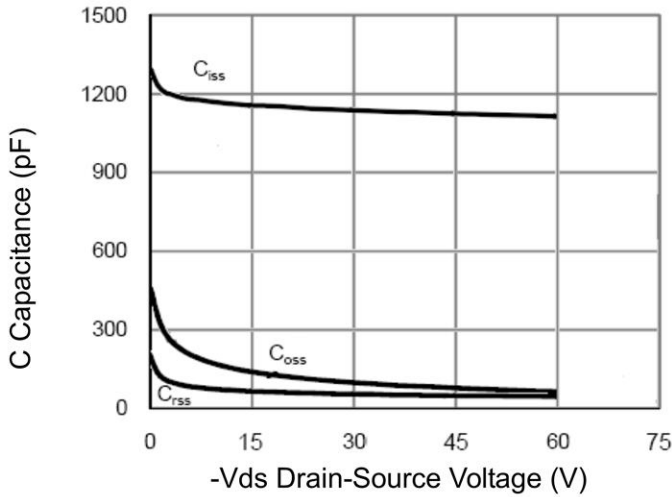


Figure 7 Capacitance vs Vds

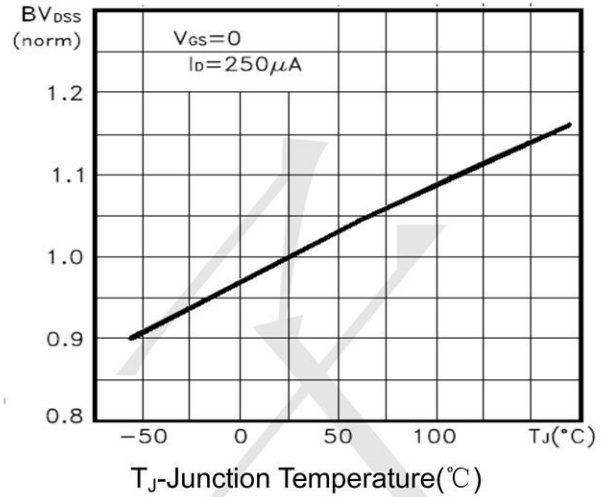


Figure 9 BV_{DSS} vs Junction Temperature

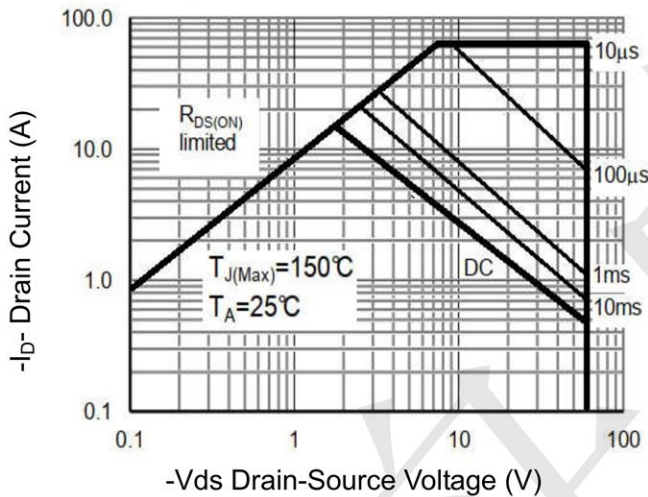


Figure 8 Safe Operation Area

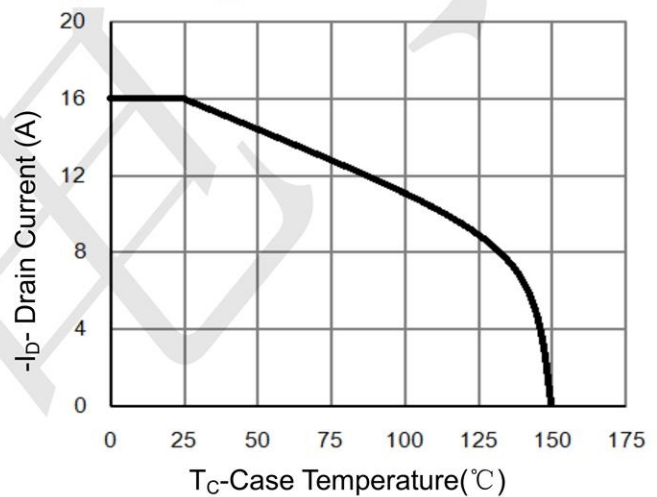


Figure 10 I_D Current De-rating

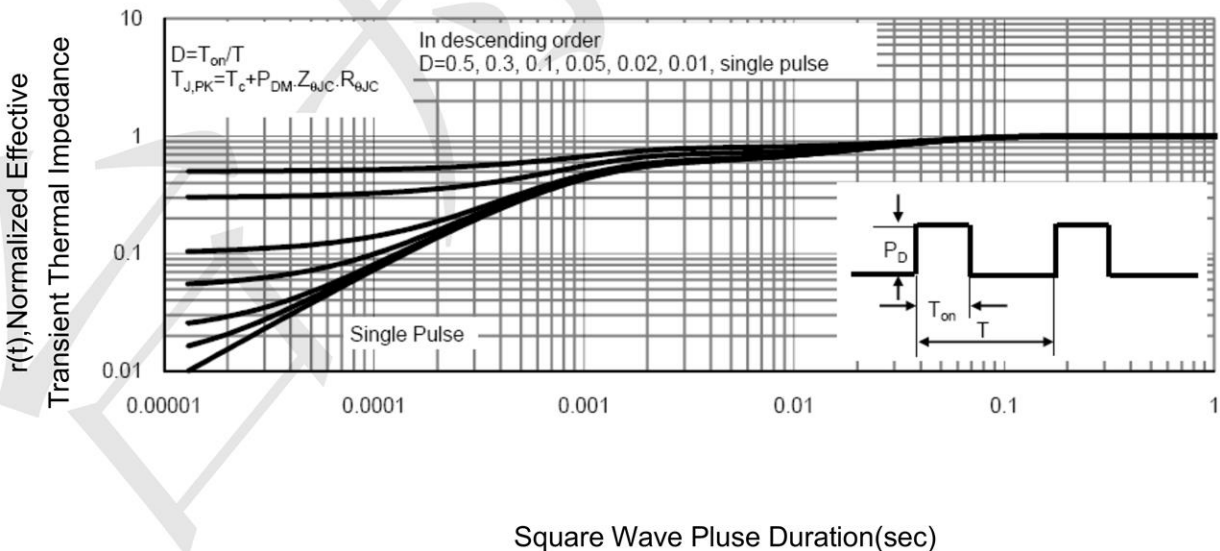
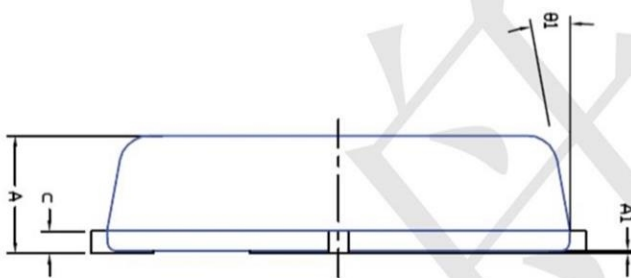
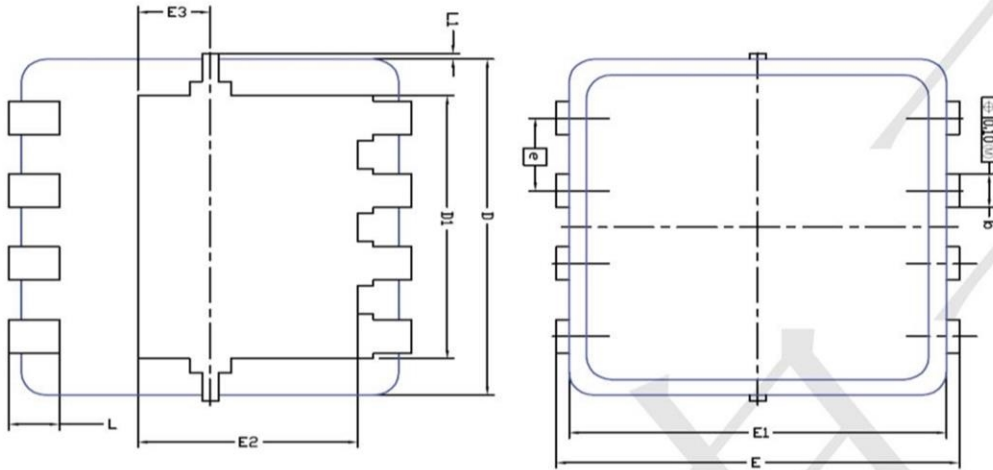


Figure 11 Normalized Maximum Transient Thermal Impedance

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°