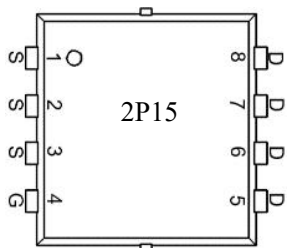
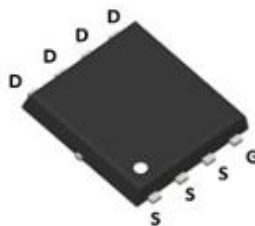
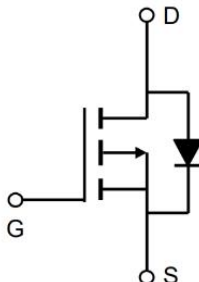


Features ➤ 100% EAS Guaranteed ➤ Green Device Available ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	-150V	650mΩ	-2.2A
	Application ➤ Load Switch ➤ Power Management ➤ LED Backlighting ➤ Networking Application		

RoHS

Package		
 Marking and pin assignment	 PDFN3x3-8L top view	 Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
2P15	2P15D	PDFN3x3-8L	5000

Absolute Maximum Ratings (T_J=25°C unless otherwise specified)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V _{DS}	-150	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current, V _{GS} @-10V ¹	T _C =25°C	I _D	-2.2	A
	T _C =100°C	I _D	-1.5	A
Pulsed Drain Current ²		I _{DM}	-8	A
Single Pulsed Avalanche Energy ³		EAS	12.5	mJ
Avalanche Current		I _{AS}	5	A
Total Power Dissipation ⁴		P _D @T _C =25°C	7.8	W
Operating Junction Temperature Range		T _J	-55 ~ +150	°C
Storage Temperature Range		T _{STG}	-55 ~ +150	°C



Thermal Resistance Ratings

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-to-Case ¹	$R_{\theta JC}$	--	16	°C/W
Thermal Resistance Junction-to-Ambient ¹	$R_{\theta JA}$	--	62	°C/W

Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL2P15D	PDFN3x3-8L	4	5,6,7,8	1,2,3	Tape Reel

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-150	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-120V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	-1	μA
		$V_{DS}=-120V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	-	-	-30	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V,$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2	-3	-4	V
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1A$	-	650	780	m Ω
		$V_{GS}=-6V, I_D=-0.5A$	-	700	980	
Gate Resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	5	12	20	Ω
Input Capacitance	C_{iss}	$V_{DS}=-75V, V_{GS}=0V,$ $f=1\text{MHz}$	424	706	988	pF
Output Capacitance	C_{oss}		12	23	35	
Reverse Transfer Capacitance	C_{rss}		7	13	20	
Total Gate Charge	Q_g	$V_{DS}=-75V, V_{GS}=-10V,$ $I_D=-1A$	6.5	10.8	15.2	nC
Gate-Source Charge	Q_{gs}		1.6	3.1	4.7	
Gate-Drain Charge	Q_{gd}		1.1	2.2	3.3	
Turn-on Delay Time	$T_{d(on)}$	$V_{DD}=-30V, V_{GS}=-10V,$ $R_G=6\Omega, I_D=-1A$	-	21	32	nS
Turn-on Rise Time	T_r		-	16	24	
Turn-Off Delay Time	$T_{d(off)}$		-	40	60	
Turn-Off Fall Time	T_f		-	18	27	
Continuous Source Current ^{1,5}	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	-2.2	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}\text{C}$	-	-	-1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. The EAS data shows Max. rating. The test condition is $V_{DD}=-50V, V_{GS}=-10V, L=1mH, I_{AS}=-5A$.
4. The power dissipation is limited by 150°C junction temperature.
5. The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.

Typical Performance Characteristics

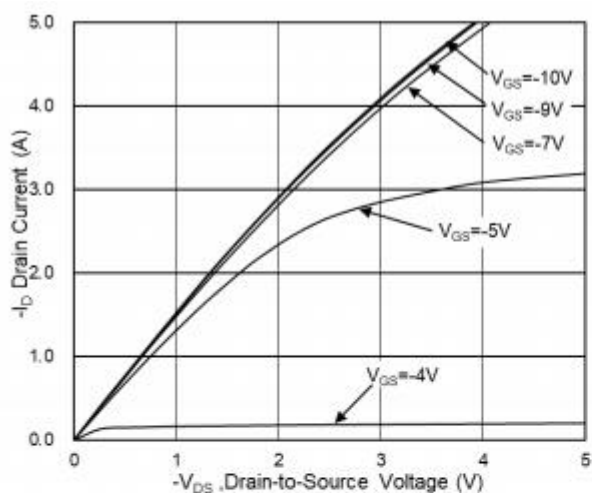


Fig.1 Typical Output Characteristics

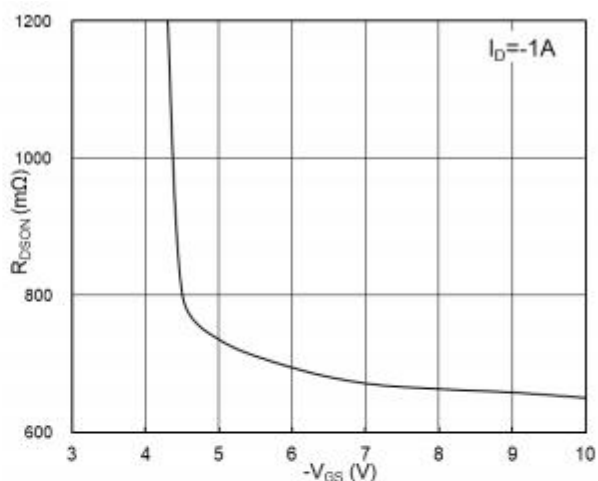


Fig.2 On-Resistance vs G-S Voltage

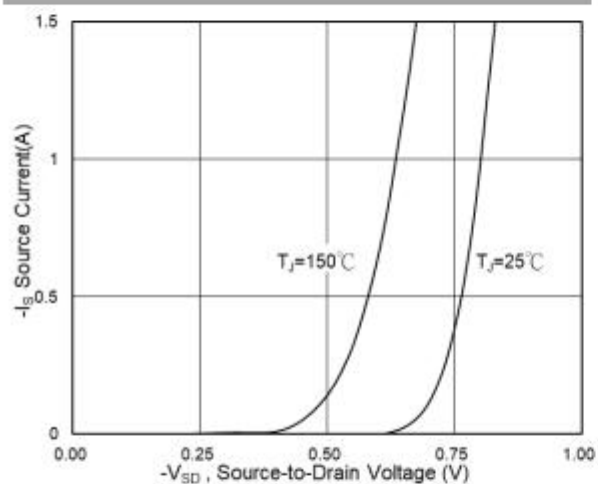


Fig.3 Source Drain Forward Characteristics

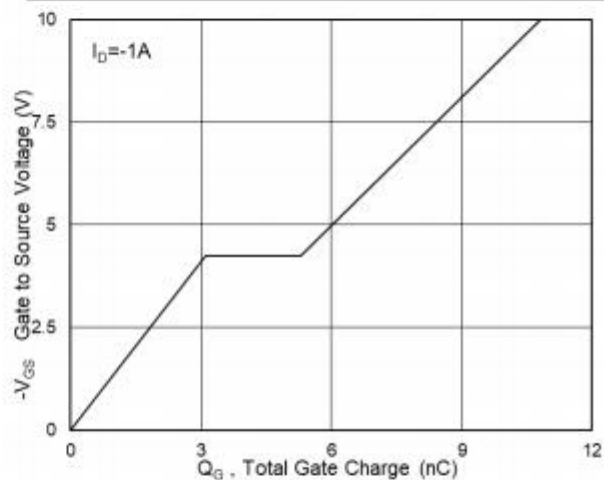


Fig.4 Gate-Charge Characteristics

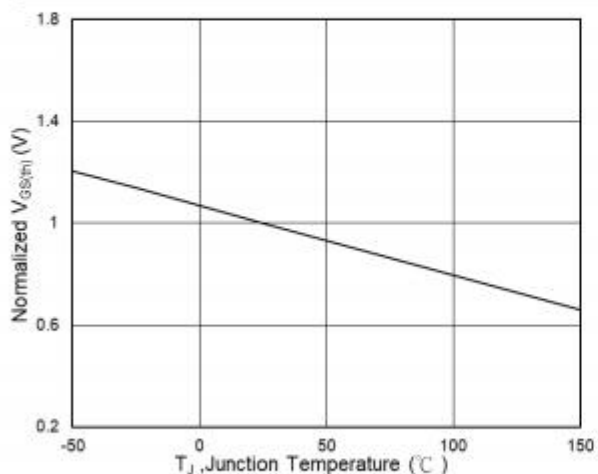


Fig.5 Normalized $V_{GS(th)}$ vs T_J

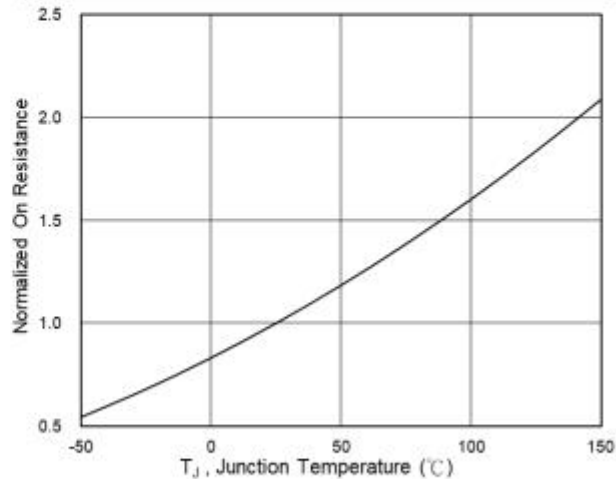


Fig.6 Normalized $R_{DS(on)}$ vs T_J

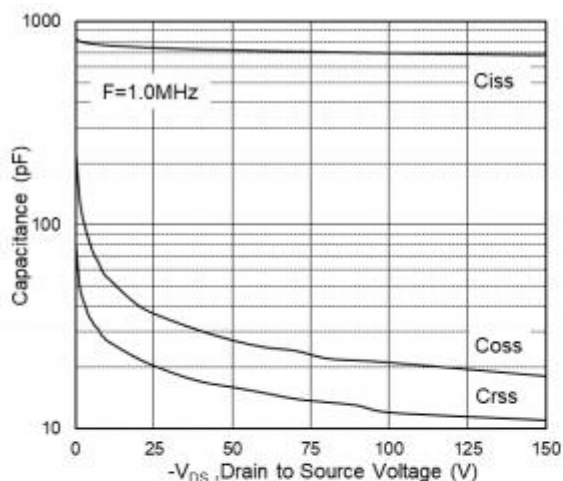


Fig.7 Capacitance

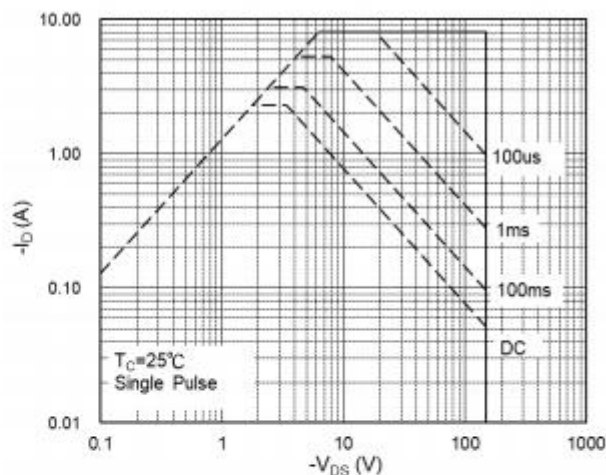


Fig.8 Safe Operating Area

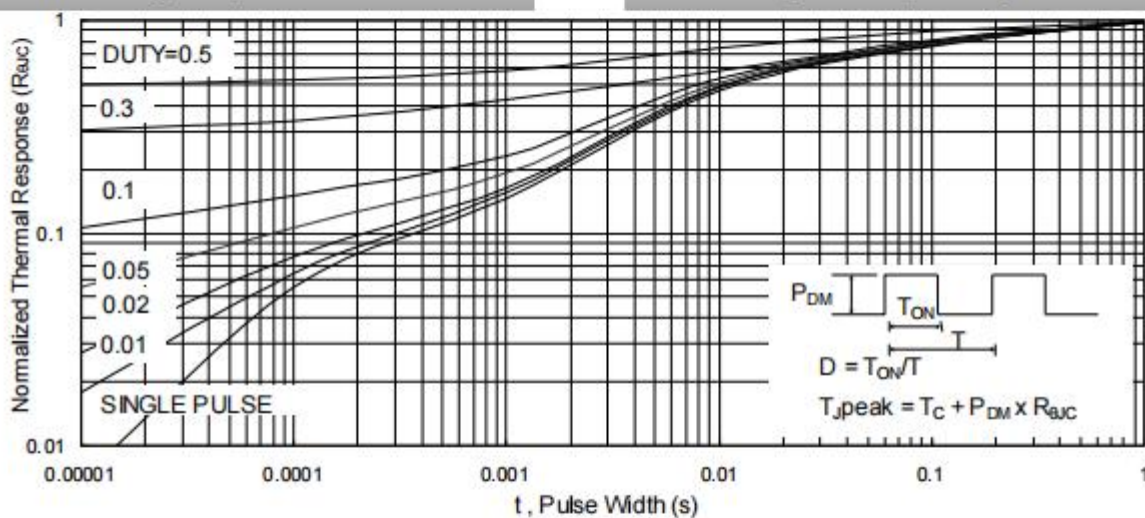


Fig.9 Normalized Maximum Transient Thermal Impedance

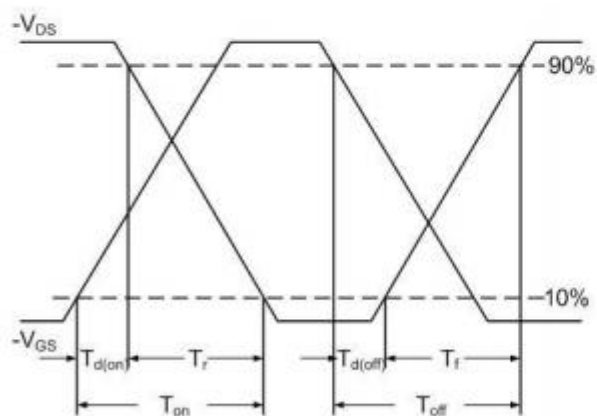


Fig.10 Switching Time Waveform

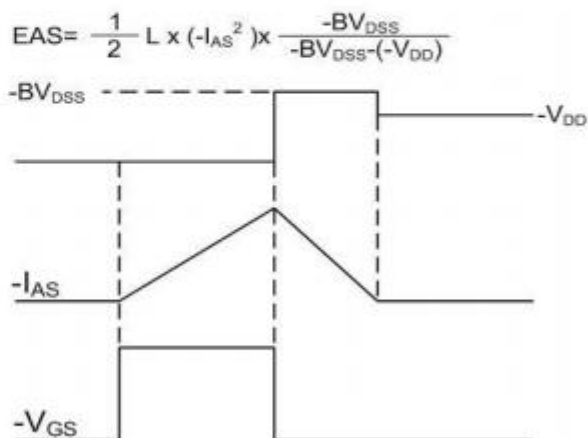
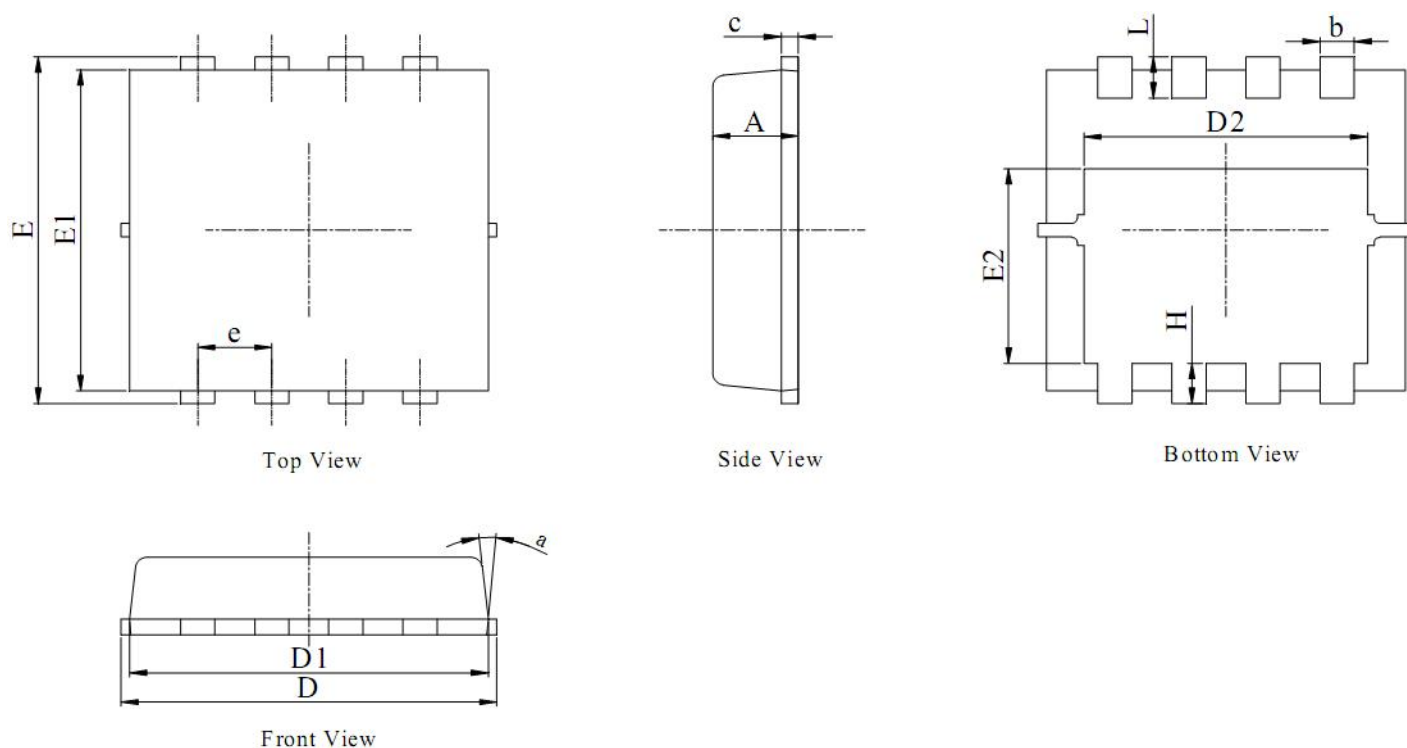


Fig.11 Unclamped Inductive Waveform

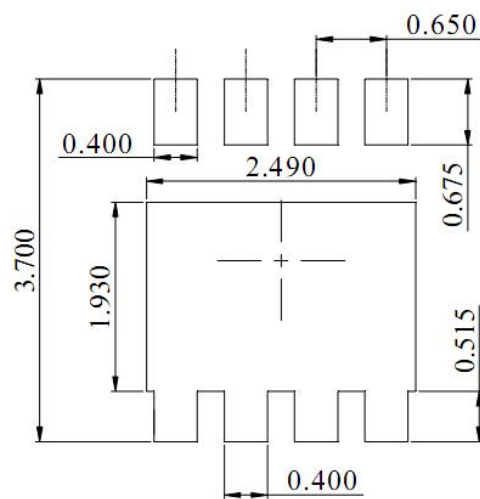
Package Mechanical Data PDFN3x3-8L



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M,1994.
2. ALL DIMNESIONS IN MILLIMETER (ANNGLE IN DEGREE).
3. DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD FLASH PROTRUSIONS OR GATE BURRS.

DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.20	0.25
D	3.00	3.15	3.25
D1	2.95	3.05	3.15
D2	2.39	2.49	2.59
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.70	1.80	1.90
e	0.65 BSC		
H	0.30	0.40	0.50
L	0.25	0.40	0.50
a	---	---	15°



DIMENSIONS:MILLIMETERS



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