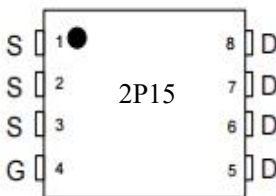


Features ➤ Green Device Available ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	-150V	650mΩ	-1.6A
	Application ➤ LED Back lighting ➤ Power management ➤ Networking application ➤ Load switch		

RoHS

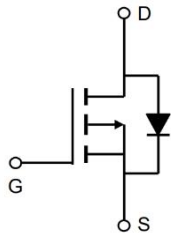
Package



Marking and pin assignment



SOP-8 top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
2P15	2P15S	SOP-8	3000

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-150	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current, $V_{GS}=-10V^1$	$T_A=25^{\circ}\text{C}$	I_D	-1.6	A
	$T_A=70^{\circ}\text{C}$	I_D	-0.88	A
Pulsed Drain Current ²		I_{DM}	-4.4	A
Single Pulse Avalanche Energy ³		EAS	12.5	mJ
Avalanche Current		I_{AS}	5	A
Total Power Dissipation ⁴	$T_A=25^{\circ}\text{C}$	P_D	2	W
Operating Junction Temperature Range		T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62	$^{\circ}\text{C/W}$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	40	$^{\circ}\text{C/W}$



Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL2P15S	SOP-8	4	5,6,7,8	1,2,3	Tape Reel

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

Parameter	Symbol	Test Conditions	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	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
Drain-Source on-State 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	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	-	12	-	Ω
Input Capacitance	C_{iss}	$V_{DS}=-75V, V_{GS}=0V, f=1\text{MHz}$	-	706	-	pF
Output Capacitance	C_{oss}		-	23	-	
Reverse Transfer Capacitance	C_{rss}		-	13	-	
Total Gate Charge	Q_g	$V_{DS}=-75V, V_{GS}=-10V, I_D=-1A$	-	10.8	-	nC
Gate-Source Charge	Q_{gs}		-	3.1	-	
Gate-Drain Charge	Q_{gd}		-	2.2	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=-30V, I_D=-1A, V_{GS}=-10V, R_G=6\Omega$	-	21	-	ns
Turn-on Rise Time	t_r		-	16	-	
Turn-off Delay Time	$t_{d(off)}$		-	40	-	
Turn-off Fall Time	t_f		-	18	-	
Continuous Source Current ^{1,5}	I_S	$V_G=V_D=0V$, Force Current	-	-	-1.6	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

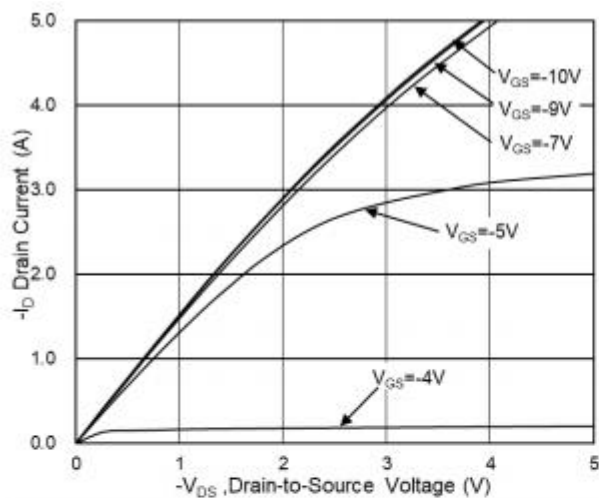


Fig.1 Typical Output Characteristics

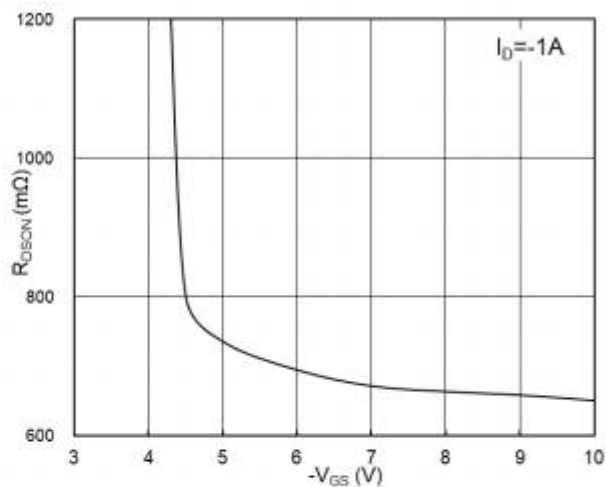


Fig.2 On-Resistance vs G-S Voltage

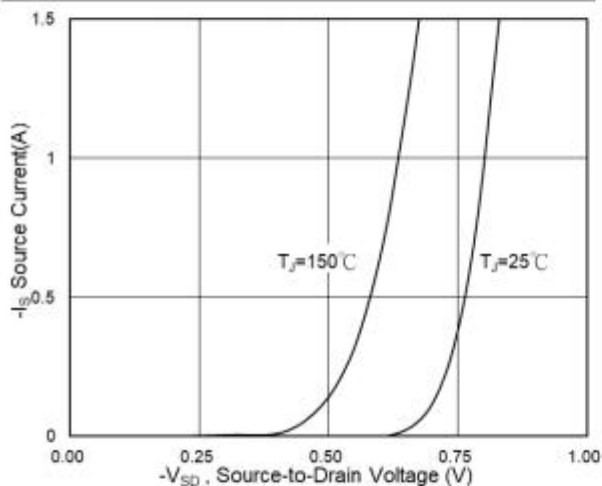


Fig.3 Source Drain Forward Characteristics

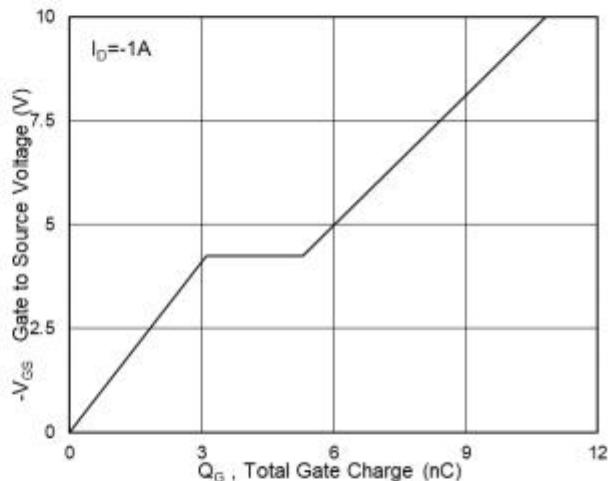


Fig.4 Gate-Charge Characteristics

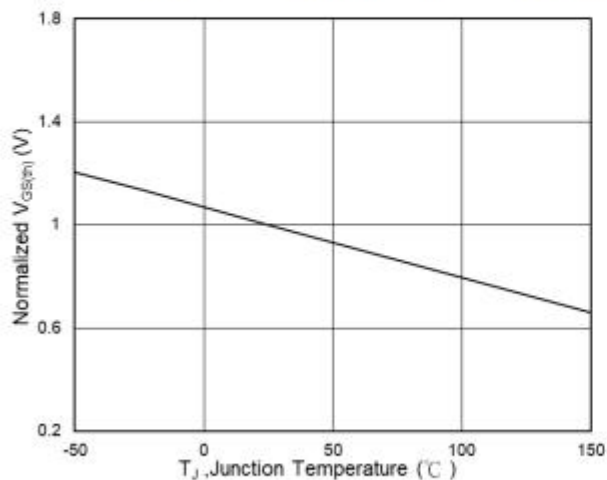


Fig.5 Normalized $V_{GS(th)}$ vs T_J

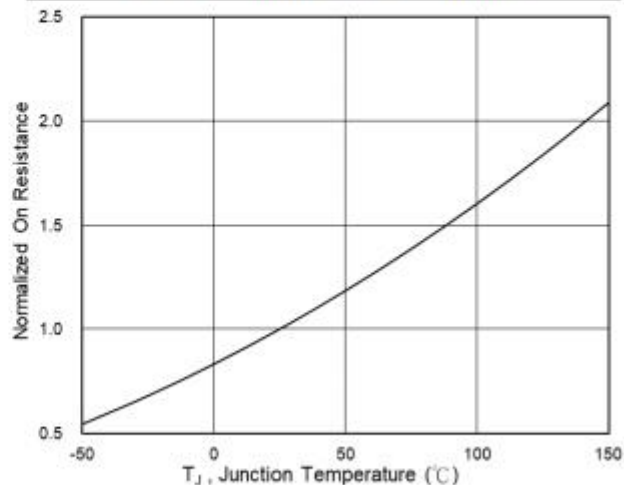


Fig.6 Normalized $R_{DS(on)}$ vs T_J

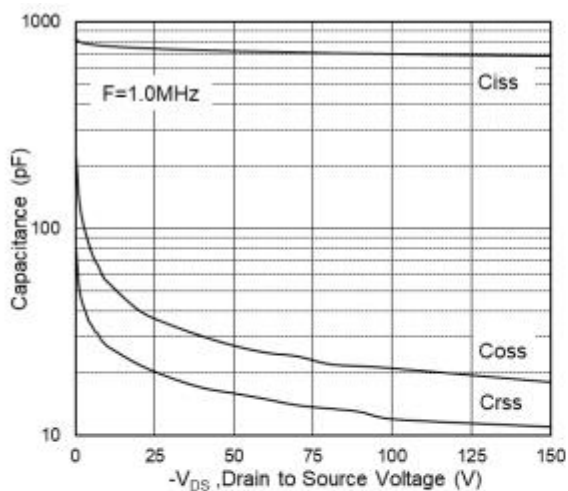


Fig.7 Capacitance

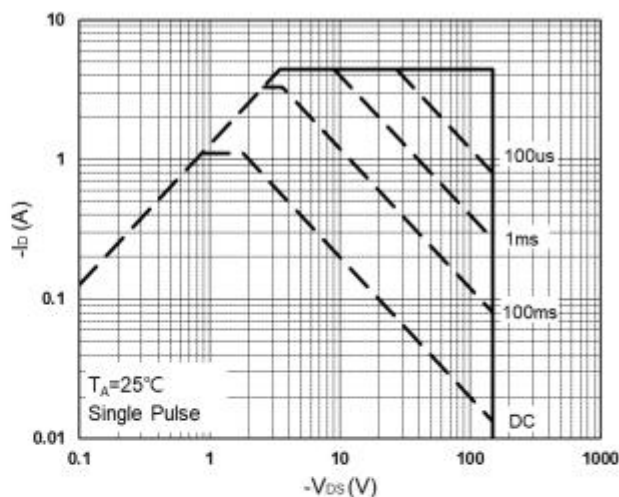


Fig.8 Safe Operating Area

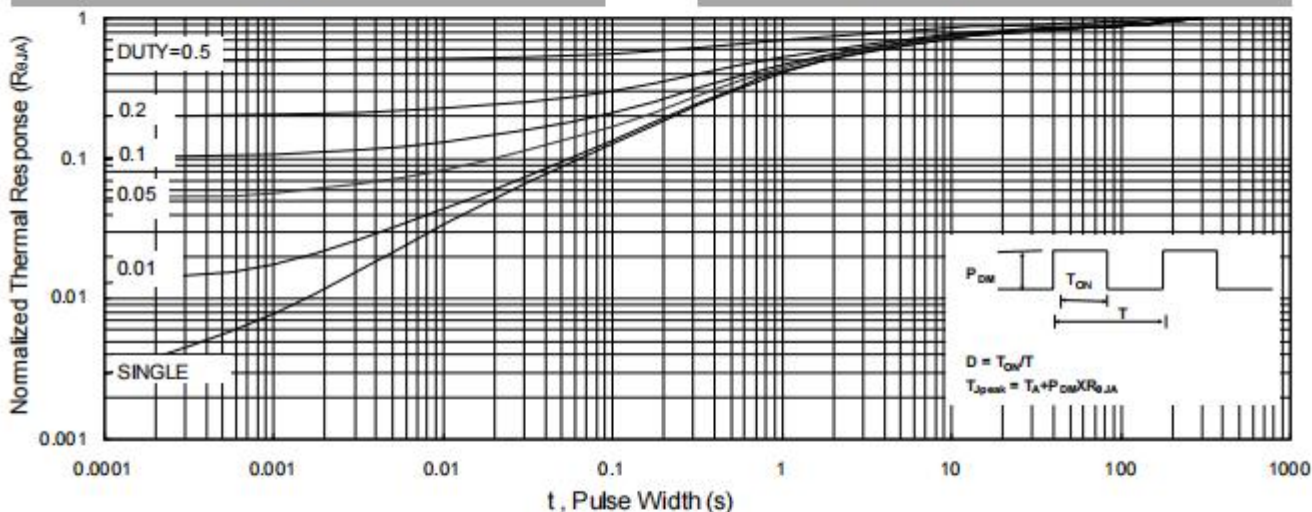


Fig.9 Normalized Maximum Transient Thermal Impedance

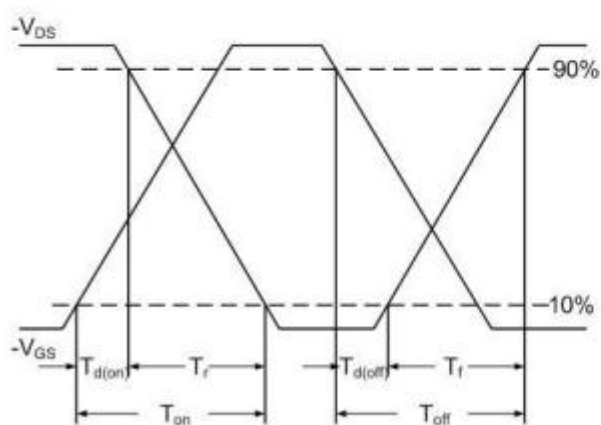


Fig.10 Switching Time Waveform

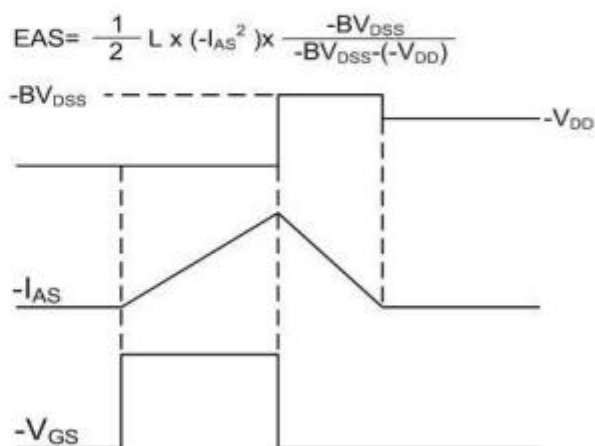
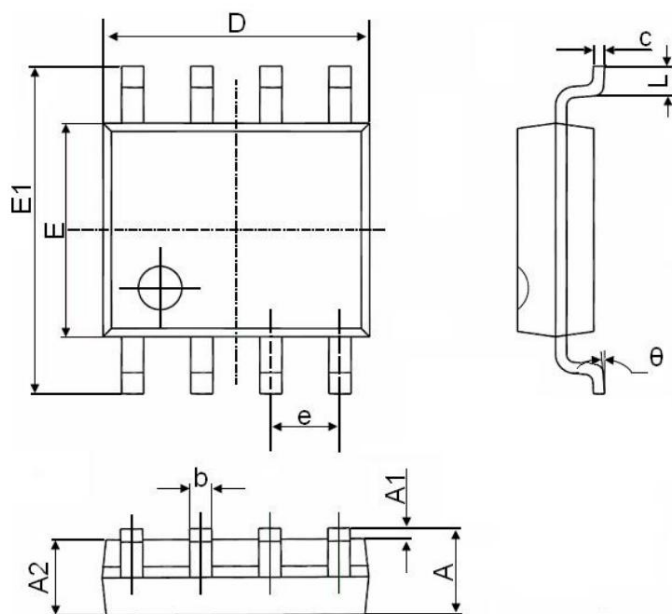


Fig.11 Unclamped Inductive Waveform



Package Dimensions SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



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