ZHEJIANG UNIU-NE Technology CO.,LTD

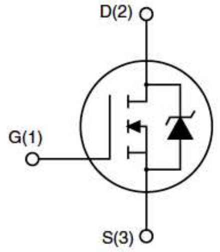
浙江宇力微新能源科技有限公司

AP30H150G Data Sheet

V 1.1

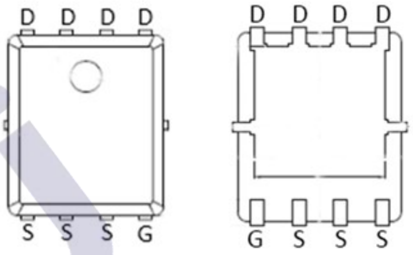
Feature

- 30V,120A
  $R_{DS(ON)}$<3.8mΩ@V_{GS}=10V
- Advanced Trench Technology
- Lead free product is acquired
- Excellent $R_{DS(ON)}$ and Low Gate Charge



Application

- PWM applications
- Load Switch
- Power management



PDFN5X6-8L

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
30H150	AP30H150G	PDFN5*6-8L	13 inch	-	5000

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (T_a =25℃)	I_D	120	A
Continuous Drain Current (T_a =100℃)	I_D	72	A
Pulsed Drain Currenr (1)	I_{DM}	400	A
Singel Pulsed Avalanche Energy (2)	E_{AS}	121	mJ
Power Dissipation	P_D	108	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.4	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V, V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage(3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1	1.5	2.5	V
Drain-source on-resistance(3)	$R_{DS(on)}$	V_{GS} =10V, I_D =30A	-	3.0	3.8	mΩ
Drain-source on-resistance(3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =20A	-	4.9	6.0	mΩ
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =15V, V_{GS} =0V, f =1MHz	-	2680	-	pF
Output Capacitance	C_{oss}		-	393	-	
Reverse Transfer Capacitance	C_{rss}		-	330	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, I_D=30A, R_L=1Ω V_{GS}=10V, R_G=3Ω	-	23	-	ns
Turn-on rise time	t_r		-	28	-	
Turn-off delay time	$t_{d(off)}$		-	74	-	
Turn-off fall time	t_f		-	36	-	
Total Gate Charge	Qg	VDS=15V, ID=30A, VGS=10V	-	30	-	nC
Gate-Source Charge	Qgs		-	7.2	-	
Gate-Drain Charge	Qgd		-	10.4	-	
Source-Drain Diode characteristics						
Diode Forward voltage(3)	V_{DS}	V_{GS} =0V, I_S=30A	-	-	1.2	V
Diode Forward current(4)	I_S		-	-	120	A
Body Diode Reverse Recovery Time	trr	T_J=25° , IF=20A,di/dt=100A/us		28		ns
Body Diode Reverse Recovery Charge	Qrr	T_J=25° , IF=20A,di/dt=100A/us		21		nc

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition:T_J=25℃,V_{DD}=20V,R_G=25Ω,L=0.5mH,I_{AS}=22A
3. Pulse Test: pulse width≤300μs, duty cycle≤2%
4. Surface Mounted on FR4 Board,t≤10 sec

Test Circuit

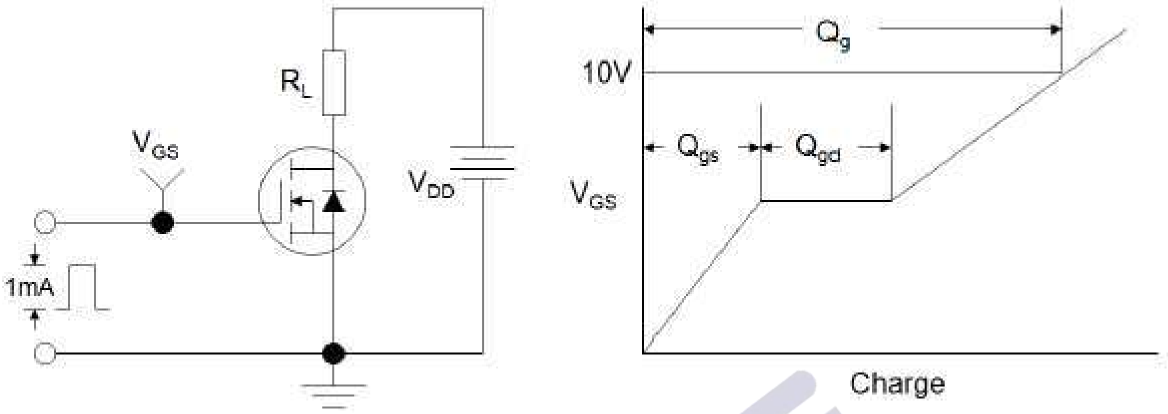


Figure1:Gate Charge Test Circuit & Waveform

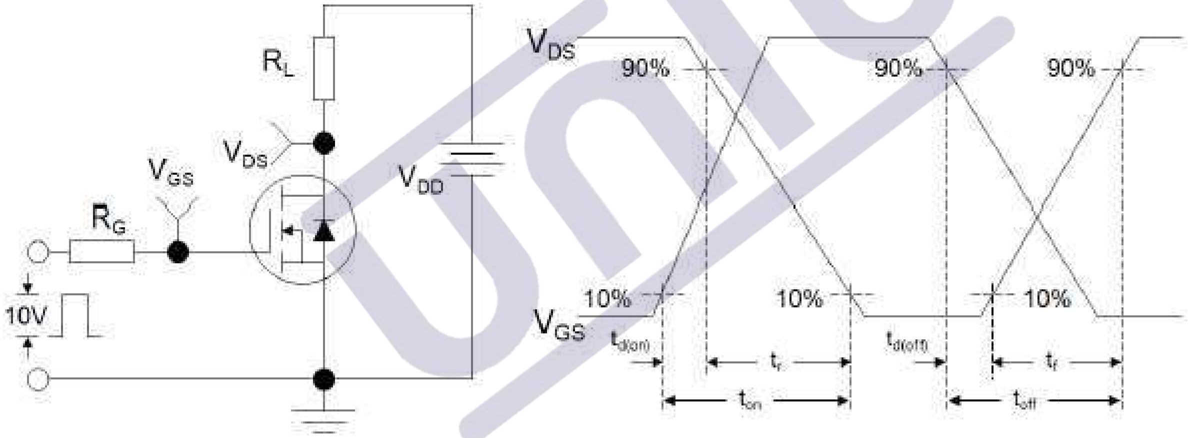


Figure 2: Resistive Switching Test Circuit & Waveforms

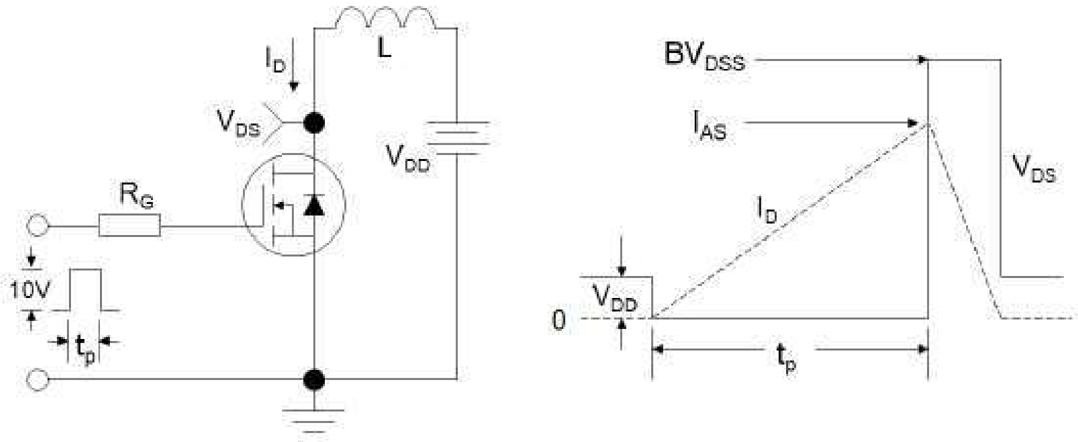


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms

Figure1: Output Characteristics

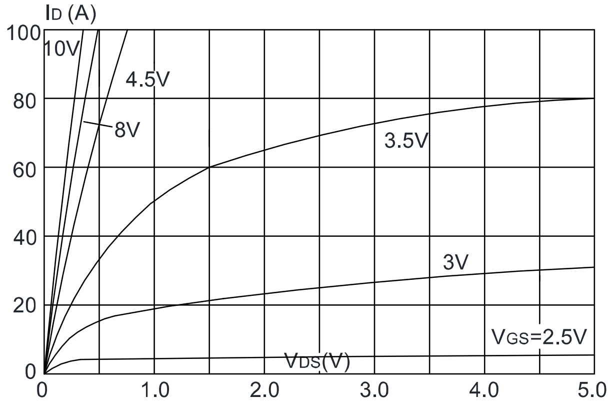


Figure 2: Typical Transfer Characteristics

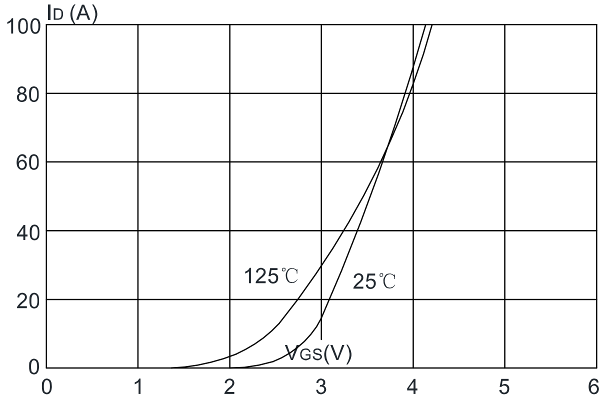


Figure 3: On-resistance vs. Drain Current

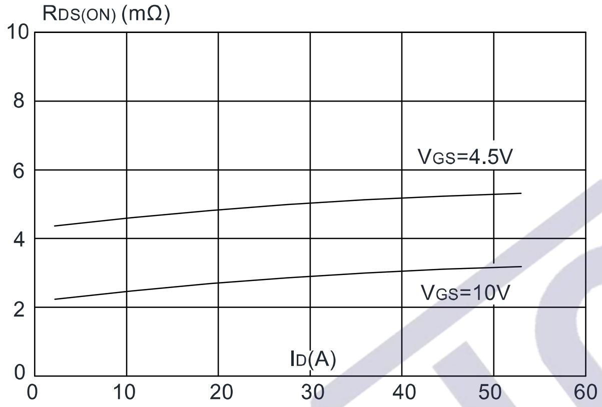


Figure 4: Body Diode Characteristics

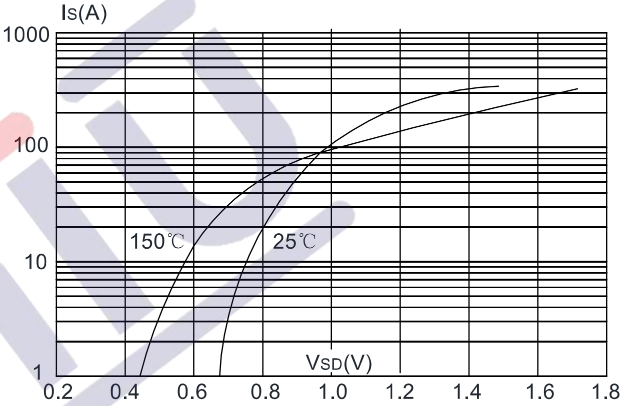


Figure 5: Gate Charge Characteristics

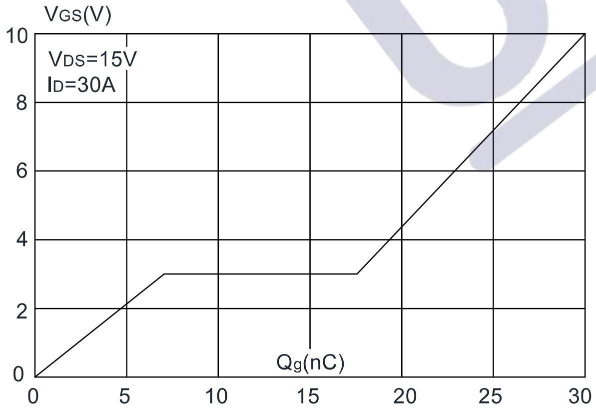


Figure 6: Capacitance Characteristics

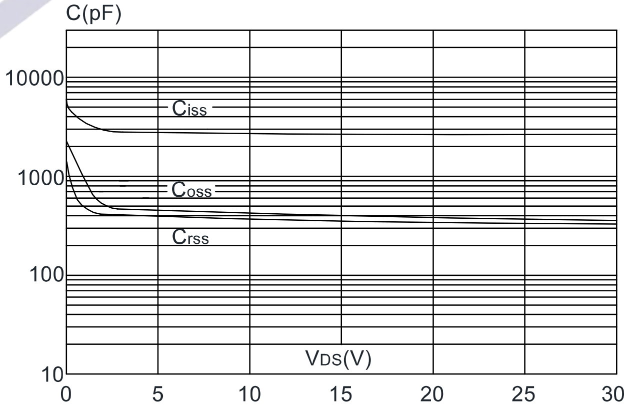


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

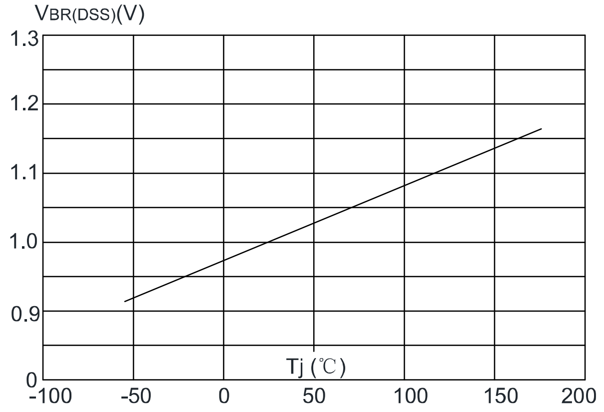


Figure 8: Normalized on Resistance vs. Junction Temperature

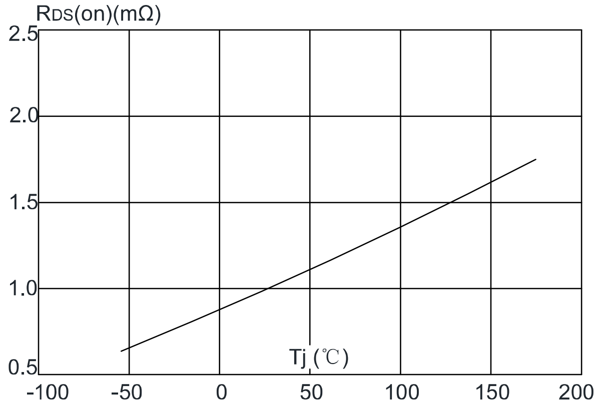


Figure 9: Maximum Safe Operating Area

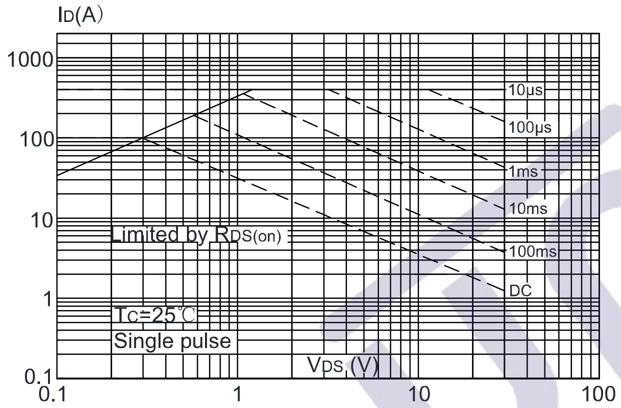


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

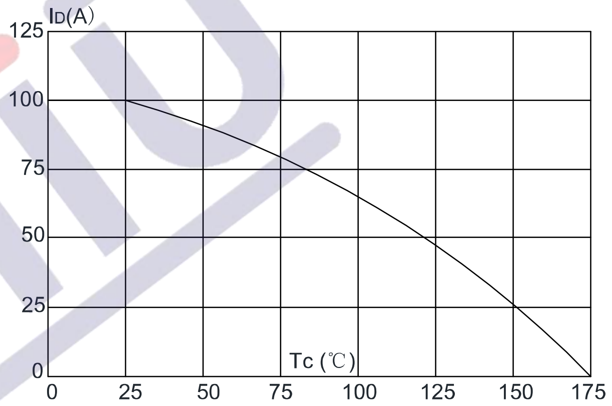
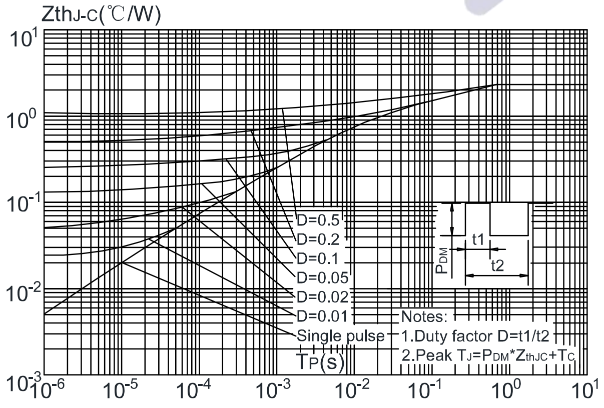
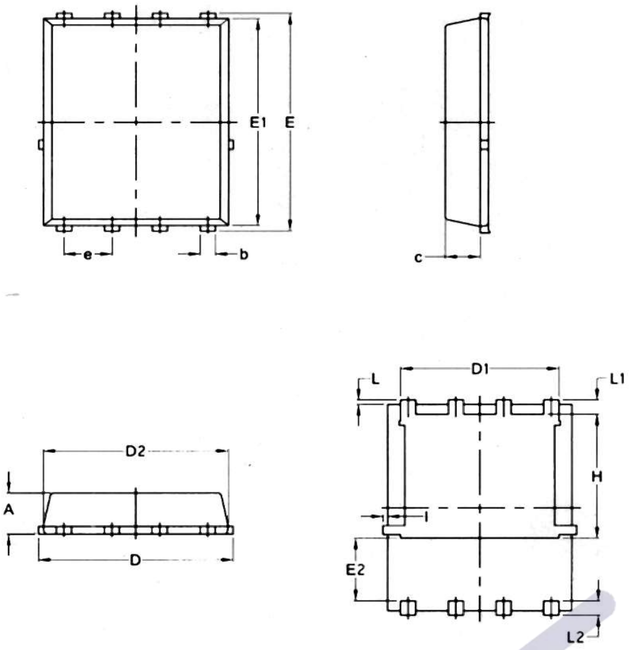


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



PDFN5*6-8L Package Information



PDFN5X6-8L

SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	—	0.0630	—
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	—	0.18	—	0.0070

1.版本记录

DATE	REV.	DESCRIPTION
2018/04/19	1.0	First Release
2021/11/15	1.1	Layout adjustment

2.免责声明

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