ZHEJIANG UNIU-NE Technology CO.,LTD

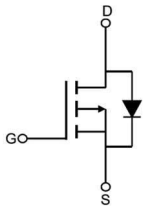
浙 江 宇 力 微 新 能 源 科 技 有 限 公 司

AP20P30S Data Sheet

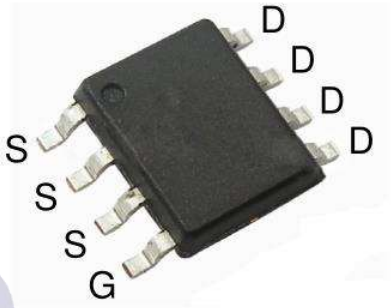
V 1.1

Feature

- -30V,-15A
  $R_{DS(ON)}$ <8.4mΩ @V_{GS}=-10V TYP:6.8 mΩ
  $R_{DS(ON)}$ <12mΩ @V_{GS}=-4.5V TYP:10 mΩ
- Trench DMOS Power MOSFET
- Fast Switching
- Exceptional on-resistance and maximum DC current capability



Schematic diagram



SOP-8

Application

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity (PCS)
20P30S	AP20P30S	SOP-8	13 inch	-	4000

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	-15	A
Continuous Drain Current (T_a =100℃)	I_D	-10.5	A
Pulsed Drain Currenr (1)	I_{DM}	-60	A
Singel Pulsed Avalanche Energy (4)	E_{AS}	156	mJ
Power Dissipation	P_D	3.7	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	42.8	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

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

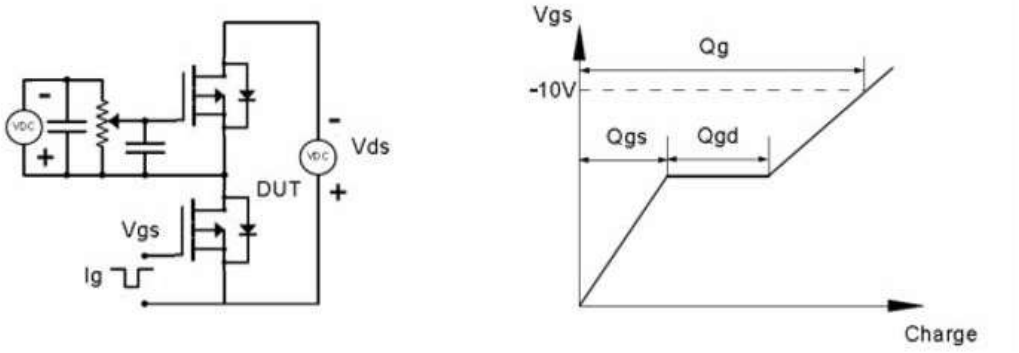
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-30V, V_{GS} = 0V	-	-	-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage(2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =-250μA	-1	-1.5	-2.5	V
Drain-source on-resistance(2)	$R_{DS(on)}$	V_{GS} =-10V, I_D =-10A	-	6.8	8.4	mΩ
		V_{GS} =-4.5V, I_D =-5A	-	10	12	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-15V, V_{GS} =0V, f =1MHz	-	3142	-	pF
Output Capacitance	C_{oss}		-	424	-	
Reverse Transfer Capacitance	C_{rss}		-	420	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-15V, I_D=-15A V_{GS}=-10V, R_G=2.5Ω	-	13	-	ns
Turn-on rise time	t_r		-	47	-	
Turn-off delay time	$t_{d(off)}$		-	99	-	
Turn-off fall time	t_f		-	22	-	
Total Gate Charge	Qg	VDS=-15V, ID=-15A, VGS=-10V	-	65	-	nC
Gate-Source Charge	Qgs		-	9	-	
Gate-Drain Charge	Qgd		-	15	-	
Source-Drain Diode characteristics						
Diode Forward voltage(2)	V_{DS}	V_{GS} =0V, I_S=--15A	-	-	-1.2	V
Diode Forward current(3)	I_S		-	-	-15	A

Notes:

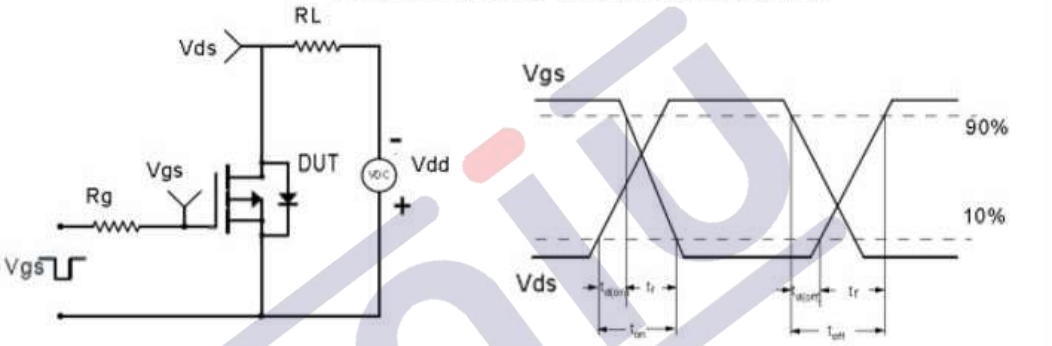
1. Repetitive Rating: pulse width limited by maximum junction temperature
2. Pulse Test: pulse width≤300μs, duty cycle≤2%
3. Surface Mounted on FR4 Board,t≤10 sec
4. L=0.5mH,V_{DD}=-15V,R_G=25Ω,TJ=25℃

Test Circuit & Waveform

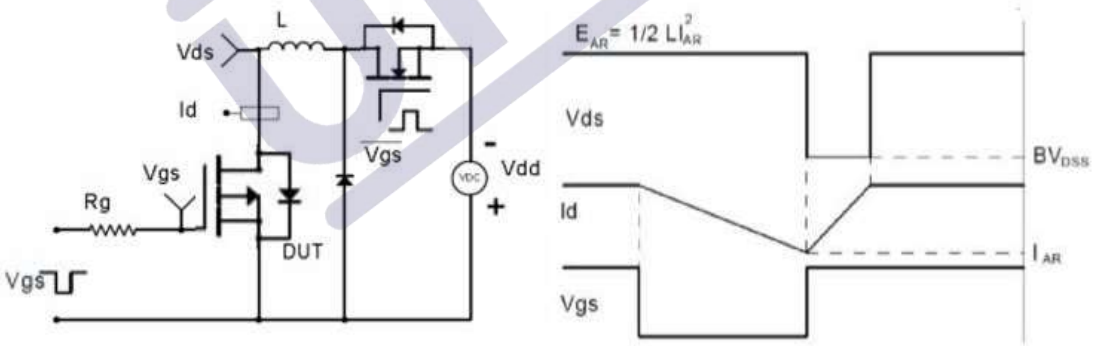
Gate Charge Test Circuit & Waveform



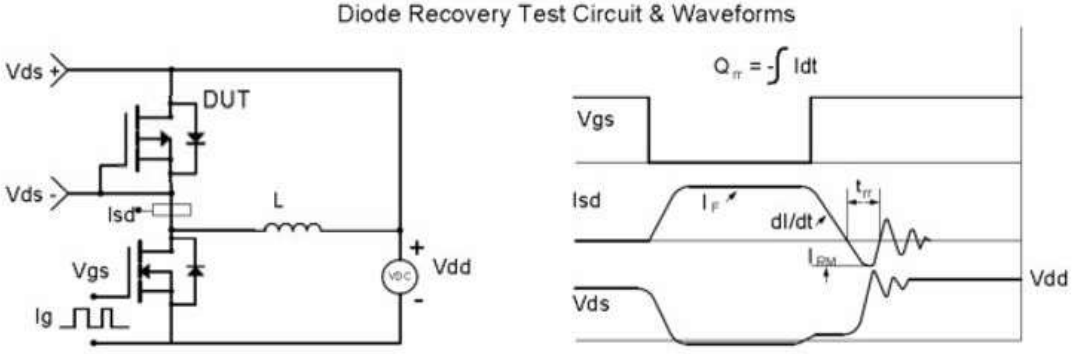
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



1.版本记录

DATE	REV.	DESCRIPTION
2018/11/15	1.0	First Release
2020/09/18	1.1	Layout adjustment

2.免责声明

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