



ZHEJIANG UNIÜ-NE Technology CO., LTD

浙江宇力微新能源科技有限公司

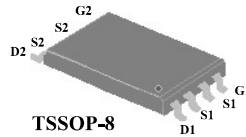


AP8810 Data Sheet

V 1.1

版权归浙江宇力微新能源科技有限公司

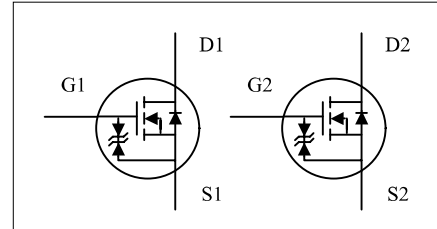
- ▼ Low on-resistance
- ▼ Capable of 1.8V Gate Drive
- ▼ Optimal DC/DC Battery Application
- ▼ RoHS Compliant & Halogen-Free



BV_{DSS}	20V
$R_{DS(ON)}$	11mΩ
I_D	8A

Description

Advanced Power MOSFETs from AP provide the designer with the best combination of fast switching, ruggedized device design, ultra low on-resistance and cost-effectiveness.



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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
$I_D@T_A=25^\circ C$	Drain Current ³ , V_{GS} @ 4.5V	8	A
$I_D@T_A=70^\circ C$	Drain Current ³ , V_{GS} @ 4.5V	5.1	A
I_{DM}	Pulsed Drain Current ¹	30	A
$P_D@T_A=25^\circ C$	Total Power Dissipation	1	W
	Linear Derating Factor	0.01	W/°C
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient ³	125	°C/W

Electrical Characteristics@T_j=25 C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	20	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =4.5V, I _D =6A	-	-	14	mΩ
		V _{GS} =2.5V, I _D =4A	-	-	18	mΩ
		V _{GS} =1.8V, I _D =3A	-	-	30	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	0.3	-	1	V
g _{fs}	Forward Transconductance	V _{DS} =5V, I _D =6A	-	6	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =20V, V _{GS} =0V	-	-	10	uA
	Drain-Source Leakage Current (T _j =70°C)	V _{DS} =16V, V _{GS} =0V	-	-	100	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±8V, V _{DS} =0V	-	-	+30	uA
Q _g	Total Gate Charge ²	I _D =6A	-	28	45	nC
Q _{gs}	Gate-Source Charge	V _{DS} =16V	-	4	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	9	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	11	-	ns
t _r	Rise Time	I _D =1A	-	14	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω	-	22	-	ns
t _f	Fall Time	V _{GS} =5V	-	58	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	1630	2600	pF
C _{oss}	Output Capacitance	V _{DS} =20V	-	295	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	270	-	pF
R _g	Gate Resistance	f=1.0MHz	-	1.8	2.7	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =0.84A, V _{GS} =0V	-	-	1.2	V
t _{rr}	Reverse Recovery Time ²	I _S =6A, V _{GS} =0V,	-	30	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	30	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board ; 208°C/W when mounted on Min. copper pad.

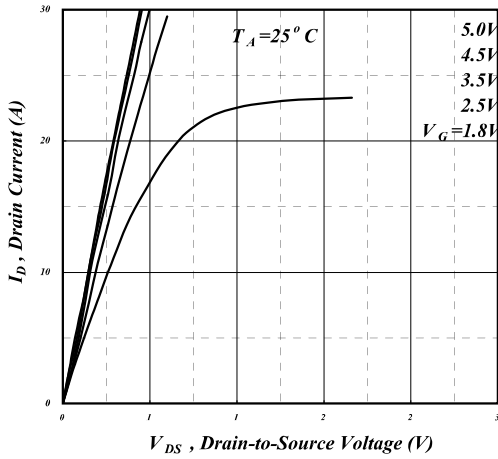


Fig 1. Typical Output Characteristics

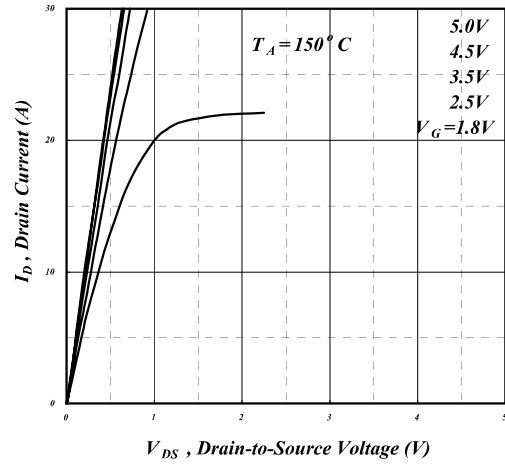


Fig 2. Typical Output Characteristics

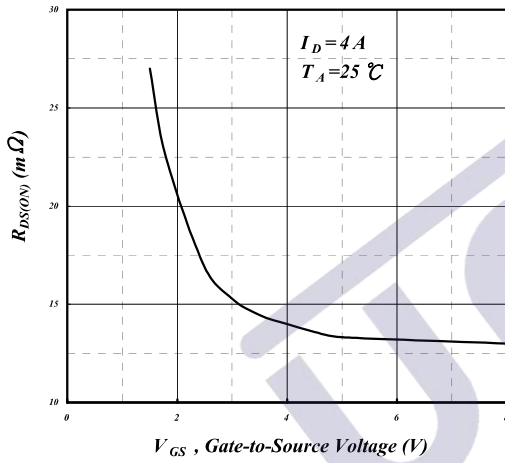


Fig 3. On-Resistance v.s. Gate Voltage

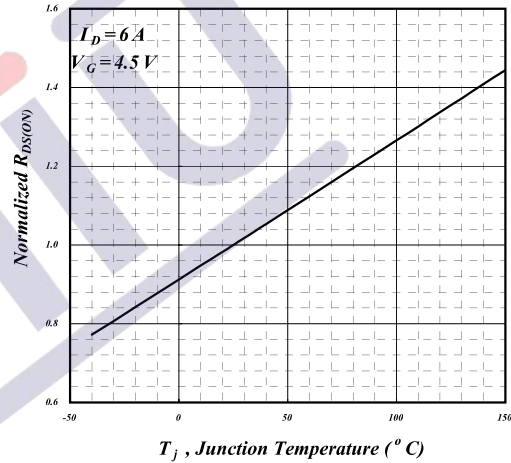


Fig 4. Normalized On-Resistance v.s. Junction Temperature

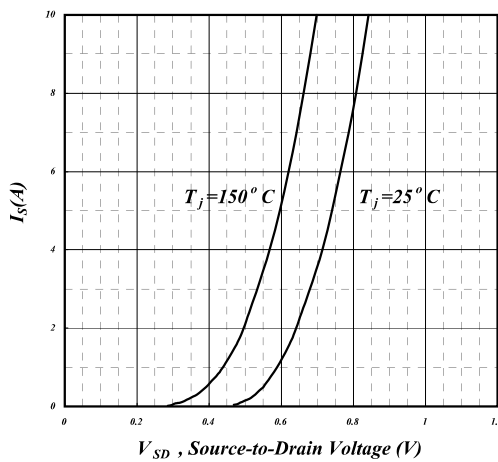


Fig 5. Forward Characteristic of Reverse Diode

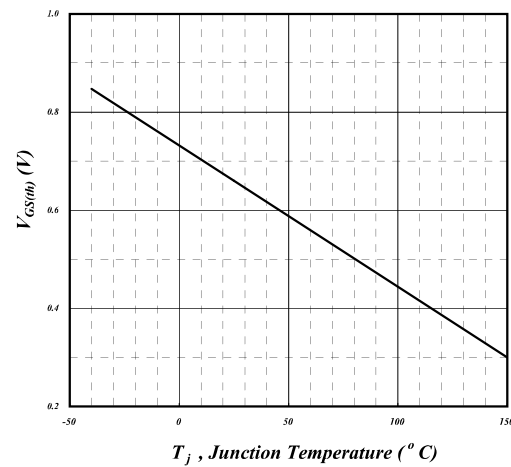


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

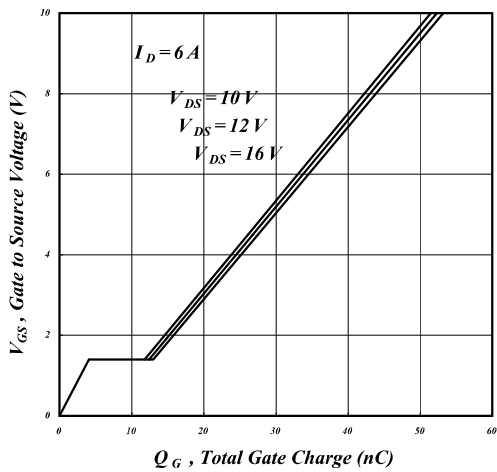


Fig 7. Gate Charge Characteristics

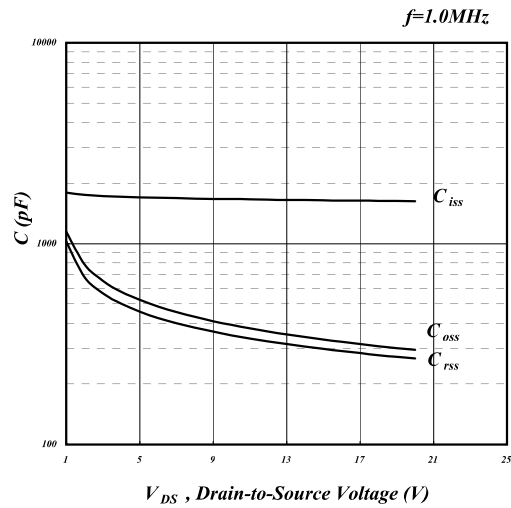


Fig 8. Typical Capacitance Characteristics

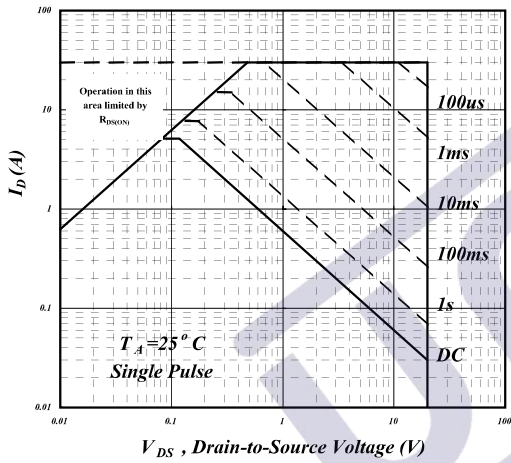


Fig 9. Maximum Safe Operating Area

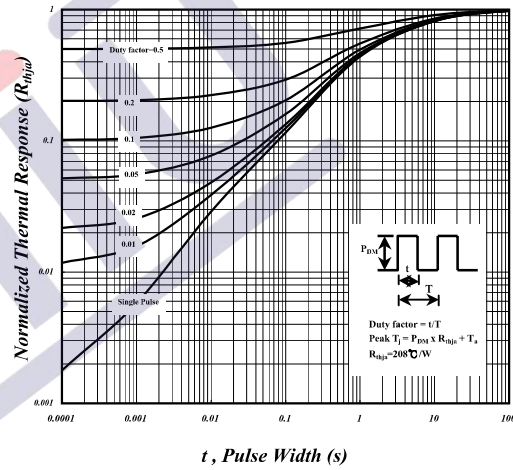


Fig 10. Effective Transient Thermal Impedance

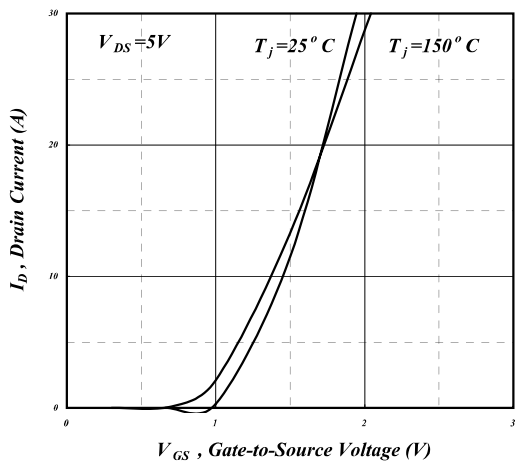


Fig 11. Transfer Characteristics

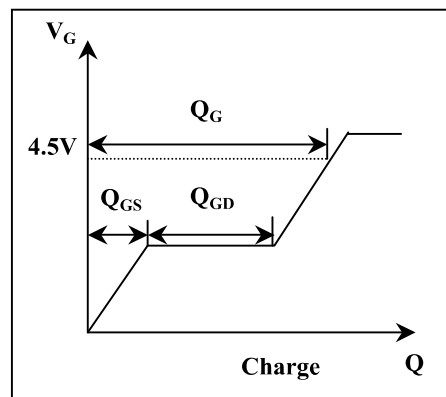


Fig 12. Gate Charge Waveform

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

浙江宇力微新能源科技有限公司保留对本文档的更改和解释权力，不另行通知！客户在下单前应获取我司最新版本资料，并验证相关信息是否最新和完整。量产方案需使用方自行验证并自担所有批量风险责任。未经我司授权，该文件不得私自复制和修改。产品不断提升，以追求高品质、稳定性强、可靠性高、环保、节能、高效为目标，我司将竭诚为客户提供性价比高的系统开发方案、技术支持等更优秀的服务。

版权所有 浙江宇力微新能源科技有限公司/绍兴宇力半导体有限公司

3.联系我们

浙江宇力微新能源科技有限公司

总部地址：绍兴市越城区斗门街道袍渎路25号中节能科创园45幢4/5楼

电话：0575-85087896（研发部）

传真：0575-88125157

E-mail: htw@uni-semic.com

无锡地址：无锡市锡山区先锋中路6号中国电子（无锡）数字芯城1#综合楼503室

电话：0510-85297939

E-mail: zh@uni-semic.com

深圳地址：深圳市宝安区西乡街道南昌社区宝源路泳辉国际商务大厦410

电话：0755-84510976

E-mail: htw@uni-semic.com