



XM50N06M

用途

- ❖ 负载开关
- ❖ PWM 应用
- ❖ 不间断电源

APPLICATIONS

- ❖ Load Switch
- ❖ PWM Application
- ❖ Uninterruptible power supply

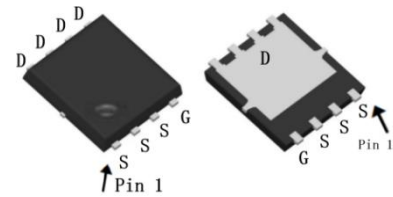
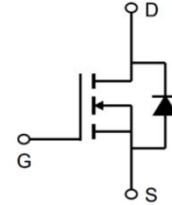
特点

- ❖ 高级沟槽技术
- ❖ 优异的导通电阻 (RDS(ON)) 和低门极电荷
- ❖ RoHS 产品
- ❖ 产品全部经过雪崩测试

FEATURES

- ❖ Advanced Trench Technology
- ❖ Excellent RDS(ON) and Low Qg
- ❖ RoHS product
- ❖ 100% avalanche tested

封装 Package



PDFN5X6-8L

XM50N06M

主要参数

MAIN CHARACTERISTICS

Rdson-typ (@Vgs=10V)	Vdss	Id	Qg-typ	EAS
8.5mΩ	60V	50A	45nC	60mJ

订货信息

ORDER MESSAGE

订货型号 Order codes			包装方式 Package	包装数量 SPQ (Pcs)
印记 Marking	封装形式 Package form	无卤素 Halogen Free		
XM50N06M	PDFN5X6-8L	YES	编带	2500



绝对最大额定值 ABSOLUTE RATINGS (T_c=25°C)

参数名称 Parameter name	符号 Symbol	型号 XM50N06M	单位 Value
最高漏极—源极直流电压 Drain-Source Voltage	VDSS	60	V
连续漏极电流 Drain Current-continuous	ID T _c =25°C	50	A
	ID T _c =100°C	30	
最大脉冲漏极电流 (注1) Drain Current - pulse (note 1)	IDM	200	A
最高栅源电压 Gate-Source Voltage	VGSS	±20	V
单脉冲雪崩能量 (注2) Single Pulsed Avalanche Energy (note 2)	EAS	60	mJ
耗散功率 Power Dissipation	P _D T _c =25°C	40	W
		0.3	W/°C
最高结温及存储温度 Operating and Storage Temperature Range	T _J , T _{STG}	-55 ~ 150	°C
最高焊接温度 Maximum welding temperature	T _L	300	°C

热特性 THERMAL CHARACTERISTIC

参数名称 Parameter name	符号 Symbol	型号 XM50N06M	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	R _{th(j-c)}	3	°C/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	R _{th(j-A)}	62	°C/W



关态特性 Off - Characteristics

参数名称 Parameter name	符 号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最 大 Max	单位 Units
漏-源击穿电压 Drain-Source Voltage	BVDSS	ID=250 μA, VGS=0V	60	-	-	V
击穿电压温度特性 Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_J$	ID=250 μA, referenced to 25°C	-	0.05	-	V/°C
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0V	-	-	1	uA
反向栅极体漏电流 Gate-body leakage current	IGSS	VDS=0V, VGS=±20V	-	-	±100	nA

阈值电压 Gate Threshold Voltage	VGS(th)	VDS = VGS, ID=250 μA	1.1	1.6	2.5	V
静态导通电阻 Static Drain-Source On-ResistanceStatic Drain-Source	RDS(ON)	VGS=10V, ID=30A	-	8.5	11	mΩ
		VGS=4.5V, ID=20A	-	11	14	
正向跨导 Forward Transconductance	gfs	VDS=5V, ID=15A (note 4)	-	15	-	S

输入电容 Input capacitance	Ciss	VDS=15V, VGS=0V, f=1.0MHZ	-	2620	-	pF
输出电容 Output capacitance	Coss		-	105	-	pF
反向传输电容 Reverse transfer capacitance	Crss		-	80	-	pF
栅极电阻 Gate resistance	Rg		-	2.2	-	Ω



开关特性 Switching Characteristics

参数名称 Parameter name	符号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最大 Max	单位 Units
延迟时间 Turn-On delay time	td(on)	VDD=15V, ID=30A, RG=3Ω (note 4, 5)	-	8	-	ns
上升时间 Turn-On rise time	tr		-	26	-	ns
延迟时间 Turn-Off delay time	td(off)		-	31	-	ns
下降时间 Turn-Off Fall time	tf		-	7	-	ns
栅极电荷总量 Total Gate Charge	Qg	VDS =30V, ID=20A VGS =10V (note 4, 5)	-	45	-	nC
栅-源电荷 Gate-Source charge	Qgs		-	12	-	nC
栅-漏电荷 Gate-Drain charge	Qgd		-	9	-	nC

漏-源二极管特性及最大额定值

Drain-Source Diode Characteristics and Maximum Ratings

正向最大连续电流 Maximum Continuous Drain-Source Diode Forward Current	I	IS	-	-	50	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I	ISM	-	-	200	A
正向压降 Drain-Source Diode Forward Voltage	VSD	VGS=0V, IS=10A	-	-	1.2	V
反向恢复时间 Reverse recovery time	t _{rr}	TJ = 25°C, If = 30A dI _F /dt=100A/μs (note 4)	-	23	-	ns
反向恢复电荷 Reverse recovery charge	Q _{rr}	TJ = 25°C, IF = 30A dI _F /dt=100A/μs (note 4)	-	23	-	nC

注释:

1: 脉冲宽度由最高结温限制

2: L=0.5mH, VG=10V, VDS=20V, RG=25Ω, 起始结温 TJ=25°C

3: ISD ≤16A, di/dt ≤300A/μs, VDD≤BVDSS, 起始结温 TJ=25°C

4: 脉冲测试: 脉冲宽度≤300μs, 占空比≤2%

5: 基本与工作温度无关。

Notes:

1: Pulse width limited by maximum junction temperature

2: L=0.5mH, VG=10V, VDS=20V, RG=25Ω, Starting TJ=25°C

3: ISD ≤16A, di/dt ≤300A/μs, VDD≤BVDSS, Starting TJ=25°C

4: Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%

5: Essentially independent of operating temperature.



特征曲线 ELECTRICAL CHARACTERISTICS (curves)

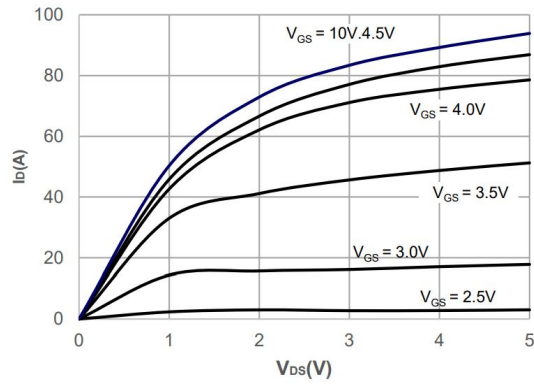


Figure 1: Output Characteristics

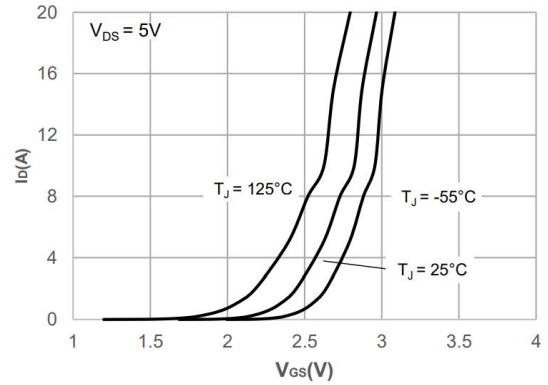


Figure 2: On-Resistance Static VS Vgs

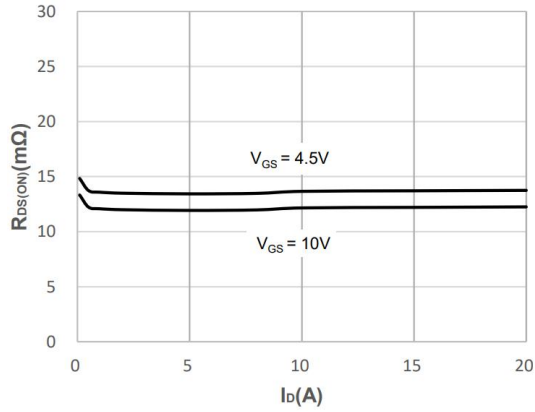


Figure 3: Rdson-Drain Current

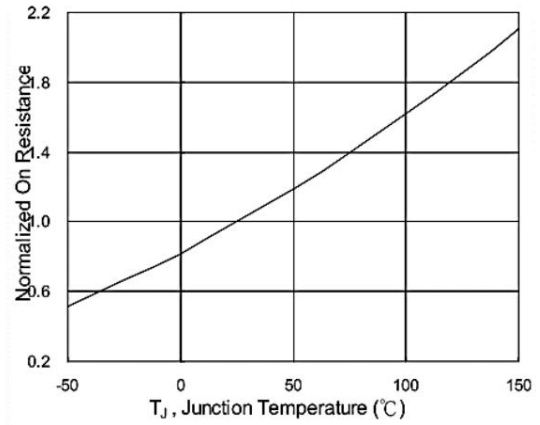


Figure 4: Rdson-Junction Temperature

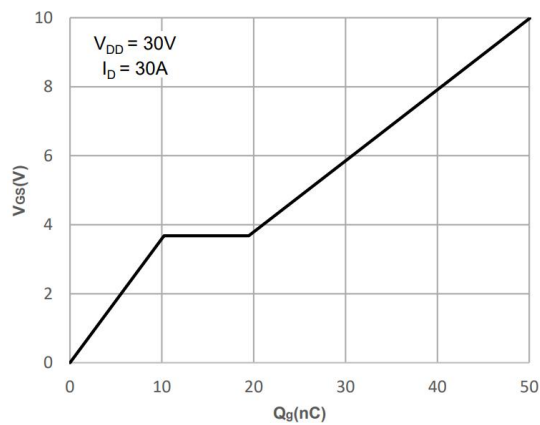


Figure 5: Gate Charge

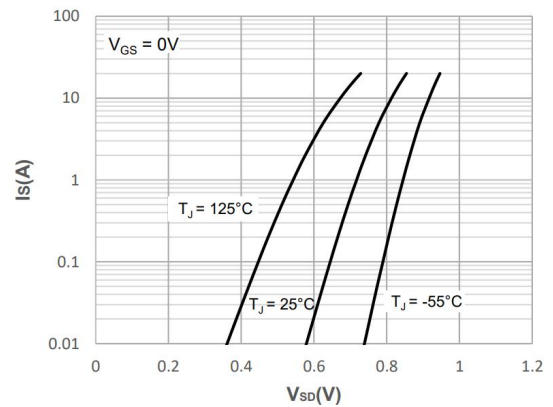


Figure 6: Source- Drain Diode Forward



特征曲线 ELECTRICAL CHARACTERISTICS (curves)

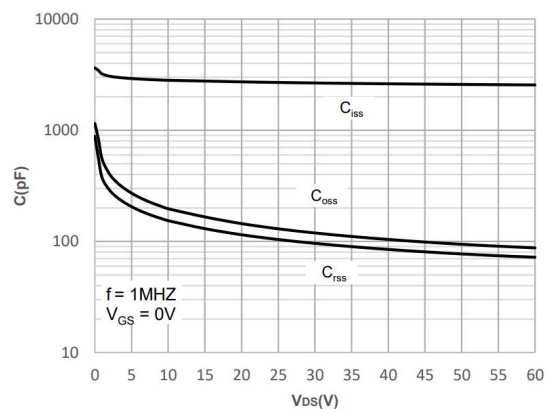


Figure 7: Capacitance vs Vds

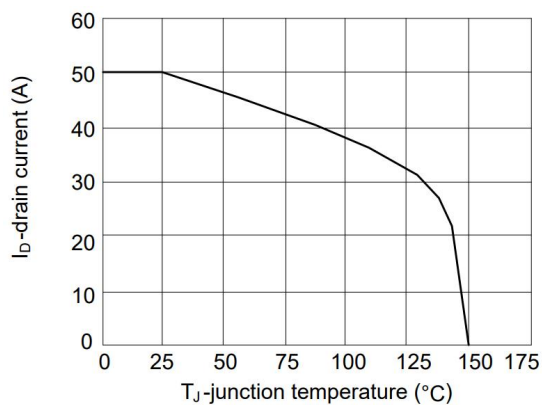


Figure 8: ID Current- Junction Temperature

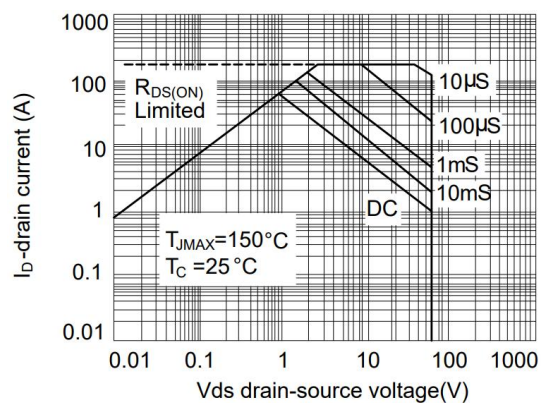


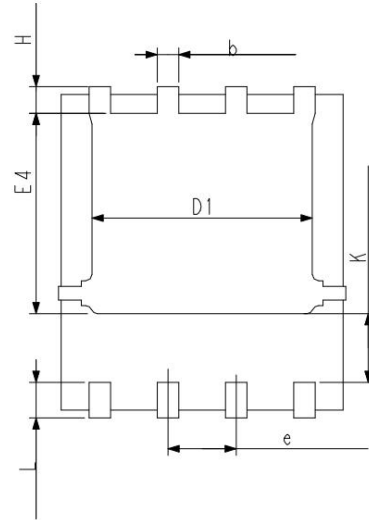
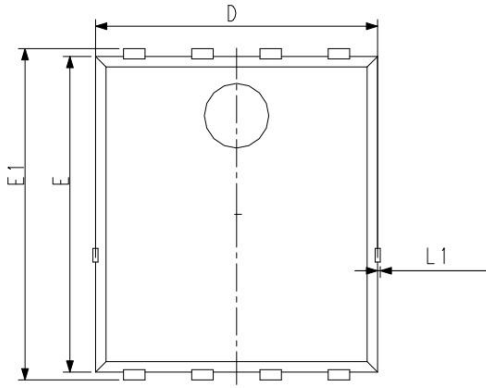
Figure 9: Safe Operation Area



外形尺寸 PACKAGE MECHANICAL DATA

PDFN5X6-8L

单位 Unit: mm



SYMBOL	Min	NOM	Max
A	0.90	1.10	1.30
c	0.154	0.254	0.354
D	4.90	5.20	5.50
E	5.56	5.86	6.16
D1	3.80	4.10	4.30
E1	5.85	6.15	6.45
b	0.20	0.40	0.60
K	1.10	1.30	1.50
e	1.07	1.27	1.37
E4	3.52	3.72	3.92
L	0.36	0.66	0.76
L1	--	--	0.12
H	0.30	0.50	0.70



版本更新 Version updates

版本号 Edition	时间 Date	更新记录



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