

HMT200D03A3S

-30V Dual Independent P-Channel Power MOSFETs

Product features/产品特点

- Dual Independent P-Channel MOSFETs In A Single Package
单封装内集成两颗独立的 P 沟道 MOSFETs
- Low gate charge
低栅极电荷
- Low Crss
低反向传输电容 (Crss)
- Fast switching
快速开关
- 100% avalanche tested
100% 经过雪崩测试
- Improved dv/dt capability
提升的 dv/dt 能力
- Halogen free, RoHS compliant
无卤, 符合RoHS

Applications/应用领域

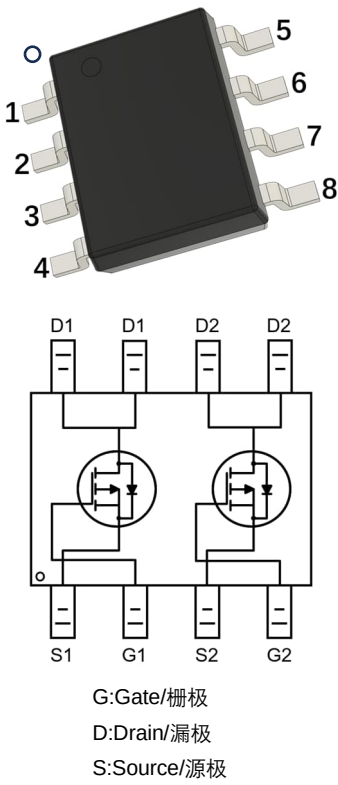
- Battery Protection and Management
电池保护与管理
- Load Switch
负载开关
- DC-DC Converters
DC-DC 转换器
- Power Management
电源管理

Key performance parameters/关键性能参数

Parameter	Value	Unit
V _{DSS}	-30	V
R _{DS(on),max}	20	mΩ
I _{DM}	-128	A

Package parameters/封装信息

Type/型号	Package/封装	Marking/标识	Packaging method/包装方式
HMT200D03A3S	SOP-8L	HMT200D03S	Tape and Reel/卷带包装



-30V Dual Independent P-Channel Power MOSFETs HMT200D03A3S



1. Maximum ratings at $T_{vj}=25^{\circ}\text{C}$, unless otherwise specified. Data per single MOSFET.

最大额定值 默认 $T_{vj}=25^{\circ}\text{C}$ 除非另有说明。以下参数均基于单颗 MOSFET 芯片。

Table 1 Maximum ratings/最大额定值

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value 值	Unit 单位
Drain-source voltage 漏极-源极电压	V_{DSS}	$T_{vj}\geq 25^{\circ}\text{C}$	-30	V
Drain current ¹ 连续漏极电流	I_D	$T_c=25^{\circ}\text{C}$	-32	A
		$T_c=100^{\circ}\text{C}$	-20	
Peak drain current ² 峰值漏极电流	I_{DM}	$T_c=25^{\circ}\text{C}$	-128	A
Continuous diode current ¹ 连续二极管电流	I_S	$T_c=25^{\circ}\text{C}$	-32	A
Peak diode current ² 峰值二极管电流	I_{SM}	$T_c=25^{\circ}\text{C}$	-128	A
Maximum gate source voltage 栅源最大电压	$V_{GS,MAX}$		± 20	V
Avalanche energy, single pulse 单脉冲雪崩能量	E_{AS}	$L=0.5\text{mH}, I_{AS}=14.7\text{A}$	54	mJ
Power dissipation 总耗散功率	P_{tot}	$T_c=25^{\circ}\text{C}$	37	W

1. Limited by $T_{vj(max)}$ /受限于最大结温

2. Pulse width t_p limited by $T_{vj(max)}$ /脉宽受限于最大结温



2. Thermal characteristics Data per single MOSFET.

热特性 以下参数均基于单颗MOSFET芯片。

Table 2 Thermal characteristics/热特性

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Storage Temperature 存储温度	T _{stg}		-55		150	°C
Operating junction Temperature 工作结温	T _{vj}		-55		150	°C
Thermal resistance, junction-case 结-壳热阻	R _{th(j-c)}				3.41	°C/W
Thermal resistance, junction-ambient 结-环境热阻	R _{th(j-a)}				85	°C/W
Soldering temperature, reflow solderin 焊接温度, 回流焊	T _{sold}	reflow MSL1			260	°C



3. Electrical characteristics at $T_{vj} = 25^{\circ}\text{C}$, unless otherwise specified. Data per single MOSFET.

电气特性 默认 $T_{vj} = 25^{\circ}\text{C}$ 除非另有说明。以下参数均基于单颗 MOSFET 芯片。

Table 3 Static characteristics/静态特性

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Drain-source breakdown voltage 漏源击穿电压	$V_{(BR)DSS}$	$I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$	-30			V
Gate threshold voltage 门极开启阈值电压	$V_{GS(th)}$	$I_D = -250\mu\text{A}, V_{DS} = V_{GS}$	-1.0	-1.6	-2.2	V
Drain-source on-state resistance 漏极-源极导通电阻	$R_{DS(on)}$	$I_D = -15\text{A}, V_{GS} = -10\text{V}$		15	20	m Ω
		$I_D = -10\text{A}, V_{GS} = -4.5\text{V}$		24	33	
Zero gate voltage drain current 集电极-发射极漏电	I_{DSS}	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$			-1	μA
Gate to source Leakage current 门极-源极漏电流	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = 20\text{V}$			100	nA
		$V_{DS} = 0\text{V}, V_{GS} = -20\text{V}$			100	

-30V Dual Independent P-Channel Power MOSFETs HMT200D03A3S



Table 4 Dynamic characteristics/动态特性

Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Input capacitance 输入电容	C_{iss}	$V_{DS}=-15V$, $V_{GS}=0V$, $f=1MHz$		1254		pF
Output capacitance 输出电容	C_{oss}			168		
Reverse transfer capacitance 反向传输电容	C_{rss}			150		
Total gate charge 总栅极电荷	$Q_{G(tot)}$	$V_{DD}=-20V$, $I_D=-20A$, $V_{GS}=-10V$		26		nC
Gate source charge 栅-源极电荷	Q_{GS}			1.6		
Gate-drain charge 栅-漏极电荷	Q_{GD}			8		
Turn-on delay time 开启延迟时间	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-20V$ $I_D=-20A$ $R_G=10\Omega$		6.4		ns
Rise time 上升时间	t_r			12		ns
Turn-off delay time 关闭延迟时间	$t_{d(off)}$			34.5		ns
Fall time 下降时间	t_f			30		ns

Table 5 Reverse diode characteristics/体二极管反向特性

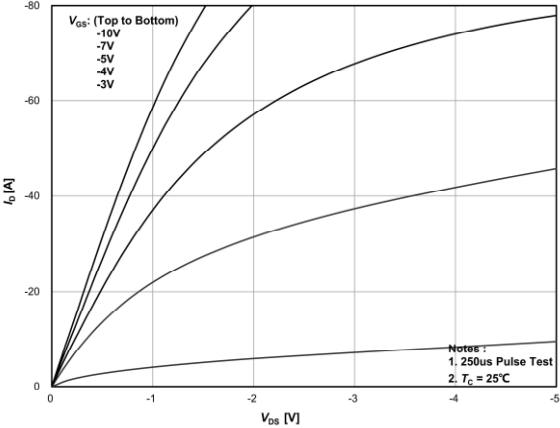
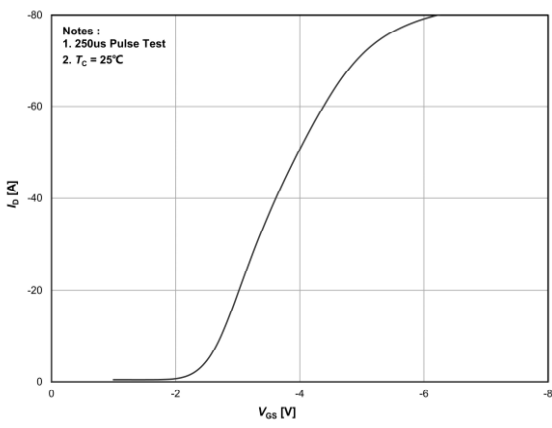
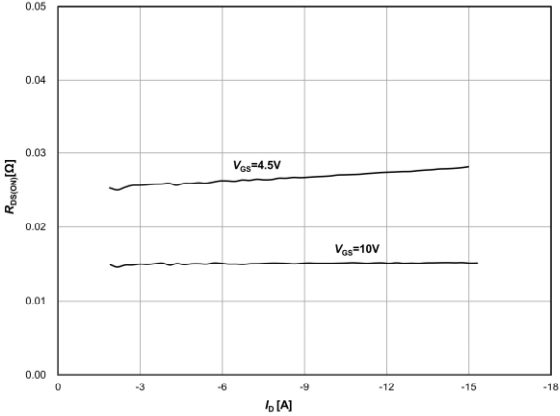
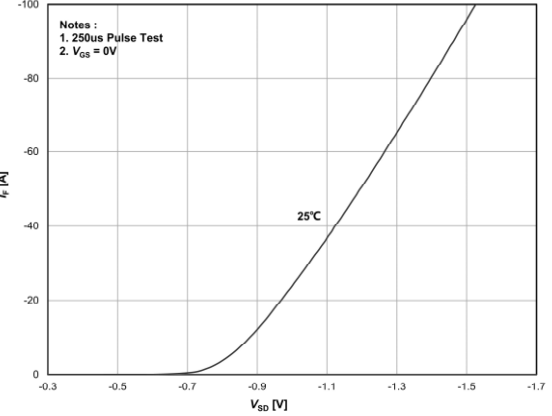
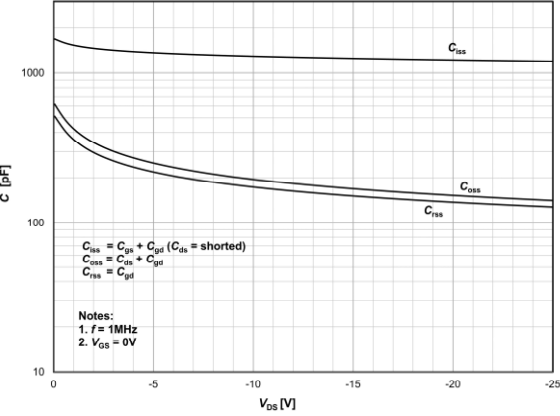
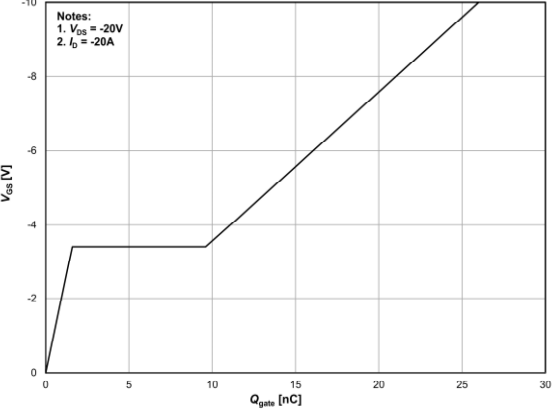
Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Drain-source reverse voltage 体二极管正向压降	V_{SD}	$I_S=-20A, V_{GS}=0V$		0.88	1.1	V
Diode Reverse Recovery Time 二极管反向恢复时间	t_{rr}	$V_R=-20V$ $I_F=20A$ $di_F/dt=300A/\mu s$		19.5		ns
Diode Reverse Recovery Charge 二极管反向恢复电量	Q_{rr}			40		nC
Peak reverse recovery current 反向恢复峰值电流	I_{rrm}			3.7		A

-30V Dual Independent P-Channel Power MOSFETs
HMT200D03A3S



4. Electrical characteristics diagrams Data per single MOSFET.

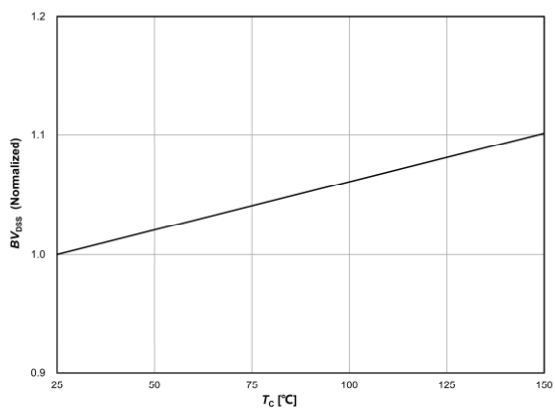
电气特性图表以下参数均基于单颗MOSFET芯片。

Typ.Output characteristic/输出特性 	Typ.Transfer characteristic/典型传输特性 
Typ.Drain-source on-state resistance/典型漏源导通电阻 	Typ.Reverse drain current characteristics/典型二极管特性 
Typ.Capacitances characteristic/典型电容特性 	Typ.Gate charge/典型门级电荷 

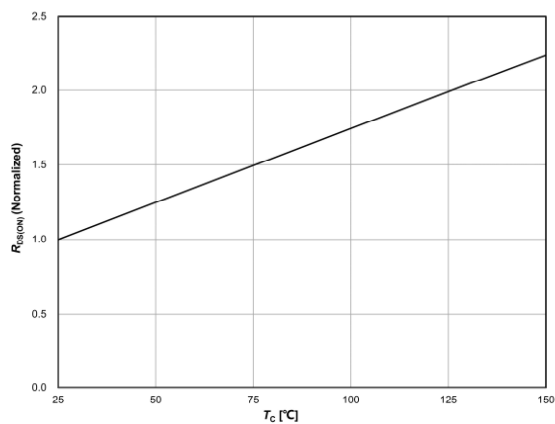
-30V Dual Independent P-Channel Power MOSFETs HMT200D03A3S



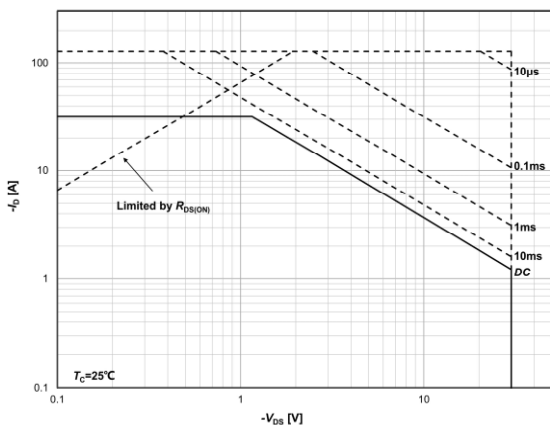
Breakdown voltage variation vs temperature/耐压与壳温特性



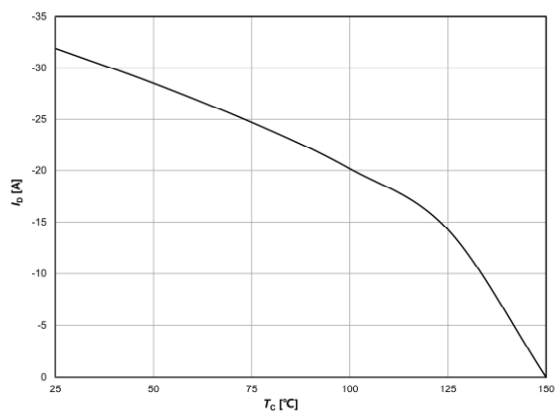
Typ.Drain-source on-state resistance/典型漏源导通电阻



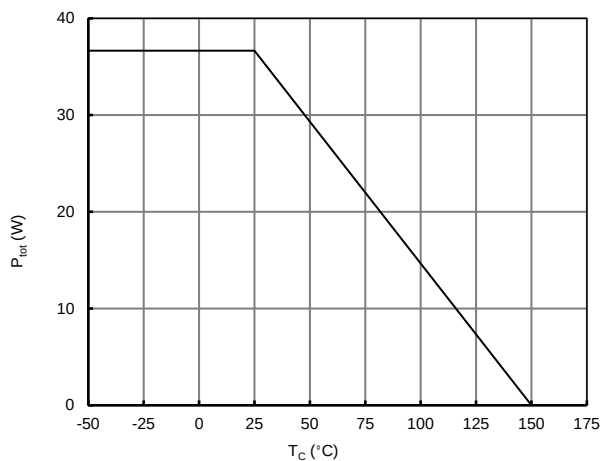
Safe operating area/安全工作区



Continuous drain current/连续漏极电流与壳温



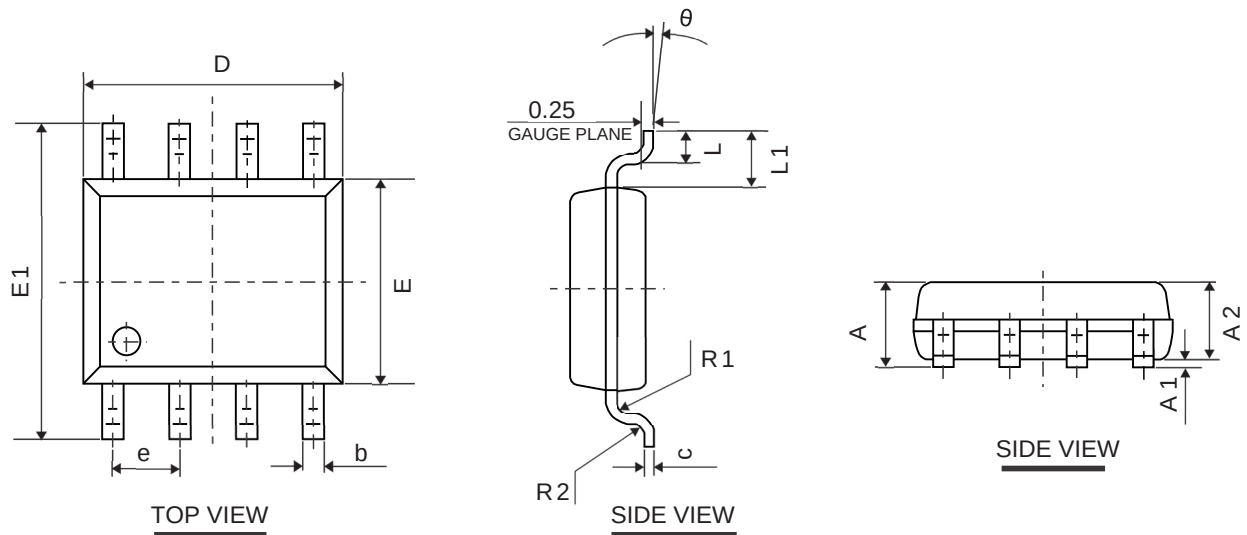
Power dissipation/耗散功率



5. Package outline

封装外形

Figure 1. Outline SOP-8L, dimensions in mm/SOP-8L外形尺寸 (毫米)



SYMBOL	MIN	NOM	MAX
A	1.4	1.6	1.8
A1	0.05	0.15	0.25
A2	1.35	1.45	1.55
b	0.3	0.4	0.5
c	0.153	0.203	0.253
D	4.8	4.9	5
E	3.8	3.9	4
E1	5.8	6	6.2
L	0.45	0.7	1
θ	2°	4°	6°
L1	1.04 REF		
e	1.27 BSC		
R1	0.07 TYP		
R2	0.07 TYP		



6. Revision history

修订历史

Table 6 Date and version number/日期与版本号

Date日期	Revision版本	Changes更改内容
2026-08-22	Rev.G 1.0	Target Datasheet (目标规格书)

7. Matters needing attention

注意事项

Appendix 1. Important Technical Guidance, Application Policy, and Copyright Notice/重要技术指南、应用规范与版权声明

[Data and Design Guidance]

The information provided herein, including typical values and application examples, serves as technical guidance only and should not be construed as a formal guarantee of product characteristics. This documentation is intended for qualified engineering personnel, who bear the ultimate responsibility for evaluating the product's suitability for their specific application and compliance with all industry standards.

[Copyright and Revision Management]

We reserve all rights to the intellectual property contained within this document, and unauthorized reproduction is prohibited. For the sake of continuous improvement, the content is subject to change without prior notice. Designers are obligated to consult and use the latest revision of this datasheet to ensure optimal performance and accuracy in their final product.

[Application Safety and Intellectual Property]

Our product supply does not confer any license or right under any third-party intellectual property. Customers are fully responsible for the patent clearance and functional safety of their end application. Furthermore, this product is not intended for use in life-critical or high-risk systems (such as Class III medical devices or aerospace control) unless explicitly approved by us through a dedicated high-reliability agreement.

【数据与设计指引】

本文件中提供的所有信息，包括任何典型值和应用示例，仅作为技术指引，不应被视为对产品特性的正式保证。本资料专供具备资质的工程技术人员使用，客户的技术部门应对产品在特定应用中的适用性和对所有行业标准的符合性负最终评估责任。

【版权与版本管理】

本文件的所有知识产权和版权均归我方所有，严禁未经授权的复制与传播。为持续优化产品性能，本文件内容可能随时变更，恕不另行通知。设计人员有义务查阅并使用最新的版本数据手册，以确保设计准确性并实现最佳系统性能。

【应用安全与知识产权】

我方提供本产品，不应被视为授予任何第三方知识产权的许可或权利。客户应对其终端应用中的功能安全性、系统鲁棒性以及不侵犯任何第三方专利负全部责任。此外，本产品未被设计或认证用于生命维持或极高风险的关键系统。在将本产品用于此类高可靠性应用之前，客户必须设计充分的冗余和安全机制，并事先与我方签署专门的高可靠性供货协议。