HM4406Q

30V N-Channel Enhancement-Mode Mosfet　　30V N 沟道增强型 MOS 管

VDS= 30 V

RDS(ON), Vgs@10.0V, Ids@12.0A = 9.0mΩ

RDS(ON), Vgs@4.5V, Ids@10.0A = 15.0mΩ

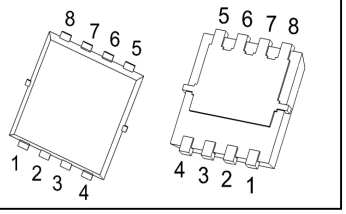
Features　特性

Advanced trench process technology　高级的加工技术

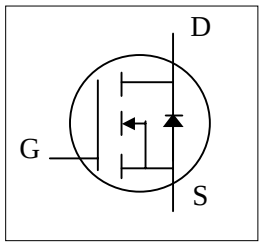
High Density Cell Design For Ultra Low On-Resistance　极低的导通电阻高密度的单元设计

High Power and Current handing capability　大功率高电流

PDFN 3.3×3.3-8L



Marking



Maximum Ratings and Thermal Characteristics (T_A = 25 °C unless otherwise noted) 25 °C 极限参数和热特性

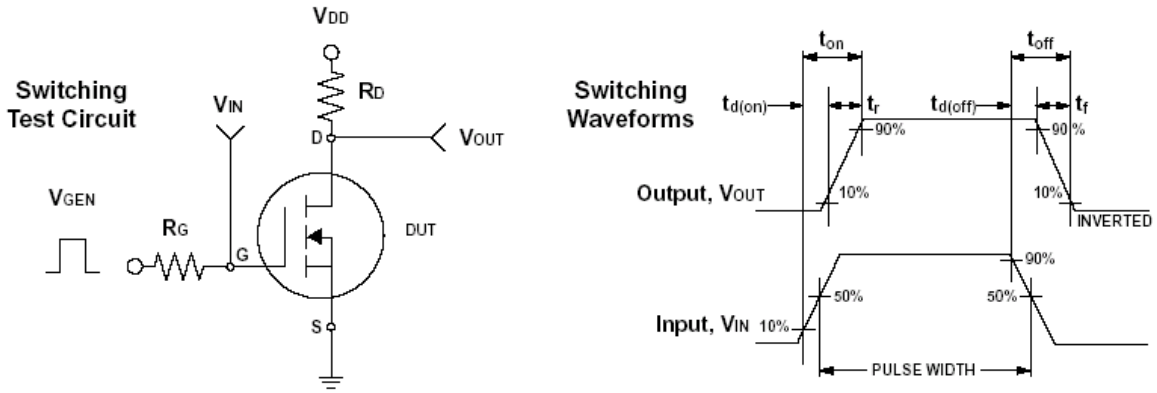
Parameter 极限参数		Symbol 符号	Limit 范围	Unit 单位
Drain-Source Voltage　漏源电压		V_{DS}	30	V
Gate-Source Voltage　栅源电压		V_{GS}	± 20	
Continuous Drain Current　连续漏极电流		I_D	30	A
Pulsed Drain Current　脉冲漏极电流		I_{DM}	100	
Maximum Power Dissipation　最大耗散功率	TA = 25°C	P_D	1.5	W
	TA = 75°C		0.8	
Operating Junction and Storage Temperature Range　使用及储存温度		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted)　结环热阻		$R_{\theta JA}$	83.5	°C/W

Device mounted on an FR4 PCB, single-sided copper, tin-plated and mounting pad for drain 6 cm^2, t ≤ 5 s.

ELECTRICAL CHARACTERISTICS 一般电气特性

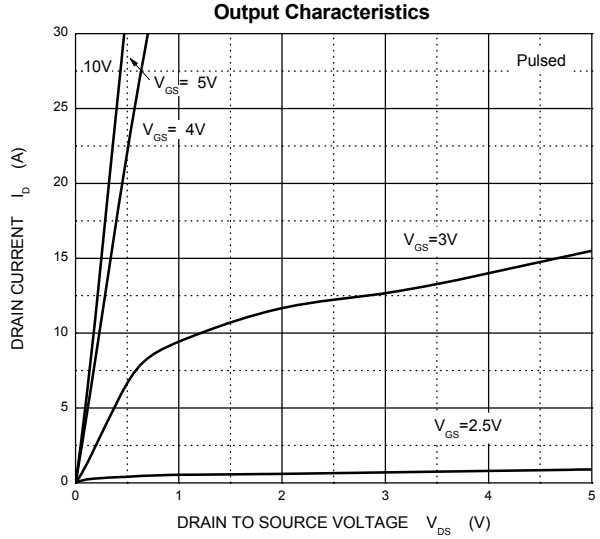
Parameter 参数	符号	Test Condition 测试条件	最小值	典型值	最大值	单位
Static 静态参数						
Drain-Source Breakdown Voltage 漏源击穿电压	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	30			V
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 10.0 V, I_D = 12.0 A		7.0	9.0	mΩ
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 4.5 V, I_D = 10.0A		9.0	15.0	
Gate Threshold Voltage 开启电压	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	1.0	1.6	3.0	V
Zero Gate Voltage Drain Current 零栅压漏极电流	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	uA
Gate Body Leakage 漏极短路时截止栅电流	I_{GSS}	V_{GS} = ± 20 V, V_{DS} = 0V			±100	nA
Forward Transconductance 正向跨导	g_{fs}	V_{DS} =5.0 V, I_D = 20 A		15		S
Dynamic 动态参数						
Total Gate Charge 栅极总电荷	Q_g	V_{DS} = 15V, I_D =12.0A V_{GS} = 4.5V		9.3		nC
Gate-Source Charge 栅-源极电荷	Q_{gs}			2.4		
Gate-Drain Charge 栅-漏极电荷	Q_{gd}			3.8		
Turn-On Delay Time 导通延迟时间	$t_{d(on)}$	V_{DD} = 15 V, R_G = 6Ω I_D = 12 A , V_{GS}= 4.5V		10.1		ns
Turn-On Rise Time 导通上升时间	t_r			12.3		
Turn-Off Delay Time 关断延迟时间	$t_{d(off)}$			30.4		
Turn-Off Fall Time 关断下降时间	t_f			6.5		
Input Capacitance 输入电容	C_{iss}	V_{DS} = 15 V, V_{GS} = 0V f = 1.0 MHz		1165		pF
Output Capacitance 输出电容	C_{oss}			172		
Reverse Transfer Capacitance 反向传输电容	C_{rss}			89.5		
Source-Drain Diode 源漏二极管参数						
Max. Diode Forward Current 最大正向电流	I_S				20	A
Diode Forward Voltage 正向电压	V_{SD}	I_S = 10 A, V_{GS} = 0V			1.2	V

Note: Pulse test: pulse width <= 300us, duty cycle<= 2% 注意：脉冲测试：脉冲宽度<= 300us 死区<= 2%

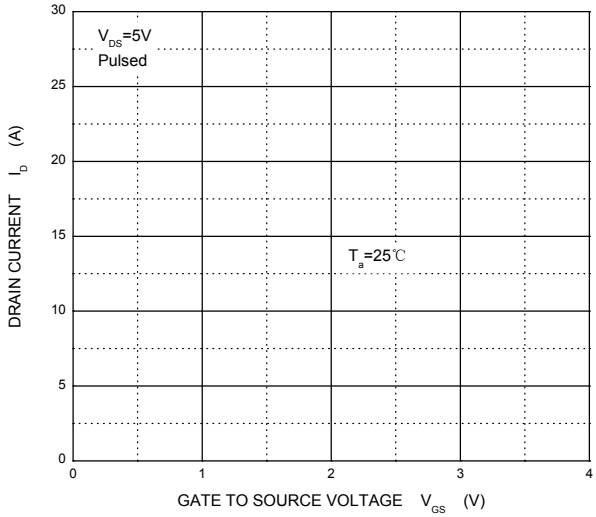


TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

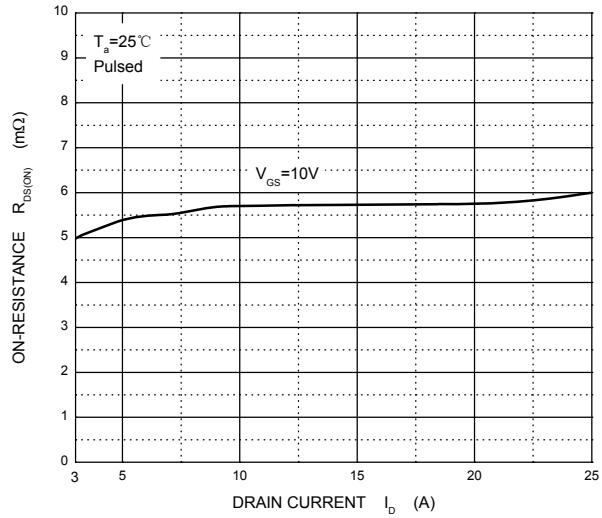
Output Characteristics



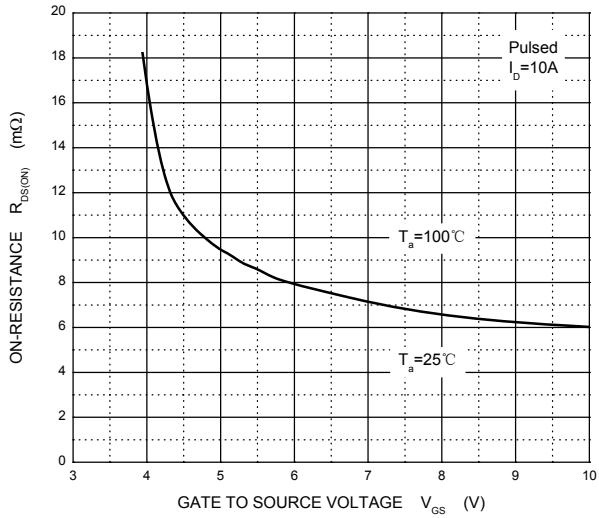
Transfer Characteristics



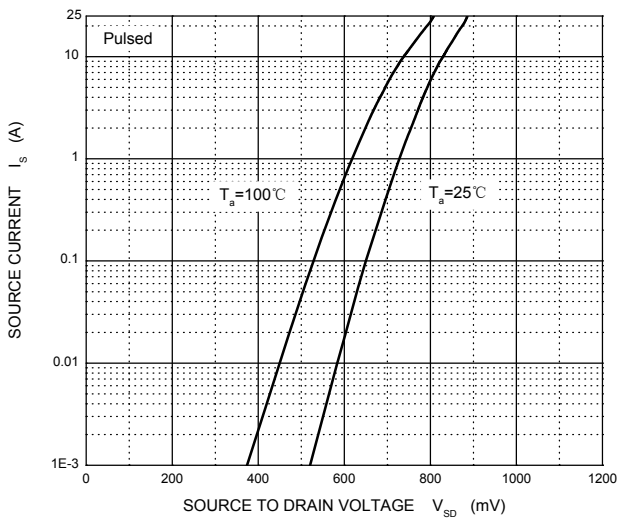
$R_{DS(ON)}$ —— I_D



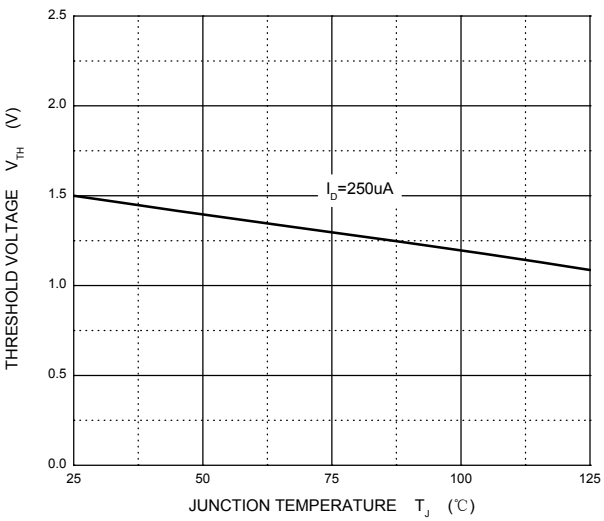
$R_{DS(ON)}$—— V_{GS}



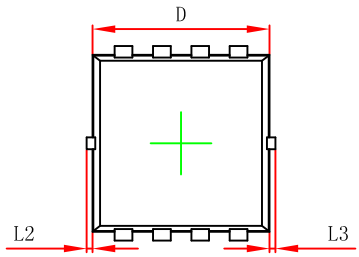
I_S —— V_{SD}



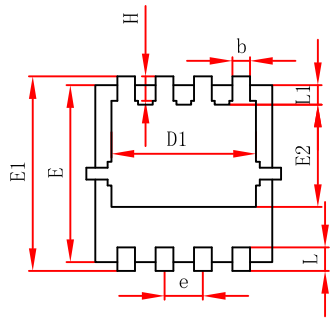
Threshold Voltage



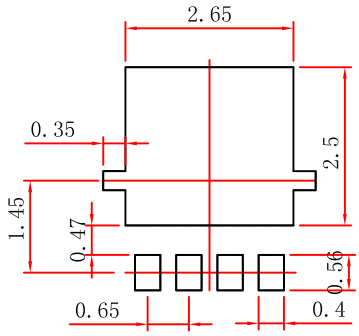
PDFN 3.3*3.3-8L Package Outline Dimensions

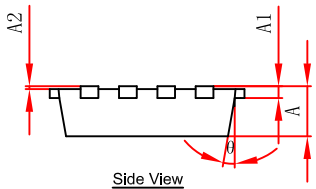


Top View
[顶视图]



Bottom View
[背视图]





Side View
[侧视图]

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.650	0.850	0.026	0.033
A1	0.152 REF.		0.006 REF.	
A2	0~0.05		0~0.002	
D	2.900	3.100	0.114	0.122
D1	2.300	2.600	0.091	0.102
E	2.900	3.100	0.114	0.122
E1	3.150	3.450	0.124	0.136
E2	1.535	1.935	0.060	0.076
b	0.200	0.400	0.008	0.016
e	0.550	0.750	0.022	0.030
L	0.300	0.500	0.012	0.020
L1	0.180	0.480	0.007	0.019
L2	0~0.100		0~0.004	
L3	0~0.100		0~0.004	
H	0.315	0.515	0.012	0.020
θ	9°	13°	9°	13°