YGMOS Technology Crop.

20V N-Channel Enhancement-Mode MOSFET 20V N 沟道增强型 MOS 管

VDS= 20V

RDS(ON), Vgs@1.8V, Ids@2A = 50mΩ

RDS(ON), Vgs@2.5V, Ids@5.5A = 32mΩ

RDS(ON), Vgs@4.5V, Ids@6.6A = 24mΩ

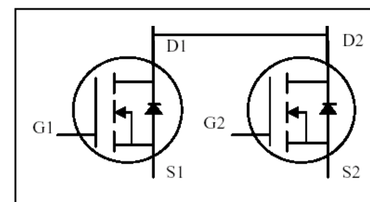
Features 特性

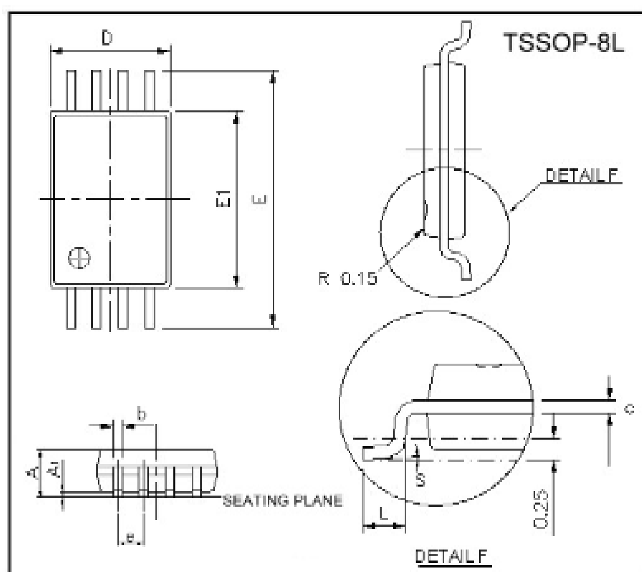
Advanced trench process technology 高级的加工技术

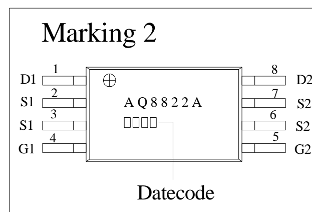
High Density Cell Design For Ultra Low On-Resistance 极低的导通电阻高密度的单元设计

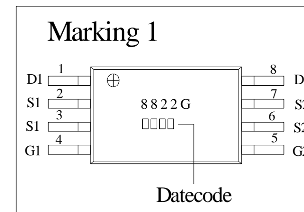
Ideal for Li ion battery pack applications 理想的锂电池应用

Package Dimensions 封装尺寸及外形图









REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.10 MAX.		L	0.45 REF.	
A1	0	0.10	L1	0.60 REF.	
A2	0.70	1.00	θ	0°	10°
c	0.12 REF.		b	0.30	0.50
D	2.70	3.10	e	0.95 REF.	
E	2.60	3.00	e1	1.90 REF.	
E1	1.40	1.80			

Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted) 25℃ 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}	20	V
Gate-Source Voltage 栅源电压		V_{GS}	± 12	
Continuous Drain Current 连续漏极电流		I_D	7	A
Pulsed Drain Current 脉冲漏极电流		I_{DM}	25	
Maximum Power Dissipation 最大耗散功率	TA = 25°C	P_D	2	W
	TA = 75°C		1.2	
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		$R_{\theta JA}$	62.5	°C/W

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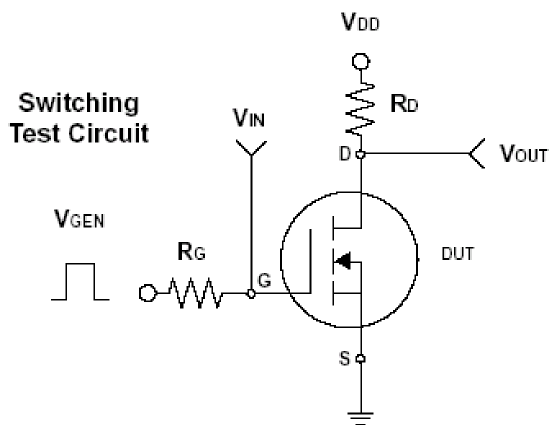
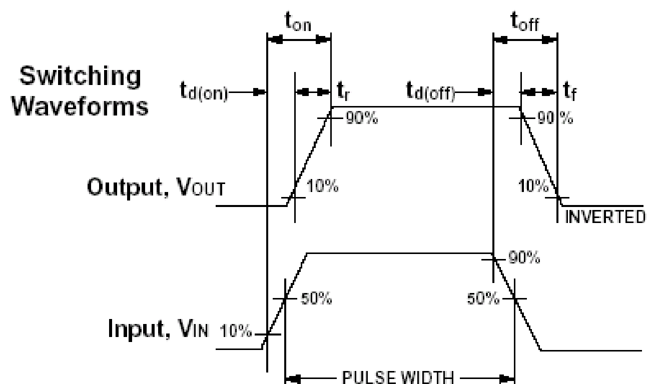
ELECTRICAL CHARACTERISTICS 一般电气特性

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	20			V
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 1.8V, I_D = 2A		36.0	50.0	mΩ
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 2.5V, I_D = 5.5A		25.0	32.0	mΩ
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 6.6A		19.0	24.0	mΩ
Gate Threshold Voltage 开启电压	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.4		1	V
Zero Gate Voltage Drain Current 零栅压漏极电流	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	uA
Gate Body Leakage 漏极短路时截止栅电流	I_{GSS}	V_{GS} = ± 12V, V_{DS} = 0V			±100	nA
Forward Transconductance 正向跨导	g_{fs}	V_{DS} = 5V, I_D = 7A		17.7	__	S
Dynamic 动态参数						
Total Gate Charge 栅极总电荷	Q_g	V_{DS} = 10V, I_D = 7A, V_{GS} = 4.5V		8.19	10	nC
Gate-Source Charge 栅-源极电荷	Q_{gs}			1		nC
Gate-Drain Charge 栅-漏极电荷	Q_{gd}			1.93		nC
Turn-On Delay Time 导通延迟时间	$t_{d(on)}$	V_{DD} = 10V, I_D = 1A, V_{GEN} = 4.5V, R_G = 6Ω		10.87		ns
Turn-On Rise Time 导通上升时间	t_r			6.03		ns
Turn-Off Delay Time 关断延迟时间	$t_{d(off)}$			28.07		ns
Turn-Off Fall Time 关断下降时间	t_f			4.33		ns
Input Capacitance 输入电容	C_{iss}	V_{DS} = 10V, V_{GS} = 0V, f = 1.0 MHz		836.88		pF
Output Capacitance 输出电容	C_{oss}			126.53		pF
Reverse Transfer Capacitance 反向传输电容	C_{rss}			92.78		pF
Source-Drain Diode 源漏二极管参数						
Max. Diode Forward Current 最大正向电流	I_S				2.5	A
Diode Forward Voltage 正向电压	V_{SD}	I_S = 1A, 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%





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Characteristics Curve 电气特性曲线

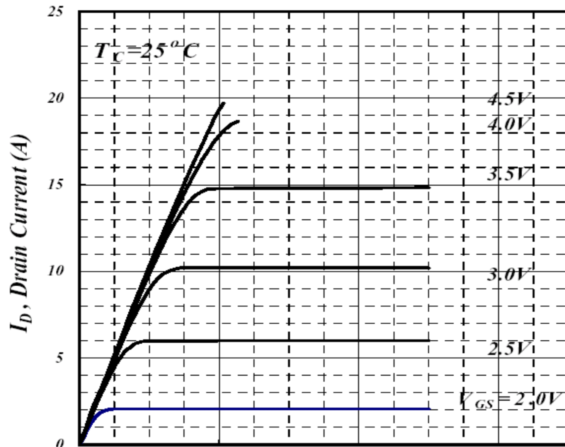

Fig 1. Typical Output Characteristics

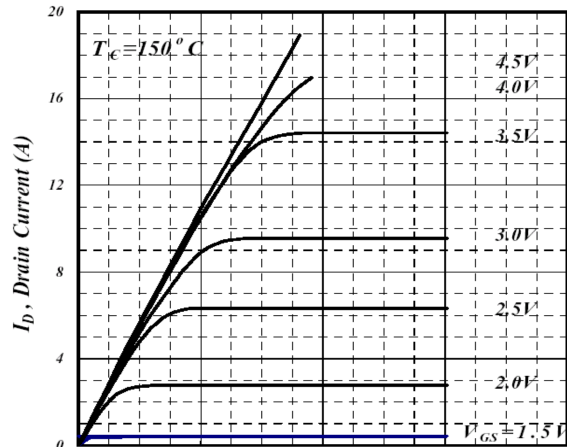

Fig 2. Typical Output Characteristics

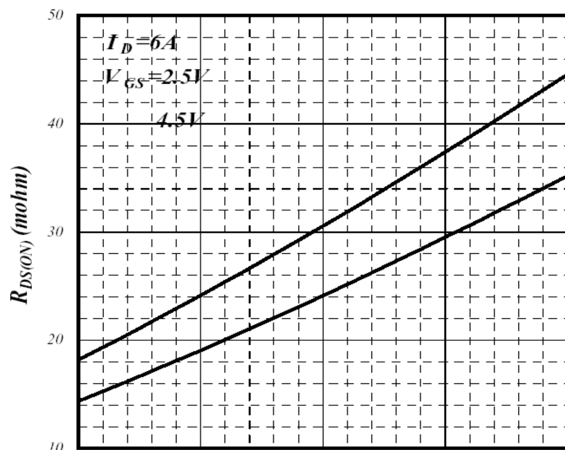

Fig 3. R_{DSON} v.s. Junction Temperature

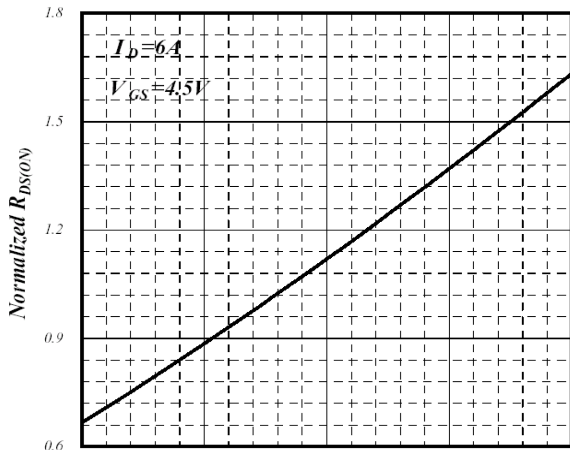

Fig 4. Normalized On-Resistance v.s. Junction Temperature

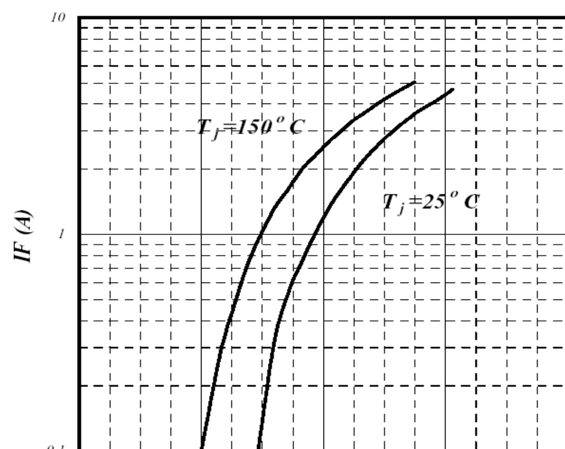

Fig 5. Forward Characteristics of Reverse Diode

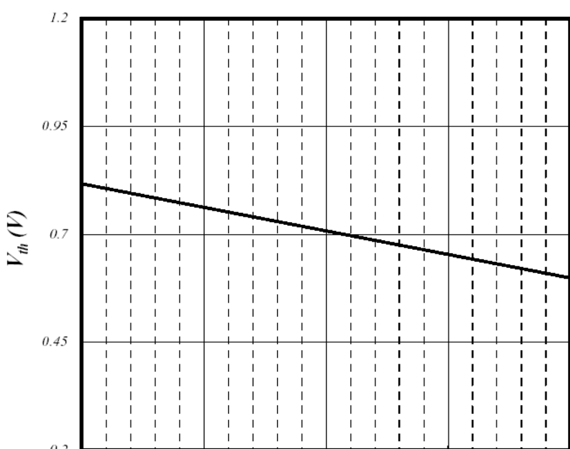

Fig 6. Gate Threshold Voltage v.s. Junction Temperature