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HM3416E

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

V_{DS}= 20 ID=4.2 A ESD Protected：2000V

$R_{DS(ON)}$, V_{gs} @ 1.8V, I_{ds} @ 3A = 36mΩ

$R_{DS(ON)}$, V_{gs} @ 2.5V, I_{ds} @ 3.8A=28mΩ

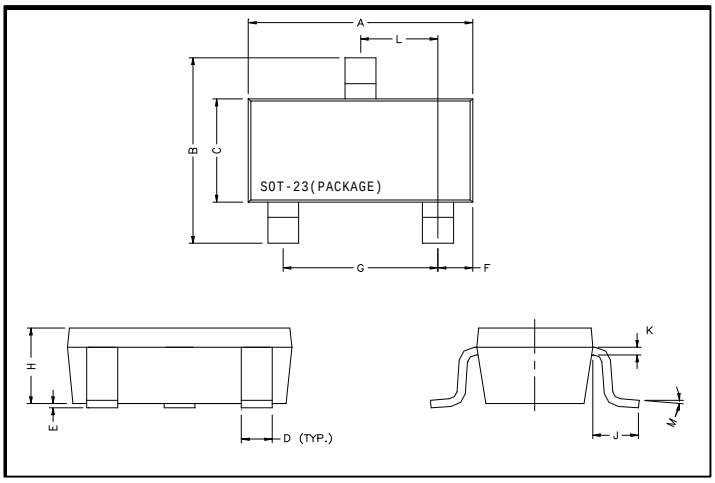
$R_{DS(ON)}$, V_{gs} @ 4.5V, I_{ds} @4.2A = 24mΩ

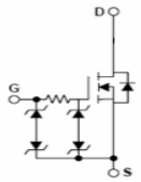
Features 特性

Advanced trench process technology 高级的加工技术

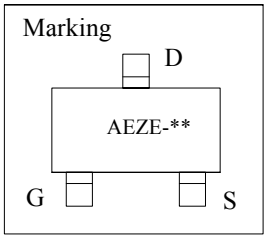
High Density Cell Design For Ultra Low On-Resistance 极低的导通电阻高密度的单元设计

Package Dimensions 封装尺寸及外形图





N-Channel MOSFET



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

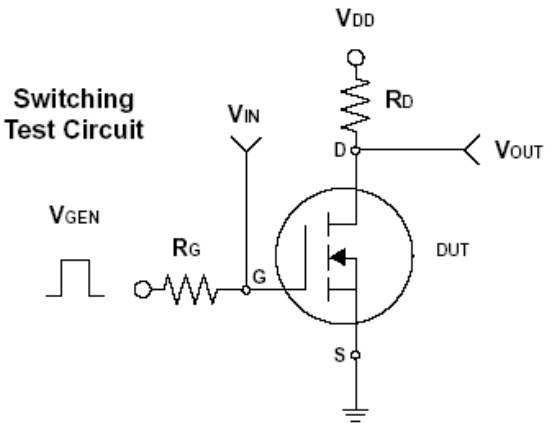
Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted) 25℃ 极限参数和热特性

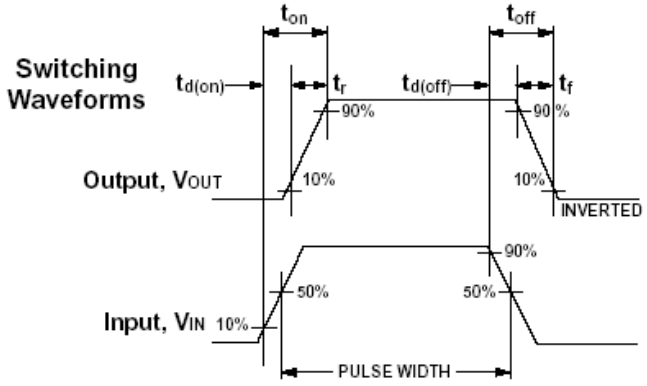
Parameter 极限参数		**Symbol 符号**	**Limit 范围**	**Unit 单位**
Drain-Source Voltage 漏源电压		V_{DS}	20	V
Gate-Source Voltage 栅源电压		V_{GS}	±12	
Continuous Drain Current 连续漏极电流		I_D	4.2	A
Pulsed Drain Current 脉冲漏极电流		I_{DM}	20	
Maximum Power Dissipation 最大耗散功率	TA = 25°C	P_D	1.4	W
	TA = 75°C		0.9	
Operating Junction 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		$R_{\theta JA}$	140	°C/W

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=3.0A		28.0	36.0	mΩ
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 2.5V, I_D = 3.8A		23.0	28.0	
Drain-Source On-State Resistance 漏源导通电阻	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =4.2A		20.0	24.0	
Gate Threshold Voltage 开启电压	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.4		1.0	V
Zero Gate Voltage Drain Current 零栅压漏极电流	I_{DSS}	V_{DS} = 16V, 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			± 10	uA
Gate Resistance G 极电阻	R_g	V_{DS} = 10V, f = 1.0MHz		1.5		Ω
Dynamic 动态参数						
Total Gate Charge 栅极总电荷	Q_g	V_{DS} = 10V, I_D = 4.2A V_{GS} = 4.5V		13		nC
Gate-Source Charge 栅-源极电荷	Q_{gs}			0.7		
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} = 10V, RL=1.5Ω I_D = 1A, V_{GEN} = 5V R_G = 3Ω		11.4		ns
Turn-On Rise Time 导通上升时间	t_r			12.4		
Turn-Off Delay Time 关断延迟时间	$t_{d(off)}$			50.5		
Turn-Off Fall Time 关断下降时间	t_f			19.2		
Input Capacitance 输入电容	C_{iss}	V_{DS} = 10V, V_{GS} = 0V f = 1.0 MHz		778		pF
Output Capacitance 输出电容	C_{oss}			135		
Reverse Transfer Capacitance 反向传输电容	C_{rss}			111		
Source-Drain Diode 源漏二极管参数						
Max. Diode Forward Current 最大正向电流	I_S				1	A
Diode Forward Voltage 正向电压	V_{SD}	I_S = 1.0A, V_{GS} = 0V		0.7	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 Characteristics (T_J =25℃ Noted)