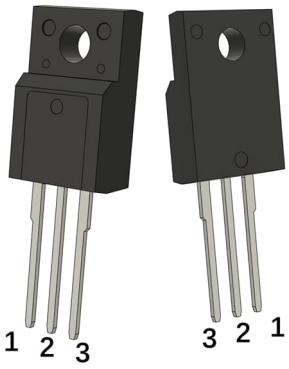
DATA SHEET

海明微半导体
HIMINGWAY

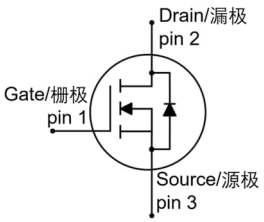
HC100N075J2Y

750V N-Channel SiC MOSFET



Product features/产品特点

- High blocking voltage with low on-resistance
  高反向耐压及低导通电阻
- High-speed switching with low capacitances
  低电容实现的快速开关特性
- Fast Reverse Recovery And Low Q_{rr}
  快速反向恢复与低反向恢复电荷Q_{rr}
- 0V turn-off V_{GS} for simple gate driving
  0V关断栅源电压，简化栅极驱动
- Avalanche Ruggedness
  出色的雪崩耐受能力
- Halogen free, RoHS compliant
  无卤，符合RoHS



Applications/应用领域

- Switch mode power supplies
  开关电源
- Battery Chargers
  电池充电器/充电桩
- DC/DC Converters
  DC/DC 转换器
- Motor Drives
  电机驱动器



Key performance parameters/关键性能参数

Parameter	Value	Unit
V_{DSS}	750	V
$R_{DS(on)}$,typ (V_{GS}=15V)	97	mΩ
I_{DM}	59	A

Package parameters/封装信息

Type/型号	Package/封装	Marking/标识	Packaging method/包装方式
HC100N075J2Y	TO220F-3L	HC100N075Y	Tube/管装

1. Maximum ratings at T_{vj}= 25°C, unless otherwise specified.

最大额定值默认T_{vj}= 25°C除非另有说明

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}≥25°C	750	V
Drain current[1] 连续漏极电流	I_D	T_C=25°C	23	A
		T_C=100°C	16	
Peak drain current[2] 峰值漏极电流	I_{DM}	T_C=25°C	59	A
Continuous diode current[1] 连续二极管电流	I_S	T_C=25°C	22	A
Peak diode current[2] 峰值二极管电流	I_{SM}	T_C=25°C	59	A
Maximum gate source voltage 栅源最大电压	$V_{GS.MAX}$		-10~22	V
Recommend gate source voltage 推荐的栅源电压	$V_{GS.op}$		0~15,18	V
Power dissipation 总耗散功率	P_{tot}	T_C=25°C	33	W
		T_C=100°C	16	
Mounting torque 安装扭矩	M_d	M3 screw M3螺钉	0.6	Nm

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
热特性

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		175	°C
Operating junction Temperature 工作结温	T_{vj}		-55		175	°C
Thermal resistance, junction-case 结-壳热阻	$R_{th(j-c)}$				4.6	°C/W
Thermal resistance, junction-ambient 结-环境热阻	$R_{th(j-a)}$				65	°C/W
Soldering temperature 焊接温度	T_{sold}				260	°C

3. Electrical characteristics at T_{vj}= 25°C, unless otherwise specified.

电气特性默认T_{vj}= 25°C除非另有说明

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=100μA,V_{GS}=0V		750			V
Gate threshold voltage 门极开启阀值电压	$V_{GS(th)}$	I_D=1mA,V_{DS}=V_{GS}	T_{vj}=25°C	3	3.9	5	V
			T_{vj}=175°C		3.2		
Drain-source on-state resistance 漏极-源极导通电阻	$R_{DS(on)}$	I_D=10A,$V_{GS(on)}$=15V	T_{vj}=25°C		97	130	mΩ
			T_{vj}=175°C		144		
		I_D=10A,$V_{GS(on)}$=18V	T_{vj}=25°C		81	105	
			T_{vj}=175°C		138		
Zero gate voltage drain current 集电极-发射极漏电	I_{DSS}	V_{DS}=750V,V_{GS}=0V	T_{vj}=25°C		0.1	50	μA
			T_{vj}=175°C		1		
Gate to source Leakage current 门极-源极漏电流	I_{GSS}	V_{DS}=0V,V_{GS}=22V,T_{vj}=25°C				100	nA
		V_{DS}=0V,V_{GS}=-10V,T_{vj}=25°C		-100			
Forward transconductance 正向跨导	g_{fs}	I_D=10A,V_{DS}=20V			9		S
Integrated gate resistor 内部门极电阻	R_G	f=1MHz			6		Ω

Table 4 Dynamic characteristics/动态特性

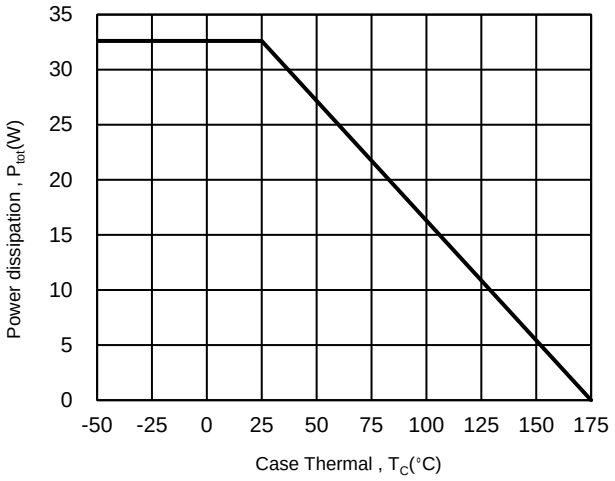
Parameter 参数	Symbol 符号	Test conditions 测试条件	Value/值			Unit 单位
			Min.	Typ.	Max.	
Input capacitance 输入电容	C_{iss}	V_{DS}=500V, V_{GS}=0V, f=100kHz		530		pF
Output capacitance 输出电容	C_{oss}			35		
Reverse transfer capacitance 反向传输电容	C_{rss}			3.3		
Coss stored energy 输出电容存储能量	E_{oss}	Calculated based on C_{oss}		5.3		μJ
Total gate charge 总栅极电荷	$Q_{G(tot)}$	V_{DD}=400V, I_D=10A, V_{GS}=0/15V		22		nC
Gate source charge 栅-源极电荷	Q_{GS}			6.8		
Gate-drain charge 栅-漏极电荷	Q_{GD}			10.9		

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

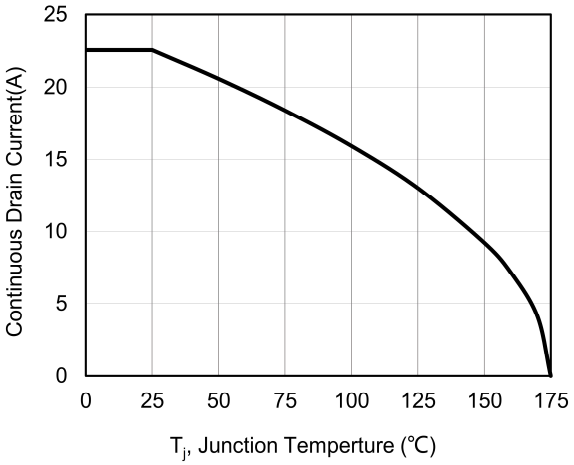
Parameter 参数	Symbol 符号	Test conditions 测试条件		Value/值			Unit 单位
				Min.	Typ.	Max.	
Drain-source reverse voltage 体二极管正向压降	V_{SD}	I_S=5A,V_{GS}=0V	T_{vj}=25°C		3.2		V
			T_{vj}=175°C		3		

4. Electrical characteristics diagrams
电气特性图表

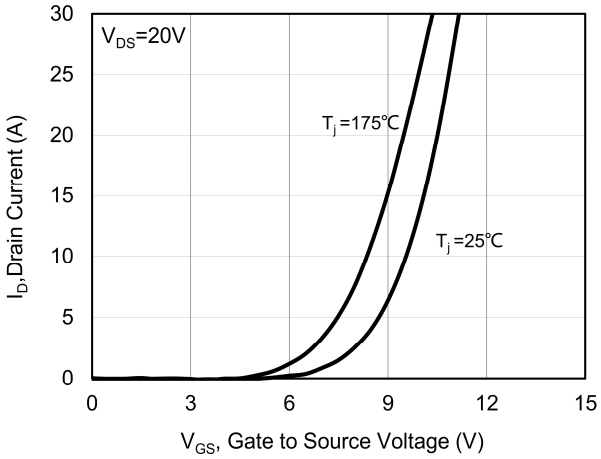
Power dissipation/耗散功率
$P_{tot}=f(T_C)$;



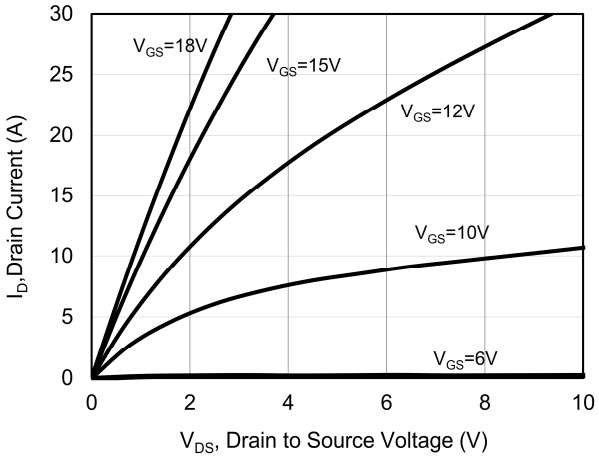
Continuous drain current/连续漏电与壳温
$I_{DS}=f(T_j)$;



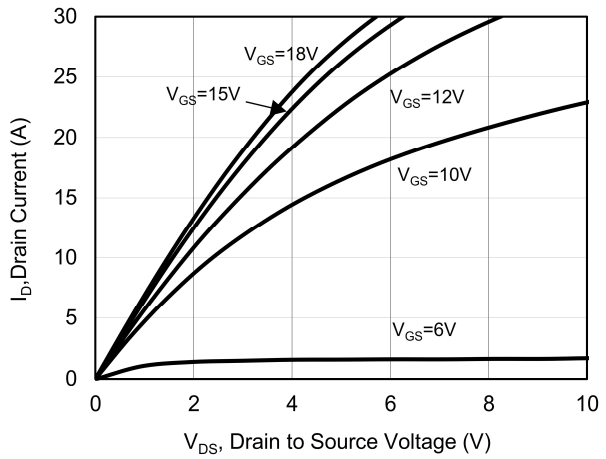
Typ.Transfer characteristics/传输特性
$I_{DS}=f(V_{GS})$;



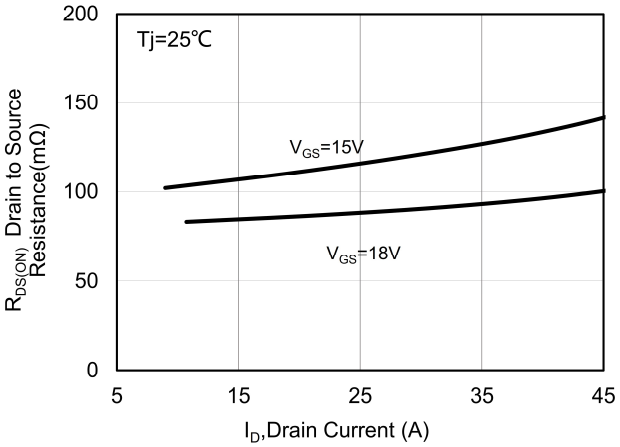
Typ.Output characteristic/典型输出特性
$I_{DS}=f(V_{DS})$; $T_{vj}=25°C$



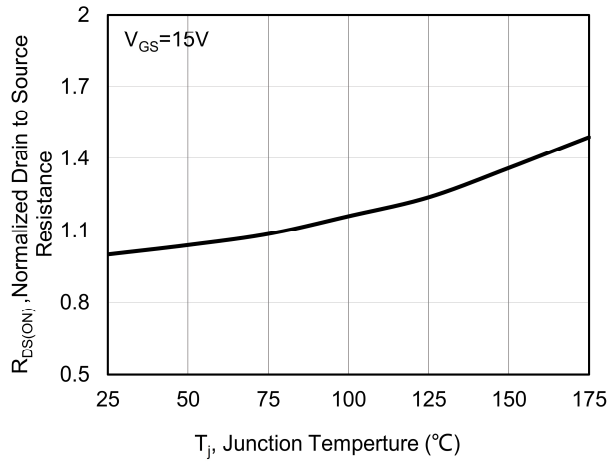
Typ.Output characteristic/典型输出特性
I_{DS}=f(V_{DS}); T_{vj}=175°C



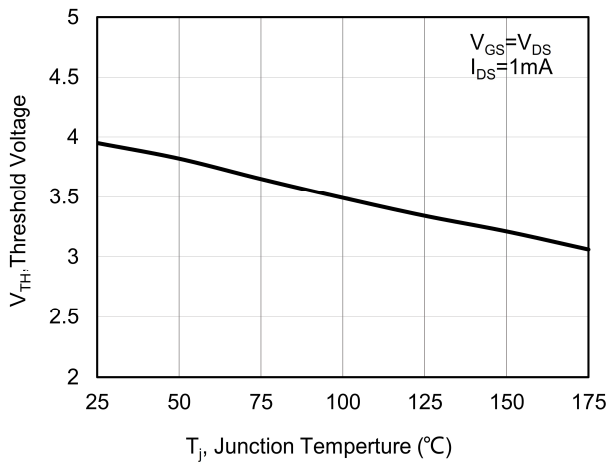
Typ.Drain-source on-state resistance/漏源导通电阻
$R_{DS(on)}$=f(I_{DS});



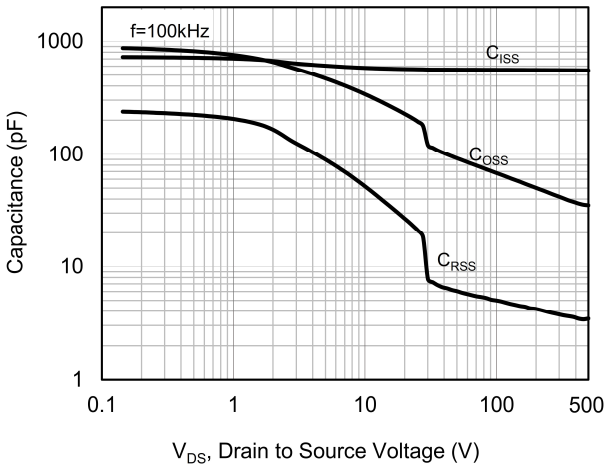
Typ.Drain-source on-state resistance/漏源导通电阻
$R_{DS(on)}$=f(T_j);



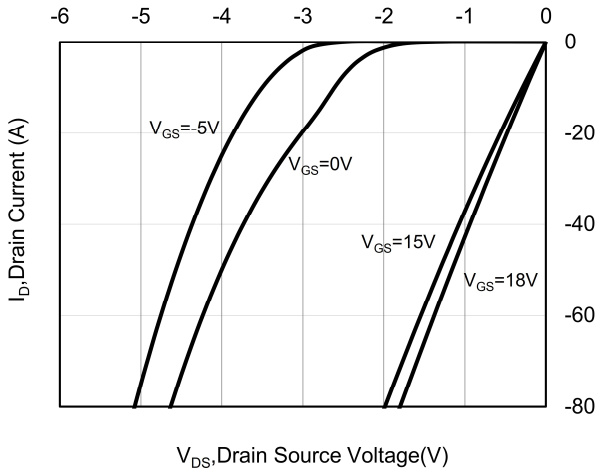
Typ.Gate threshold voltage/门级阈值电压结温特性
V_{GSth}=f(T_j);



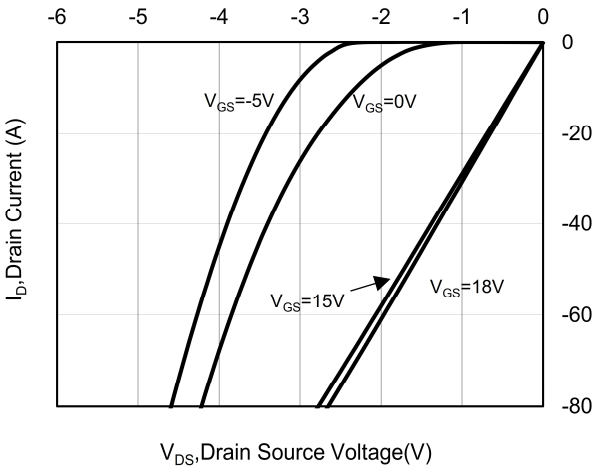
Typ.Capacitances/典型电容特性
C=f(V_{DS}); V_{GS}=0V



Typ.Reverse drain current characteristics/典型二极管特性
I_{SD}=f(V_{SD}); T_{vj}=25℃



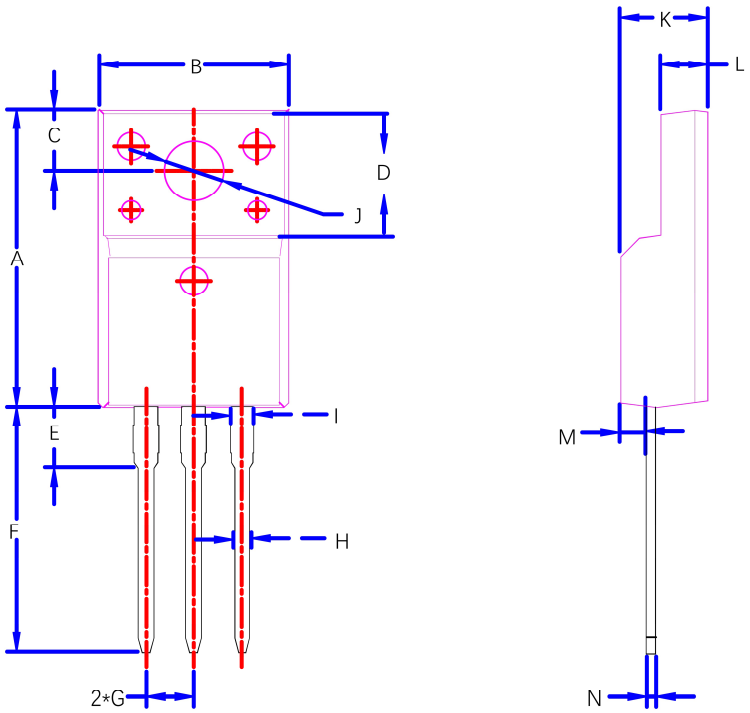
Typ.Reverse drain current characteristics/典型二极管特性
I_{SD}=f(V_{SD}); T_{vj}=175℃



5. Package outline

封装外形

Figure 1. Outline TO220F-3L, dimensions in mm/ TO220F-3L外形尺寸（毫米）



6.

7.

8.

9.

DIM	MIN	MAX
A	15.37	16.37
B	9.66	10.66
C	2.90	3.50
D	6.20	7.20
E	3.00	4.00
F	12.00	14.00
G	2.35	2.75
H	0.55	0.95
I	0.90	1.60
J	3.00	3.50
K	4.50	4.90
L	2.34	2.74
M	1.09	1.49
N	0.45	0.55

10. 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
2026-07-28	Rev.G 1.0	Target Datasheet（目标规格书）

11. 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.

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