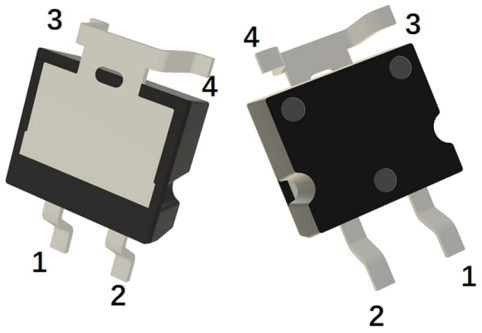
海明微半导体
HIMINGWAY

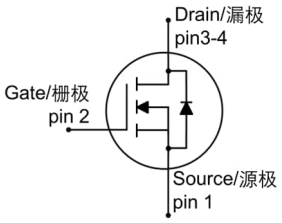
# HC026N075H6Y

**750V N-Channel SiC MOSFET**




## Product features/产品特点

- Top side cooling technology
  顶部散热技术
- 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
  快速反向恢复特性
- High Temperature Operation Capability $T_{vj}$=175°C
  具备优异的耐高温工作能力（结温最高可达175°C）
- Halogen free, RoHS compliant
  无卤，符合RoHS




## Applications/应用领域

- Switch mode power supplies
  开关电源
- EV Chargers
  电动汽车充电桩
- Solar Inverters
  光伏逆变器
- High voltage DC/DC converters
  高压 DC/DC 转换器

## Key performance parameters/关键性能参数

| Parameter | Value | Unit |
|---|---|---|
| $V_{DSS}$ | 750 | V |
| $R_{DS(on)}$,typ | 26.2 | mΩ |
| $I_{DM}$ | 256 | A |

**Package parameters/封装信息**

| Type/型号 | Package/封装 | Marking/标识 | Packaging method/包装方式 |
|---|---|---|---|
| HC026N075H6Y | TSC263-4L | HC026N075Y | 800pcs-Tape&Reel/卷带包装(单卷800颗) |

# 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<br>参数 | Symbol<br>符号 | Test conditions<br>测试条件 | Value<br>值 | Unit<br>单位 |
|---|---|---|---|---|
| Drain-source voltage<br>漏极-源极电压 | $V_{DSS}$ | $T_{vj}$≥25°C | 750 | V |
| Drain current[1]<br>连续漏极电流 | $I_D$ | $T_C$=25°C,$V_{GS}$=18V | 72 | A |
| | | $T_C$=100°C,$V_{GS}$=18V | 51 | |
| Peak drain current[2]<br>峰值漏极电流 | $I_{DM}$ | $T_C$=25°C | 256 | A |
| Continuous diode current[1]<br>连续二极管电流 | $I_S$ | $T_C$=25°C,$V_{GS}$=-5V | 54 | A |
| Peak diode current[2]<br>峰值二极管电流 | $I_{SM}$ | $T_C$=25°C,$V_{GS}$=-5V | 256 | A |
| Maximum gate source voltage<br>栅源最大电压 | $V_{GS.MAX}$ | | -10~22 | V |
| Recommend gate source voltage<br>推荐的栅源电压 | $V_{GS.op}$ | | -5~18 | V |
| Power dissipation<br>总耗散功率 | $P_{tot}$ | $T_C$=25°C | 392 | W |
| | | $T_C$=100°C | 196 | |

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<br>参数 | Symbol<br>符号 | Test conditions<br>测试条件 | Value/值 | | | Unit<br>单位 |
|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | |
| Storage Temperature<br>存储温度 | $T_{stg}$ | | -55 | | 175 | °C |
| Operating junction Temperature<br>工作结温 | $T_{vj}$ | | -55 | | 175 | °C |
| Thermal resistance, junction-case<br>结-壳热阻 | $R_{th(j-c)}$ | | | | 0.38 | °C/W |
| Thermal resistance, junction-ambient<br>结-环境热阻 | $R_{th(j-a)}$ | | | 30 | | °C/W |
| Soldering temperature, reflow solderin<br>焊接温度，回流焊 | $T_{sold}$ | reflow MSL1 | | | 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 | $V_{GS(th)}$ | $I_D$=10mA,$V_{DS}$=$V_{GS}$ | $T_{vj}$=25°C | 2 | 2.96 | 4 | V |
| | | | $T_{vj}$=175°C | | 2.15 | | |
| Drain-source on-state resistance 漏极-源极导通电阻 | $R_{DS(on)}$ | $I_D$=40A,$V_{GS(on)}$=15V | | | 33.4 | | mΩ |
| | | $I_D$=40A,$V_{GS(on)}$=18V | $T_{vj}$=25°C | | 26.2 | 34.1 | |
| | | | $T_{vj}$=175°C | | 33.6 | | |
| 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 | $g_{fs}$ | $I_D$=40A,$V_{DS}$=20V | | | 27 | | S |
| Integrated gate resistor 内部门极电阻 | $R_G$ | f=1MHz | | | 2.2 | | Ω |

**Table 4 Dynamic characteristics/动态特性**

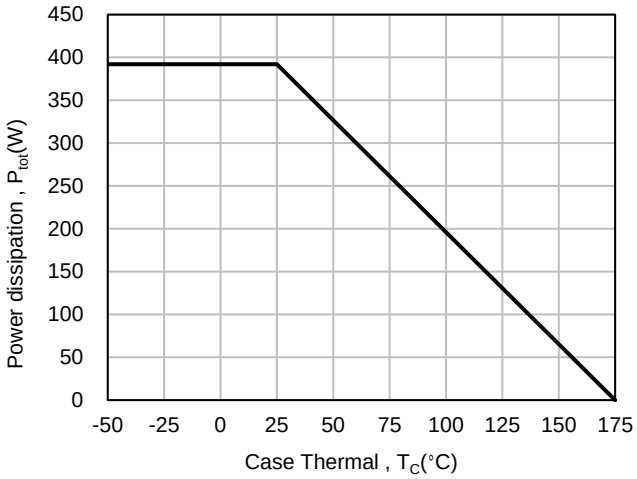
| Parameter 参数 | Symbol 符号 | Test conditions 测试条件 | | Value/值 Min. | Value/值 Typ. | Value/值 Max. | Unit 单位 |
|---|---|---|---|---|---|---|---|
| Input capacitance 输入电容 | $C_{iss}$ | $V_{DS}$=500V, $V_{GS}$=0V, f=100KHz | | | 2092 | | pF |
| Output capacitance 输出电容 | $C_{oss}$ | | | | 146 | | |
| Reverse transfer capacitance 反向传输电容 | $C_{rss}$ | | | | 6.8 | | |
| Coss stored energy 输出电容存储能量 | $E_{oss}$ | Calculated based on $C_{oss}$ | | | 23 | | μJ |
| Total gate charge 总栅极电荷 | $Q_{G(tot)}$ | $V_{DD}$=500V, $I_D$=40A, $V_{GS}$=-5/18V | | | 66 | | nC |
| Gate source charge 栅-源极电荷 | $Q_{GS}$ | | | | 28 | | |
| Gate-drain charge 栅-漏极电荷 | $Q_{GD}$ | | | | 6 | | |
| Turn-on delay time 开启延迟时间 | $t_{d(on)}$ | $V_{GE}$=-5/18V $V_{DD}$=500V $I_C$=40A $R_{G(ext)}$=8.2Ω | $T_{vj}$=25°C | | 12 | | ns |
| | | | $T_{vj}$=175°C | | 11 | | |
| Rise time 上升时间 | $t_r$ | | $T_{vj}$=25°C | | 17 | | ns |
| | | | $T_{vj}$=175°C | | 17 | | |
| Turn-off delay time 关闭延迟时间 | $t_{d(off)}$ | | $T_{vj}$=25°C | | 23 | | ns |
| | | | $T_{vj}$=175°C | | 29 | | |
| Fall time 下降时间 | $t_f$ | | $T_{vj}$=25°C | | 7 | | ns |
| | | | $T_{vj}$=175°C | | 8 | | |
| Turn-on switch loss 单次开启损耗 | $E_{on}$ | | $T_{vj}$=25°C | | 127 | | μJ |
| | | | $T_{vj}$=175°C | | 121 | | |
| Turn-off switch loss 单次关闭损耗 | $E_{off}$ | | $T_{vj}$=25°C | | 60 | | μJ |
| | | | $T_{vj}$=175°C | | 63 | | |

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

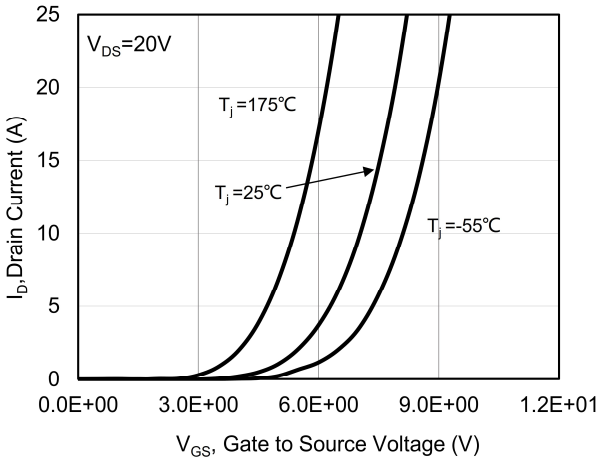
| Parameter 参数 | Symbol 符号 | Test conditions 测试条件 | | Value/值 Min. | Value/值 Typ. | Value/值 Max. | Unit 单位 |
|---|---|---|---|---|---|---|---|
| Drain-source reverse voltage 体二极管正向压降 | $V_{SD}$ | $I_S$=20A,$V_{GS}$=-5V | $T_{vj}$=25°C | | 3.8 | | V |
| | | | $T_{vj}$=175°C | | 3.4 | | |
| MOSFET forward recovery time MOSFET正向恢复时间 | $t_{fr}$ | $V_{GS}$=-5V $V_{DS}$=500V, $I_S$=40A, $di_S/dt$=-7540A/μs | $T_{vj}$=25°C | | 12 | | ns |
| | | | $T_{vj}$=175°C | | 16 | | |
| MOSFET forward recovery charge MOSFET正向恢复电荷 | $Q_{fr}$ | | $T_{vj}$=25°C | | 242 | | nC |
| | | | $T_{vj}$=175°C | | 538 | | |
| MOSFET peak forward recovery current MOSFET正向恢复峰值电流 | $I_{frm}$ | | $T_{vj}$=25°C | | 35 | | A |
| | | | $T_{vj}$=175°C | | 59 | | |

# 4. Electrical characteristics diagrams
## 电气特性图表

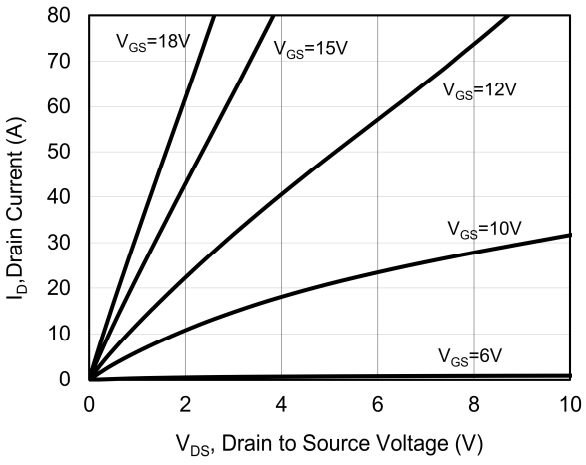
**Power dissipation/耗散功率**
**$P_{tot}=f(T_C)$;**



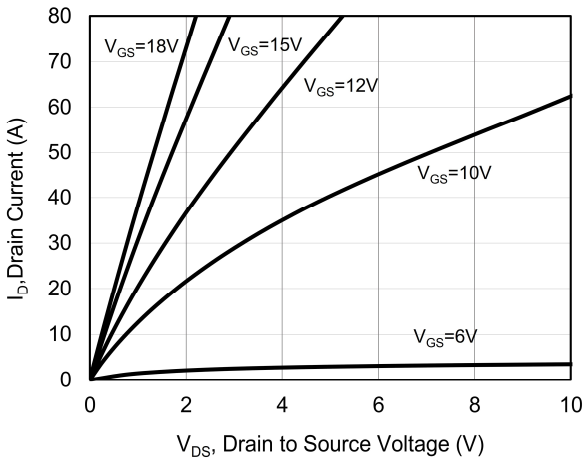

**Typ.Transfer characteristics/传输特性**
**$I_{DS}=f(V_{GS})$;**



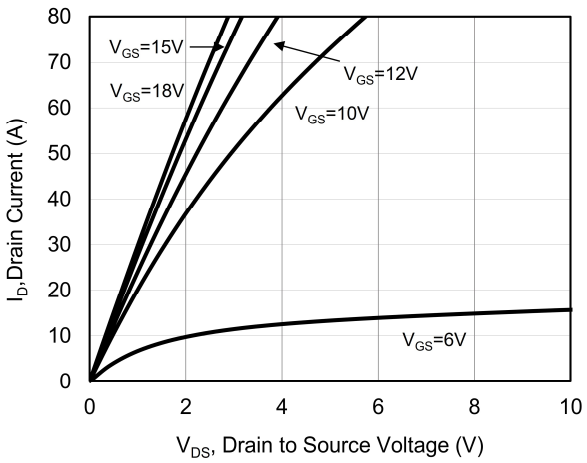

**Typ.Output characteristic/典型输出特性**
**$I_{DS}=f(V_{DS})$; $T_{vj}$=-55°C**



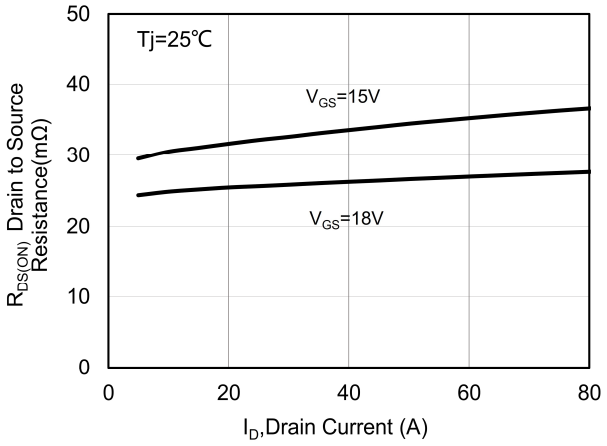

**Typ.Output characteristic/典型输出特性**
**$I_{DS}=f(V_{DS})$; $T_{vj}$=25°C**



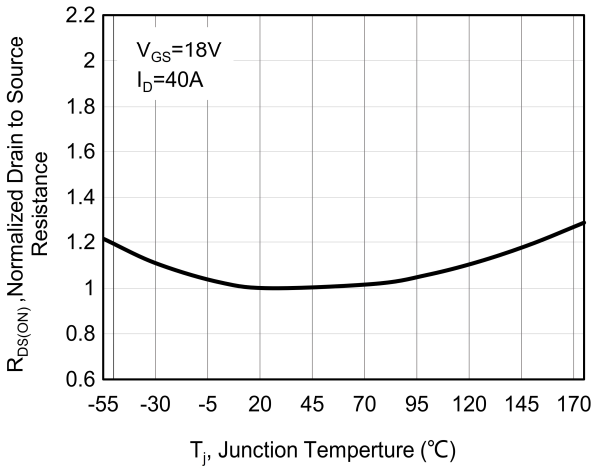
**Typ.Output characteristic/典型输出特性**
**$I_{DS}$=f($V_{DS}$); $T_{vj}$=175°C**



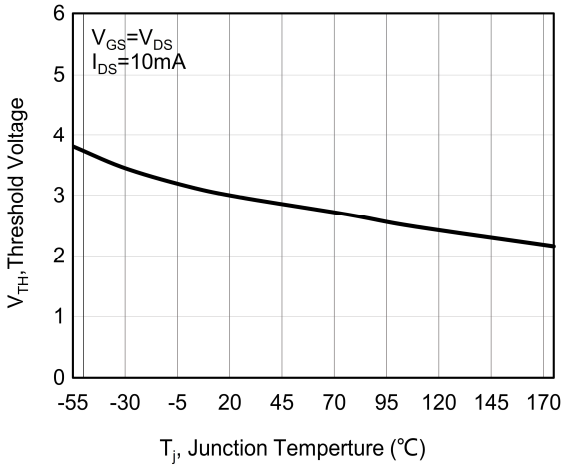

**Typ.Drain-source on-state resistance/漏源导通电阻**
**$R_{DS(on)}$=f($I_{DS}$);**



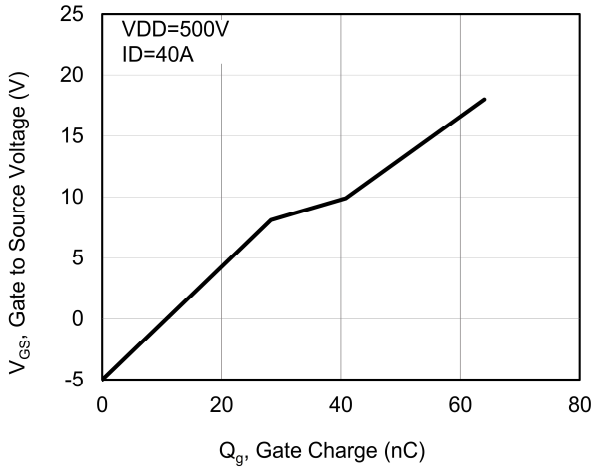

**Typ.Drain-source on-state resistance/漏源导通电阻**
**$R_{DS(on)}$=f($T_j$);**



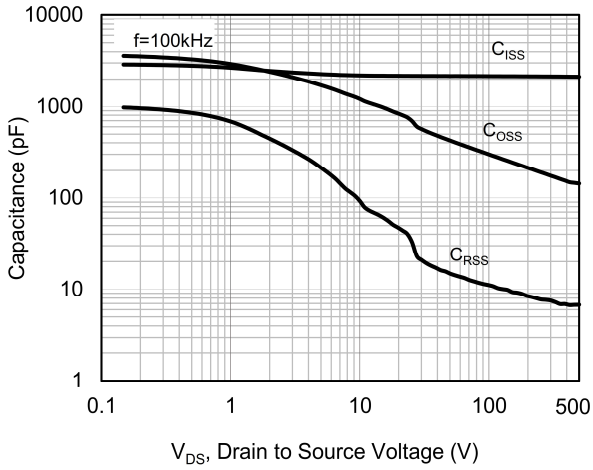

**Typ.Gate threshold voltage/门级阈值电压结温特性**
**$V_{GSth}$=f($T_j$);**



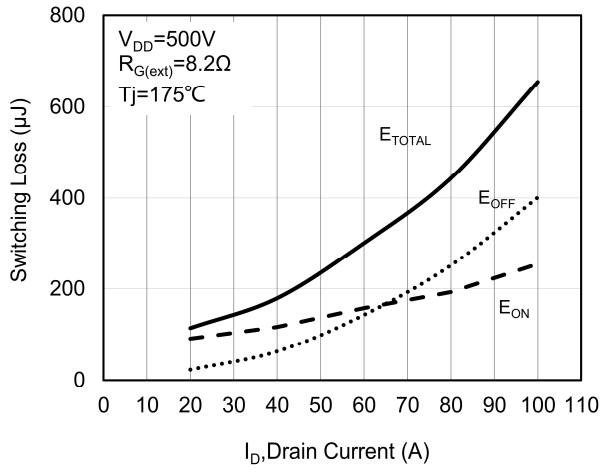
**Typ. Gate charge/典型门级电荷**
**$V_{GS}$=f($Q_G$);**



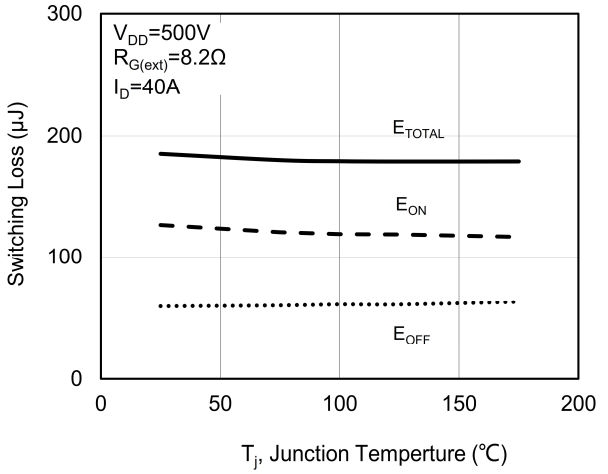

**Typ. Capacitances/典型电容特性**
**C=f($V_{DS}$); $V_{GS}$=0V**



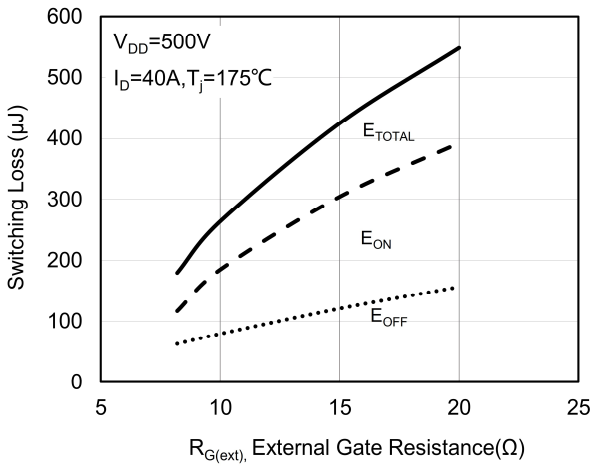

**Typ. Switching Losses vs current /动态损耗-电流特性**
**E=f($I_D$); $V_{GS}$=-5/18V**



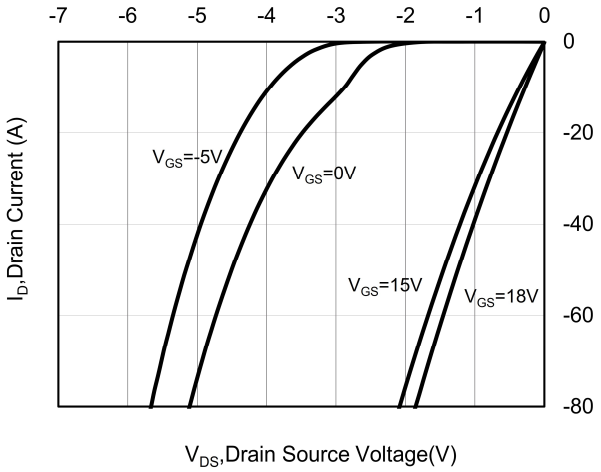

**Typ. Switching losses vs temperature/动态损耗-结温特性**
**E=f($T_j$);$V_{GS}$=-5/18V**



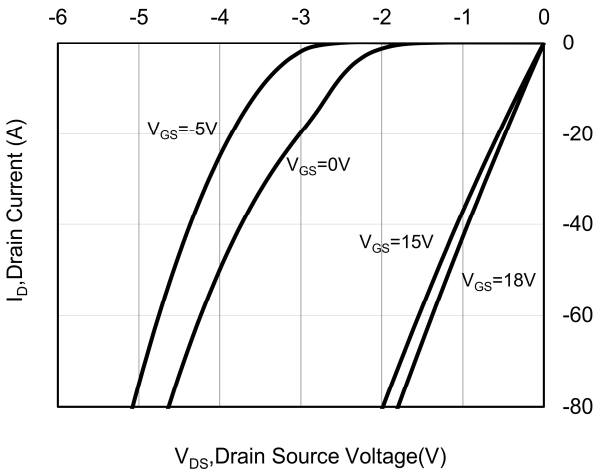
**Typ. Switching losses vs resistance/动态损耗-门级电阻特性**
**$E=f(R_G)$; $V_{GS}$=-4/18V**



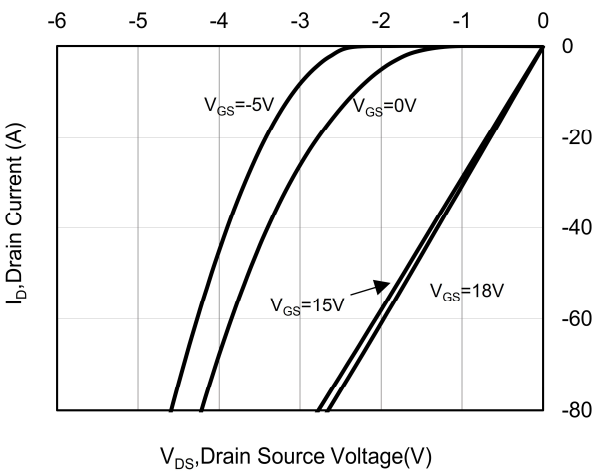

**Typ. Reverse drain current characteristics/典型二极管特性**
**$I_{SD}=f(V_{SD})$; $T_{vj}$=-55℃**




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

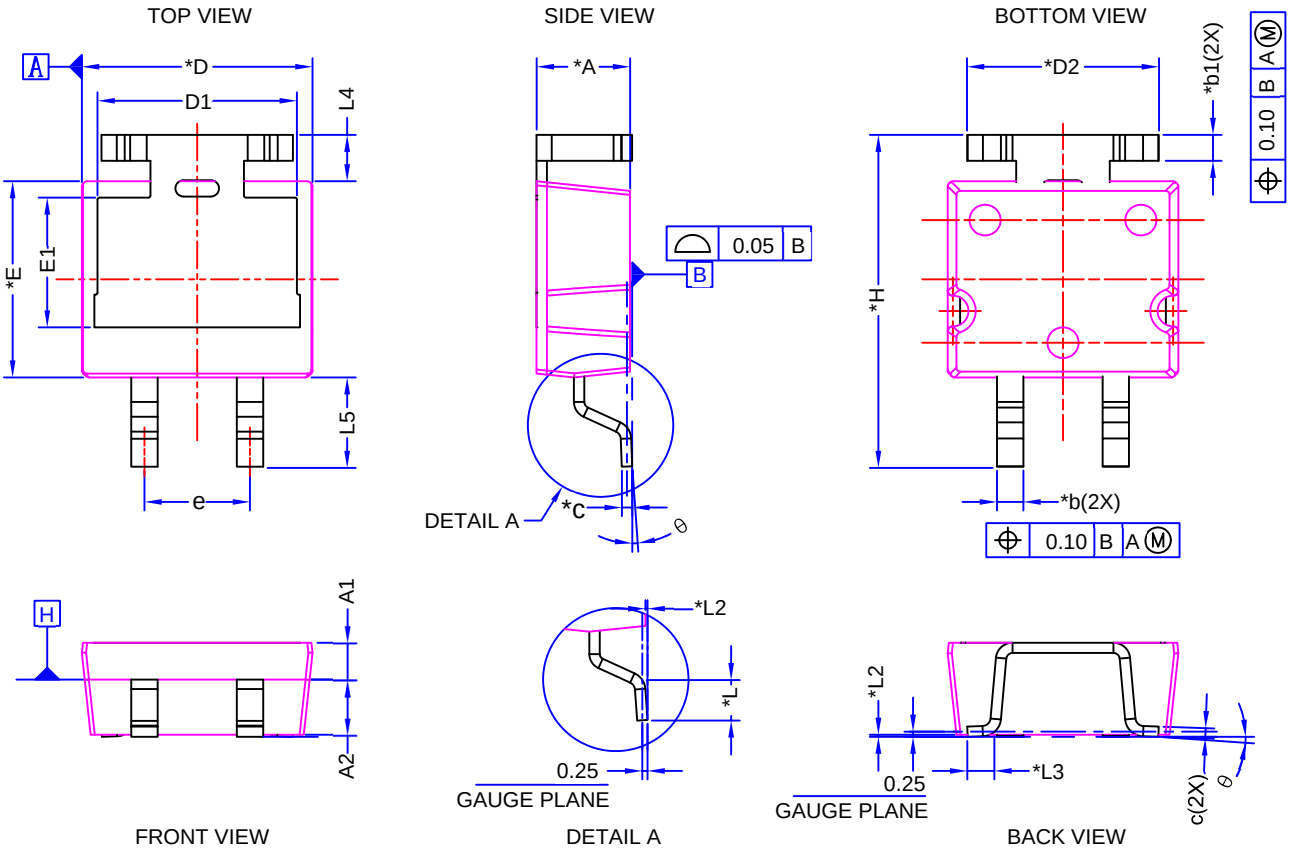



**Typ. Reverse drain current characteristics/典型二极管特性**
**$I_{SD}=f(V_{SD})$; $T_{vj}$=175℃**



# 5. Package outline
## 封装外形

**Figure 1. Outline TSC263-4L, dimensions in mm/TSC263-4L外形尺寸（毫米）**



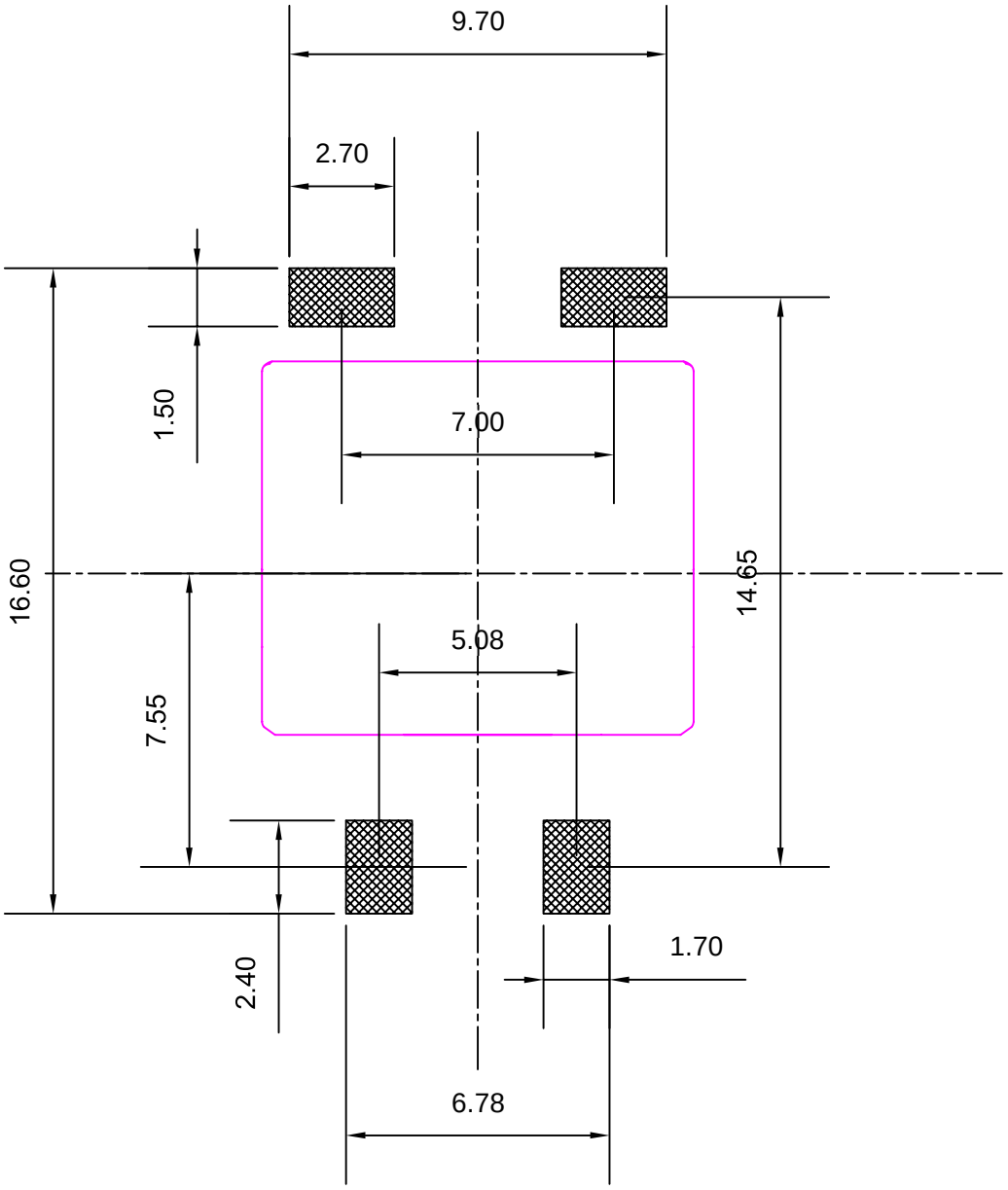

| DIM SYMBOL | MIN. | TYP. | MAX. | DIM SYMBOL | MIN. | TYP. | MAX. |
|---|---|---|---|---|---|---|---|
| *A | 4.40 | 4.50 | 4.60 | *E | 9.45 | 9.60 | 9.75 |
| A1 | 1.75 | 1.80 | 1.85 | E1 | 6.15 | 6.35 | 6.55 |
| A2 | 2.65 | 2.70 | 2.75 | e | 5.08 BSC | | |
| *b | 1.22 | 1.27 | 1.32 | *H | 16.02 | 16.22 | 16.42 |
| *b1 | 1.22 | 1.27 | 1.32 | *L | 1.70 | 1.90 | 2.10 |
| *c | 0.45 | 0.50 | 0.55 | *L2 | 0.05 | 0.10 | 0.15 |
| *D | 10.95 | 11.10 | 11.25 | *L3 | 1.10 | 1.30 | 1.50 |
| D1 | 9.50 | 9.60 | 9.70 | L4 | 2.27 REF | | |
| *D2 | 9.00 | 9.20 | 9.40 | L5 | 4.15 | 4.35 | 4.55 |
| | | | | Θ | 0° | - | 8° |

NOTES:
- ALL DIMENSIONS ARE IN MILLIMETER. ANGLES ARE IN DEGREE.
- DIMENSION "D" DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS. INTERLEAD FLASH SHALL NOT EXCEED 0.150 MM PER SIDE. DIMENSION "E" DOES NOT INCLUDE MOLD FLASH, GATE BURRS, THE GATE BURRS SHALL NOT EXCEED 0.15MM.
- DIMENSIONS D AND E ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.

注:
- 所有尺寸均以毫米为单位。角度以度为单位。
- 尺寸 D 不包括引脚间飞边或突出物。引脚间飞边在每侧不得超过0.15mm。尺寸 E 不包括模具飞边、浇口残余物，浇口残余物不得超过0.15mm。
- 尺寸 D、E 是在塑胶本体的最外极限确定的，不包括模具飞边、连接条残余、浇口残余和引脚间飞边，但包括塑胶本体顶部和底部之间可能存在的任何不匹配或错位。

## 6. Recommended Land Pattern
## 推荐焊盘尺寸

**Figure 2. TSC263-4L Effective Solderable Area for Reflow Soldering/ TSC263-4L 回流焊接有效可焊面积**




solder land/焊盘区域

Package Reference Centerline/封装参考中心线

dimensions in mm/单位为毫米

注:
所示焊盘尺寸仅供参考。为确保最佳散热性能及焊接质量，建议根据实际应用中的 PCB 板材、层数及散热设计对焊盘进行优化调整
The land pattern dimensions provided are for reference only. To achieve optimal thermal performance, actual design adjustments should be considered based on the specific PCB materials, layer stack-up, and thermal dissipation requirements.

# 7. 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） |

# 8. 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.

**【数据与设计指引】**

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