

# N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

## SIF8N65E

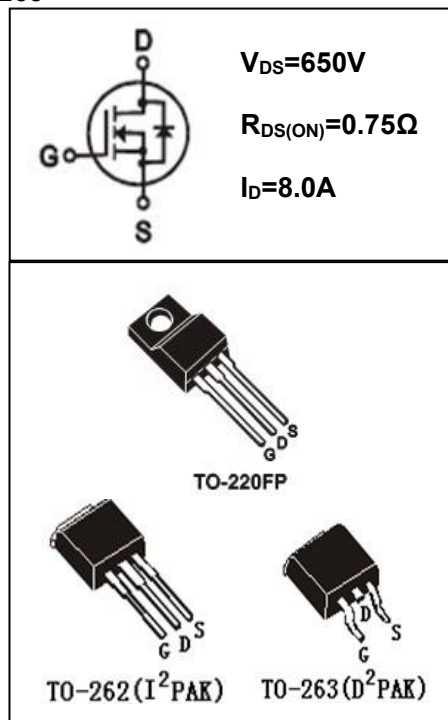
- 特点：热阻低 开关速度快 输入阻抗高 符合RoHS规范
- FEATURES: ■LOW THERMAL RESISTANCE ■FAST SWITCHING ■HIGH INPUT RESISTANCE  
■RoHS COMPLIANT
- 应用：电子镇流器 电子变压器 开关电源
- APPLICATION: ■ELECTRONIC BALLAST ■ELECTRONIC TRANSFORMER ■SWITCH MODE POWER SUPPLY

### ●最大额定值 (TC=25°C)

### ●Absolute Maximum Ratings (Tc=25°C)

### TO-220FP/262/263

| 参数<br>PARAMETER                              | 符号<br>SYMBOL | 额定值<br>VALUE                  | 单位<br>UNIT |
|----------------------------------------------|--------------|-------------------------------|------------|
| 漏-源电压<br>Drain-source Voltage                | $V_{DS}$     | 650                           | V          |
| 栅-源电压<br>gate-source Voltage                 | $V_{GS}$     | $\pm 30$                      | V          |
| 漏极电流<br>Continuous Drain Current<br>TC=25°C  | $I_D$        | 8.0*                          | A          |
| 漏极电流<br>Continuous Drain Current<br>TC=100°C | $I_D$        | 3.6*                          | A          |
| 最大脉冲电流<br>Drain Current — Pulsed ①           | $I_{DM}$     | 32*                           | A          |
| 耗散功率<br>Power Dissipation                    | $P_{tot}$    | TO-220FP:40<br>TO-262/263:142 | W          |
| 最高结温<br>Junction Temperature                 | $T_J$        | 150                           | °C         |
| 存储温度<br>Storage Temperature                  | $T_{STG}$    | -55-150                       | °C         |
| 单脉冲雪崩能量<br>Single Pulse Avalanche Energy ②   | $E_{AS}$     | 320                           | mJ         |



\*漏极电流由最高结温限制

\*Drain current limited by maximum junction temperature

### ●电特性 (Tc=25°C)

### ●Electronic Characteristics (Tc=25°C)

| 参数<br>PARAMETER                                       | 符号<br>SYMBOL                 | 测试条件<br>TEST CONDITION                    | 最小值<br>MIN | 典型值<br>TYP | 最大值<br>MAX | 单位<br>UNIT |
|-------------------------------------------------------|------------------------------|-------------------------------------------|------------|------------|------------|------------|
| 漏-源击穿电压<br>Drain-source Breakdown Voltage             | $BV_{DSS}$                   | $V_{GS}=0V, I_D=250\mu A$                 | 650        |            |            | V          |
| 击穿电压温度系数<br>Breakdown Voltage Temperature Coefficient | $\Delta BV_{DSS}/\Delta T_J$ | $I_D=250\mu A$ , Referenced to 25°C       |            | 0.8        |            | V/°C       |
| 栅极开启电压<br>Gate Threshold Voltage                      | $V_{GS(TH)}$                 | $V_{GS}=V_{DS}, I_D=250\mu A$             | 2.0        |            | 4.0        | V          |
| 漏-源漏电流<br>Drain-source Leakage Current                | $I_{DSS}$                    | $V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$  |            |            | 1          | $\mu A$    |
|                                                       |                              | $V_{DS}=520V, V_{GS}=0V, T_J=125^\circ C$ |            |            | 100        | $\mu A$    |
| 跨导<br>Forward Transconductance                        | $g_{fs}$                     | $V_{DS}=15V, I_D=4.0A$ ③                  |            | 10         |            | S          |

### ●订单信息/ORDERING INFORMATION:

| 包装形式/PACKING                   | 订货编码/ORDERING CODE                         |                                                 |
|--------------------------------|--------------------------------------------|-------------------------------------------------|
|                                | 普通塑封料/ Normal Package Material             | 无卤塑封料/Halogen Free                              |
| TO-220FP 条管装/TUBE PACKING      | SIF8N65E TO-220FP-TU                       | SIF8N65E TO-220FP-TU-HF                         |
| TO-262 或 263 条管装/TUBE PACKING  | SIF8N65E TO-262-TU 或<br>SIF8N65E TO-263-TU | SIF8N65ETO-262-TU-HF 或<br>SIF8N65E TO-263-TU-HF |
| TO-263 编带装/TAPE & REEL PACKING | SIF8N65E TO-263-TR                         | SIF8N65E TO-263-TR-HF                           |



# N-沟道功率 MOS 管/ N-CHANNEL POWER MOSFET

## SIF8N65E

| 参数<br>PARAMETER                                     | 符号<br>SYMBOL | 测试条件<br>TEST CONDITION                                      | 最小值<br>MIN | 典型值<br>TYP | 最大值<br>MAX | 单位<br>UNIT |
|-----------------------------------------------------|--------------|-------------------------------------------------------------|------------|------------|------------|------------|
| 栅极漏电流<br>Gate-body Leakage Current ( $V_{DS} = 0$ ) | $I_{GSS}$    | $V_{GS} = \pm 30V$                                          |            |            | $\pm 100$  | nA         |
| 漏-源导通电阻<br>Static Drain-source On Resistance        | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 4.0A$<br>③                             |            | 0.75       | 1.0        | $\Omega$   |
| 输入电容<br>Input Capacitance                           | $C_{iss}$    | $V_{GS} = 0V, V_{DS} = 25V$<br>$F = 1.0MHz$                 | 1200       | 1500       | 1800       | pF         |
| 输出电容<br>Output Capacitance                          | $C_{oss}$    |                                                             | 80         | 120        | 160        |            |
| 反馈电容<br>Feedback Capacitance                        | $C_{rss}$    |                                                             | 8          | 12         | 16         |            |
| 关断延迟<br>Turn -Off Delay Time                        | $T_d(off)$   | $V_{DD} = 325V, I_D = 8.0A$<br>$R_G = 25\Omega$ ③           |            | 90         |            | ns         |
| 栅极电荷<br>Total Gate Charge                           | $Q_g$        | $I_D = 8.0A, V_{DS} = 520V$<br>$V_{GS} = 10V$<br>③          |            | 30         | 60         | nC         |
| 栅源电荷<br>Gate-to-Source Charge                       | $Q_{gs}$     |                                                             |            | 7          | 15         | nC         |
| 栅漏电荷<br>Gate-to-Drain Charge                        | $Q_{gd}$     |                                                             |            | 9          | 20         | nC         |
| 二极管正向电流<br>Continuous Diode Forward Current         | $I_S$        |                                                             |            |            | 8.0        | A          |
| 二极管正向压降<br>Diode Forward Voltage                    | $V_{SD}$     | $T_J = 25^\circ C, I_S = 8.0A$<br>$V_{GS} = 0V$ ③           |            |            | 1.4        | V          |
| 反向恢复时间<br>Reverse Recovery Time                     | $t_{rr}$     | $T_J = 25^\circ C, I_f = 8.0A$<br>$di/dt = 100A/\mu s$<br>③ |            | 400        |            | ns         |
| 反向恢复电荷<br>Reverse Recovery Charge                   | $Q_{rr}$     |                                                             |            | 3.3        |            | $\mu C$    |

### ● 热特性

### ● Thermal Characteristics

| 参数<br>PARAMETER                               | 符号<br>SYMBOL | 最大值<br>MAX |            | 单位<br>UNIT   |
|-----------------------------------------------|--------------|------------|------------|--------------|
|                                               |              | TO-220FP   | TO-262/263 |              |
| 热阻结-壳<br>Thermal Resistance Junction-case     | $R_{thJC}$   | 3.13       | 0.88       | $^\circ C/W$ |
| 热阻结-环境<br>Thermal Resistance Junction-ambient | $R_{thJA}$   | 62.5       | 62.5       | $^\circ C/W$ |

### 注释(Notes):

- ① 脉冲宽度：以最高节温为限制  
Repetitive rating: Pulse width limited by maximum junction temperature
- ② 初始结温=25 $^\circ C$ ,  $V_{DD} = 50V$ ,  $L = 10mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 8.0A$   
Starting  $T_J = 25^\circ C$ ,  $V_{DD} = 50V$ ,  $L = 10mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = 8.0A$
- ③ 脉冲测试：脉冲宽度 $\leq 300\mu s$ ，占空比 $\leq 2\%$   
Pulse Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$



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### ● 特性曲线

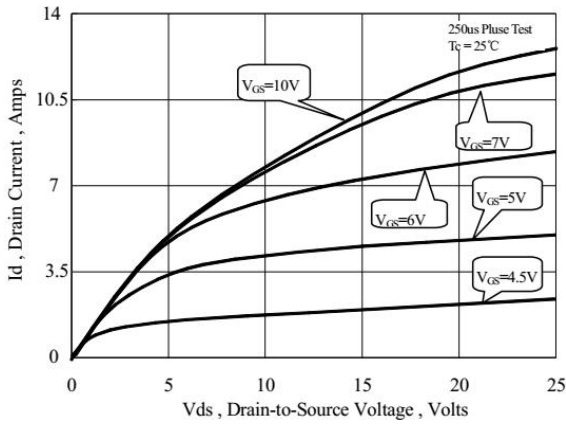


图 1 输出特性曲线, Tc=25°C

Fig1 Typical Output Characteristics, Tc=25°C

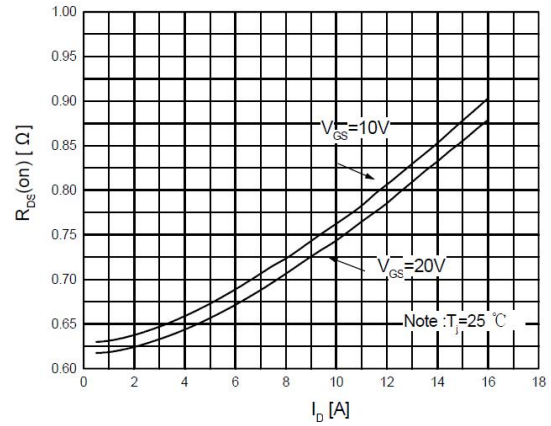


图 2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs.Drain Current and Gate Voltage

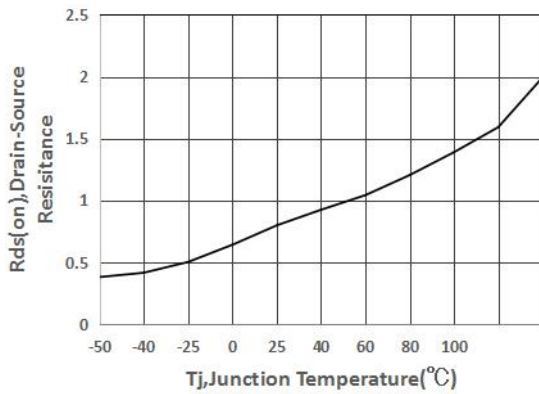


图 3 导通电阻与温度曲线

Fig3 Normalized On-Resistance Vs.Temperature

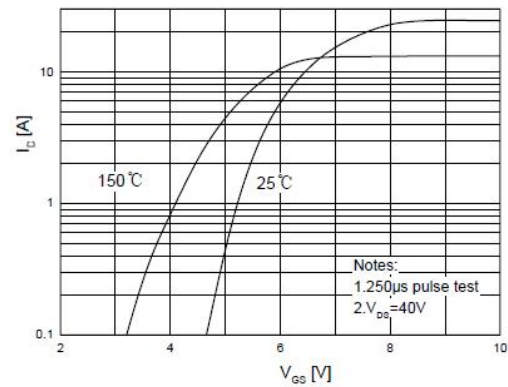


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

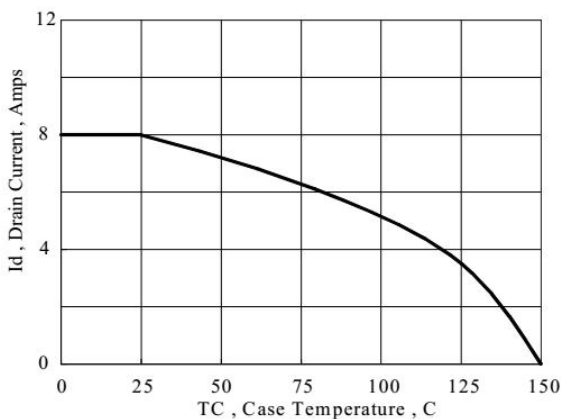


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs.Case Temperature



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### ● 特性曲线

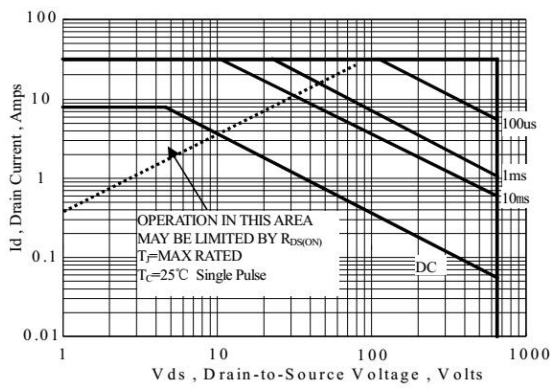


图 6-1 SIF8N65E(TO-220FP)

最大安全工作区曲线

Fig6-1 Maximum Safe Operating Area

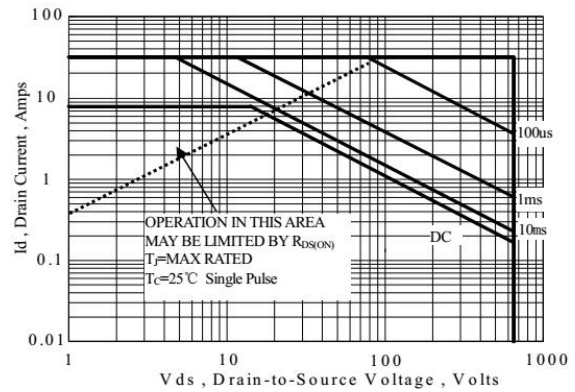


图 6-2 SIF8N65E(TO-262&263)

最大安全工作区曲线

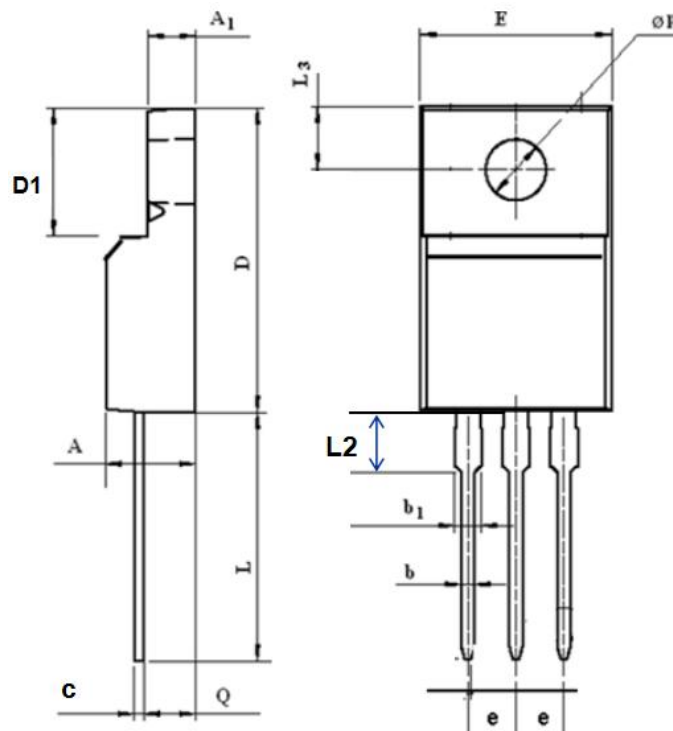
Fig6-2 Maximum Safe Operating Area



## TO-220FP 封装机械尺寸 TO-220FP MECHANICAL DATA

单位:毫米/UNIT: mm

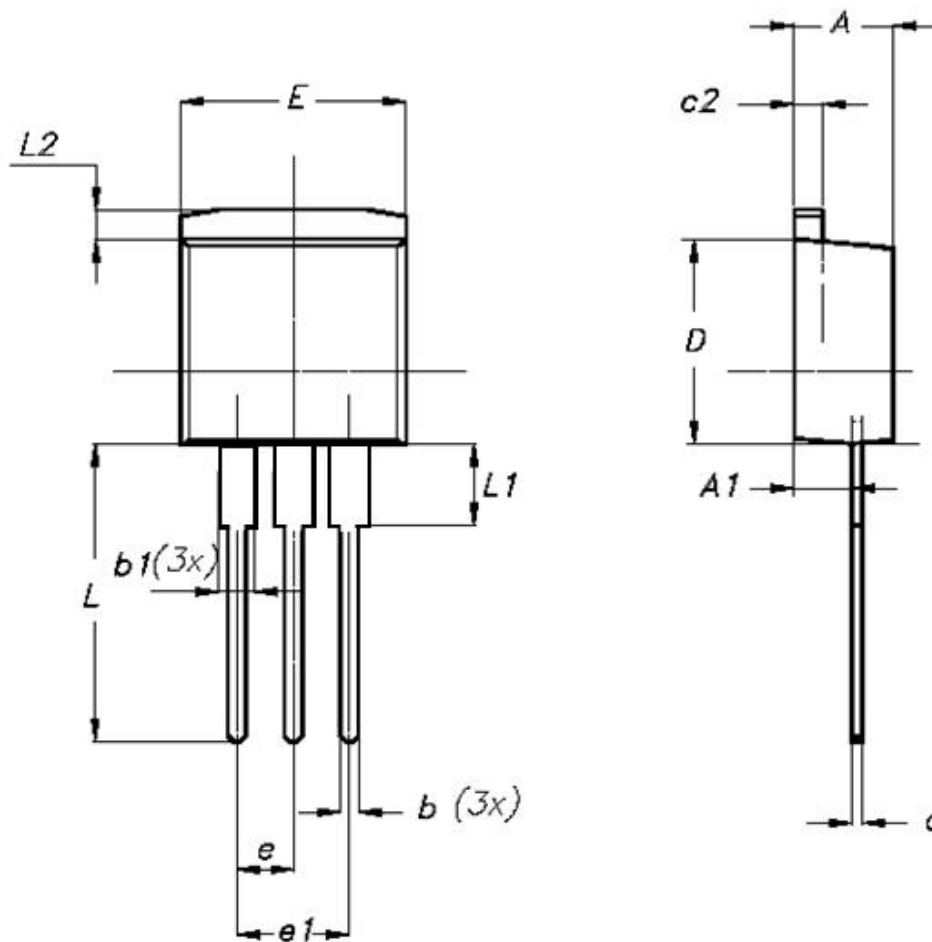
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|----------------|------------|------------|------------|----------------|------------|------------|------------|
| A              | 4.40       |            | 4.95       | E              | 9.60       |            | 10.30      |
| A <sub>1</sub> | 2.30       |            | 2.90       | e              |            | 2.54       |            |
| b              | 0.70       |            | 0.90       | L              | 12.40      |            | 14.00      |
| b <sub>1</sub> | 1.18       |            | 1.45       | L <sub>2</sub> | 2.30       |            | 2.60       |
| c              | 0.40       |            | 0.70       | L <sub>3</sub> | 3.00       |            | 4.00       |
| D              | 14.50      |            | 17.00      | øp             | 3.00       |            | 3.50       |
| D1             | 6.10       |            | 9.00       | Q              | 2.30       |            | 2.80       |



## TO-262 封装机械尺寸 TO-262 MECHANICAL DATA

单位：毫米/UNIT: mm

| 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max | 符号<br>SYMBOL | 最小值<br>min | 典型值<br>nom | 最大值<br>max |
|--------------|------------|------------|------------|--------------|------------|------------|------------|
| A            | 3.80       |            | 4.80       | e            |            | 2.54       |            |
| A1           | 2.00       |            | 2.80       | e1           |            |            | 5.30       |
| b            | 0.60       |            | 1.00       | E            | 9.90       |            | 10.70      |
| b1           | 1.20       |            | 1.40       | L            | 12.50      |            | 14.50      |
| c            | 0.40       |            | 0.70       | L1           | 0.80       | 1.00       | 1.20       |
| c2           | 1.10       |            | 1.40       | L2           |            |            | 1.50       |
| D            |            |            | 9.60       |              |            |            |            |



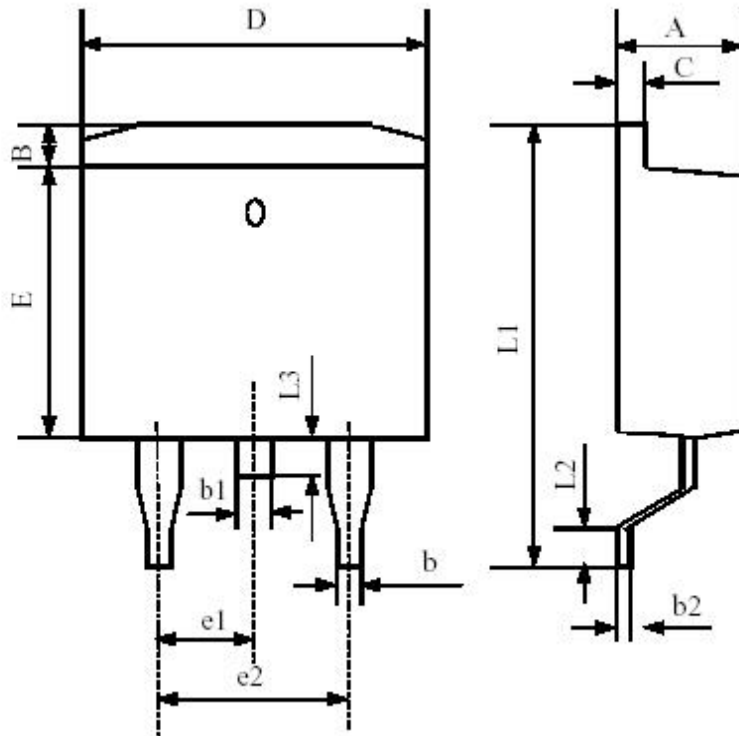


## TO-263 封装机械尺寸

### TO-263(D2PAK) MECHANICAL DATA

单位：毫米/UNIT: mm

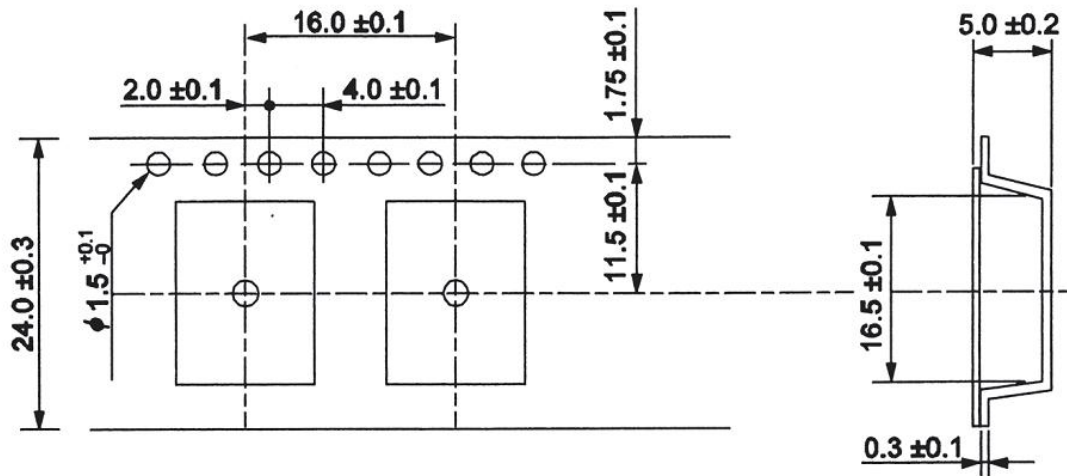
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|--------------|------------|------------|------------|--------------|------------|------------|------------|
| A            | 4.42       |            | 4.72       | E            | 8.99       |            | 9.29       |
| B            | 1.22       |            | 1.32       | e1           | 2.44       |            | 2.64       |
| b            | 0.76       |            | 0.86       | e2           | 4.98       |            | 5.18       |
| b1           | 1.22       |            | 1.32       | L1           | 15.19      |            | 15.79      |
| b2           | 0.33       |            | 0.43       | L2           | 2.29       |            | 2.79       |
| C            | 1.22       |            | 1.32       | L3           | 1.30       |            | 1.75       |
| D            | 9.95       |            | 10.25      |              |            |            |            |



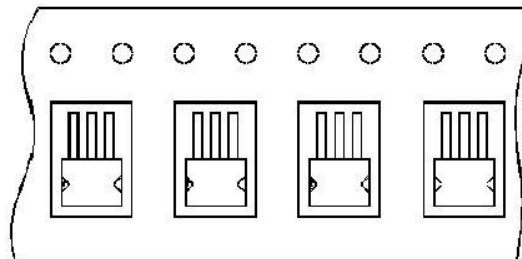


## TO-263 编带规格尺寸 TO-263 TAPE AND REEL DATA

单位:毫米/UNIT: mm



使用供带方向/USER DIRECTION OF FEED



编带器件定位示意图/UNIT ORIENTATION