



# 2SJ661

## P-Channel Power MOSFET -60V, -38A, 39mΩ, TO-262-3L/TO-263-2L

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance  $R_{DS(on)1}=29.5m\Omega$ (typ.)
- Input capacitance  $C_{iss}=4360pF$  (typ.)
- 4V drive

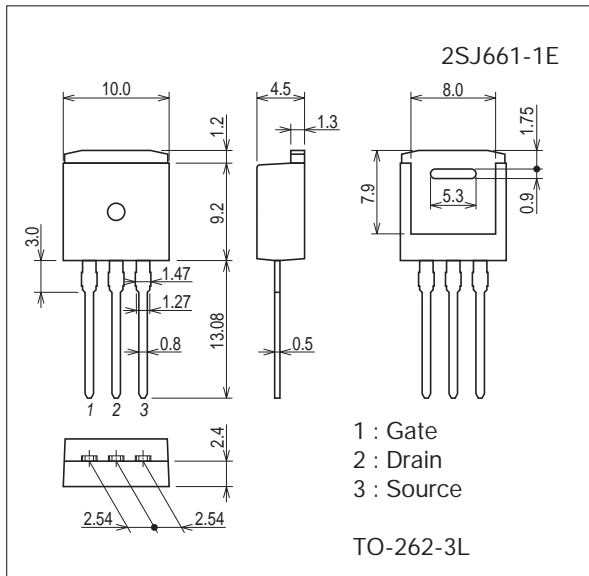
### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ C$

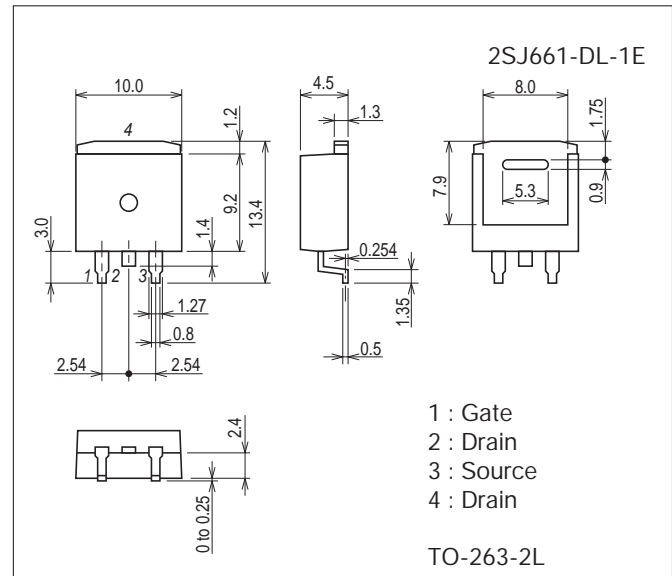
| Parameter                   | Symbol    | Conditions                                | Ratings  | Unit |
|-----------------------------|-----------|---|----------|------|
| Drain-to-Source Voltage     | $V_{DSS}$ |   | -60      | V    |
| Gate-to-Source Voltage      | $V_{GSS}$ |   | $\pm 20$ | V    |
| Drain Current (DC)          | $I_D$     |   | -38      | A    |
| Drain Current (Pulse)       | $I_{DP}$  | $PW \leq 10\mu s$ , duty cycle $\leq 1\%$ | -152     | A    |
| Allowable Power Dissipation | $P_D$     |   | 1.65     | W    |
|                             |           | $T_c=25^\circ C$                          | 65       | W    |

Continued on next page.

Package Dimensions unit : mm (typ)  
7537-001



Package Dimensions unit : mm (typ)  
7535-001

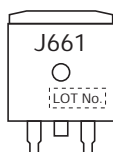


### Product & Package Information

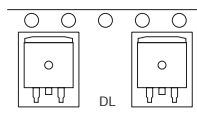
- Package : TO-262-3L
- JEITA, JEDEC : TO-262
- Minimum Packing Quantity : 50pcs./magazine

- Package : TO-263-2L
- JEITA, JEDEC : SC-83, TO-263
- Minimum Packing Quantity : 800pcs./reel

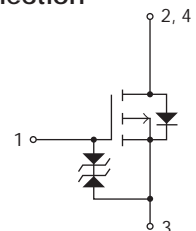
### Marking



### Packing Type : DL



### Electrical Connection



# 2SJ661

Continued from preceding page.

| Parameter                          | Symbol          | Conditions | Ratings     | Unit |
|------------------------------------|-----------------|------------|-------------|------|
| Channel Temperature                | Tch             |            | 150         | °C   |
| Storage Temperature                | Tstg            |            | -55 to +150 | °C   |
| Avalanche Energy (Single Pulse) *1 | EAS             |            | 250         | mJ   |
| Avalanche Current *2               | I <sub>AV</sub> |            | -38         | A    |

Note : \*1 V<sub>DD</sub>=-30V, L=200μH, I<sub>AV</sub>=-38A (Fig.1)

\*2 L≤200μH, single pulse

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

## Electrical Characteristics at Ta=25°C

| Parameter                                  | Symbol               | Conditions   | Ratings                                   |      |      | Unit |
|--|----------------------|--|---|------|------|------|
|  |                      |  | min                                       | typ  | max  |      |
| Drain-to-Source Breakdown Voltage          | V(BR)DSS             | I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V                          | -60                                       |      |      | V    |
| Zero-Gate Voltage Drain Current            | I <sub>DSS</sub>     | V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V                         |   |      | -1   | μA   |
| Gate-to-Source Leakage Current             | I <sub>GSS</sub>     | V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V                         |   |      | ±10  | μA   |
| Cutoff Voltage                             | V <sub>GS(off)</sub> | V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA                        | -1.2                                      |      | -2.6 | V    |
| Forward Transfer Admittance                | y <sub>fs</sub>      | V <sub>DS</sub> =-10V, I <sub>D</sub> =-19A                        | 18  | 31   |      | S    |
| Static Drain-to-Source On-State Resistance | R <sub>DS(on)1</sub> | I <sub>D</sub> =-19A, V <sub>GS</sub> =-10V                        |   | 29.5 | 39   | mΩ   |
|  | R <sub>DS(on)2</sub> | I <sub>D</sub> =-19A, V <sub>GS</sub> =-4V                         |   | 40   | 56   | mΩ   |
| Input Capacitance                          | C <sub>iss</sub>     | V <sub>DS</sub> =-20V, f=1MHz                                      |   | 4360 |      | pF   |
| Output Capacitance                         | C <sub>oss</sub>     |  |   | 470  |      | pF   |
| Reverse Transfer Capacitance               | C <sub>rss</sub>     |  |   | 335  |      | pF   |
| Turn-ON Delay Time                         | t <sub>d(on)</sub>   |  |   | 33   |      | ns   |
| Rise Time                                  | t <sub>r</sub>       | See Fig.2  |   | 285  |      | ns   |
| Turn-OFF Delay Time                        | t <sub>d(off)</sub>  |  |   | 295  |      | ns   |
| Fall Time                                  | t <sub>f</sub>       |  |   | 195  |      | ns   |
| Total Gate Charge                          | Q <sub>g</sub>       | V <sub>DS</sub> =-30V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-38A |   | 80   |      | nC   |
| Gate-to-Source Charge                      | Q <sub>gs</sub>      |  |   | 15   |      | nC   |
| Gate-to-Drain "Miller" Charge              | Q <sub>gd</sub>      |  |   | 12   |      | nC   |
| Diode Forward Voltage                      | V <sub>SD</sub>      |  | I <sub>S</sub> =-38A, V <sub>GS</sub> =0V | -1.0 | -1.2 |      |

Fig.1 Avalanche Resistance Test Circuit

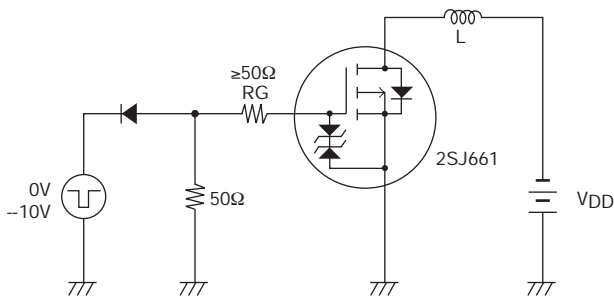
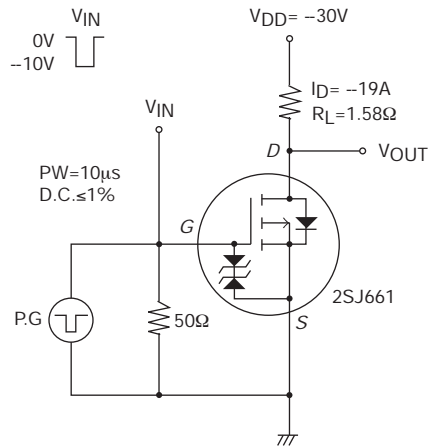
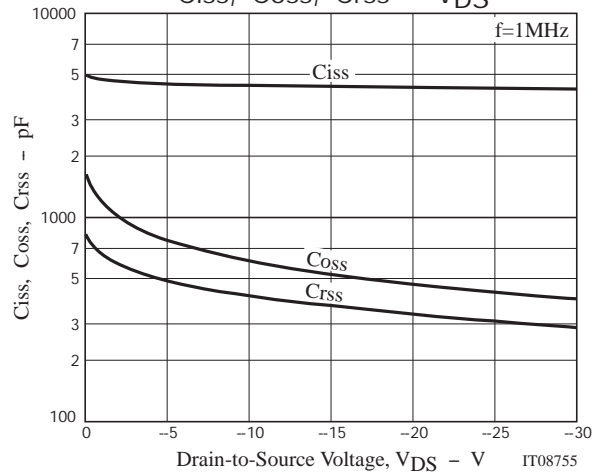
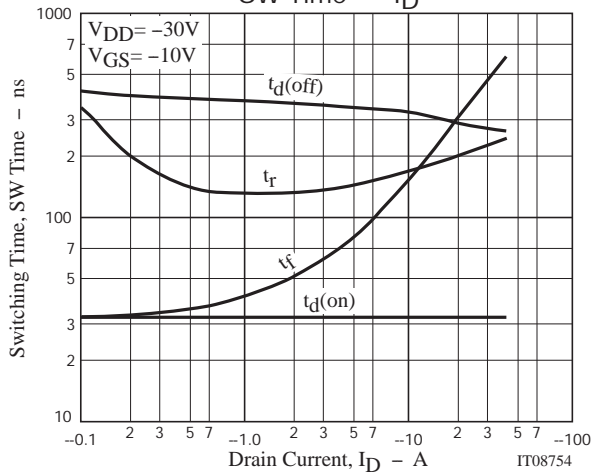
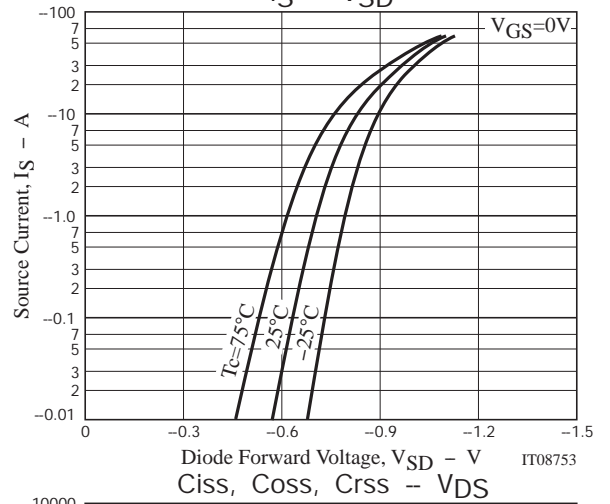
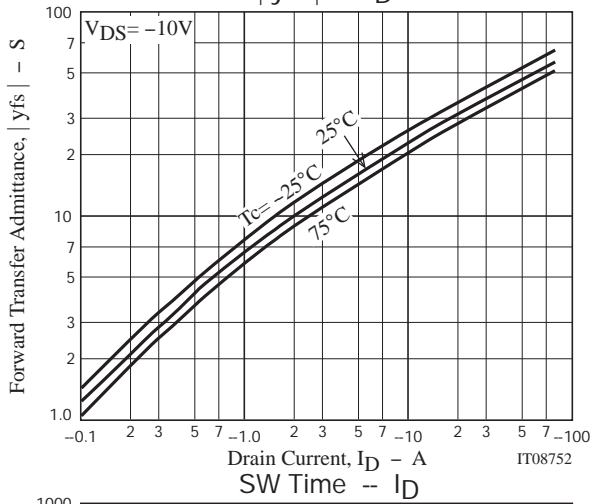
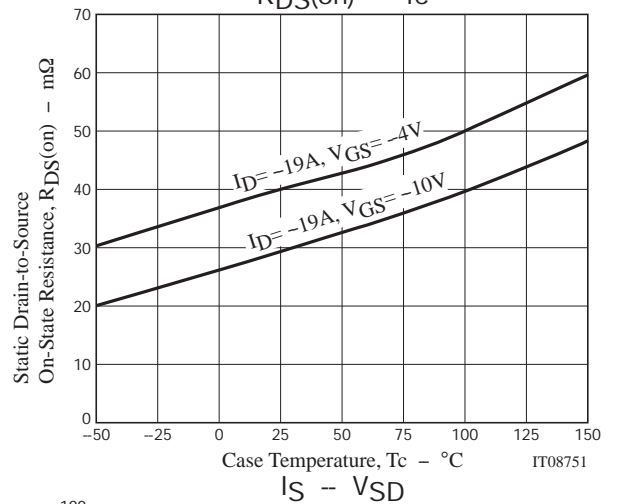
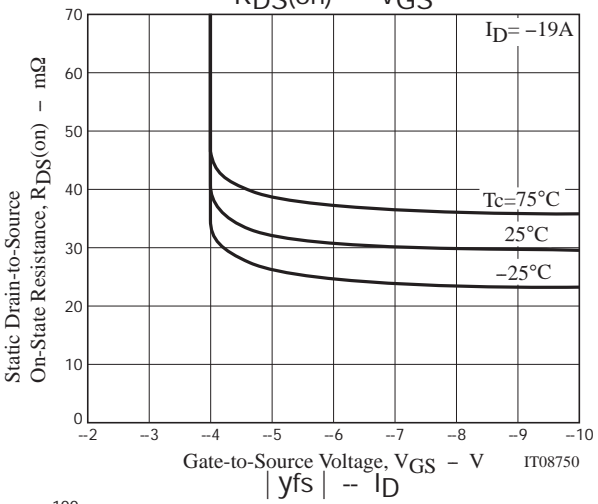
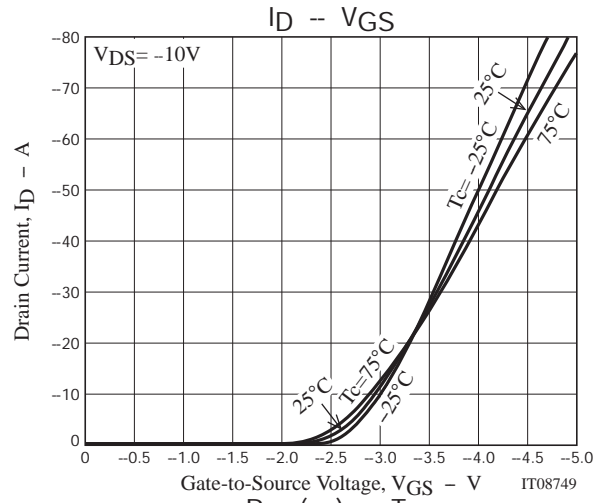
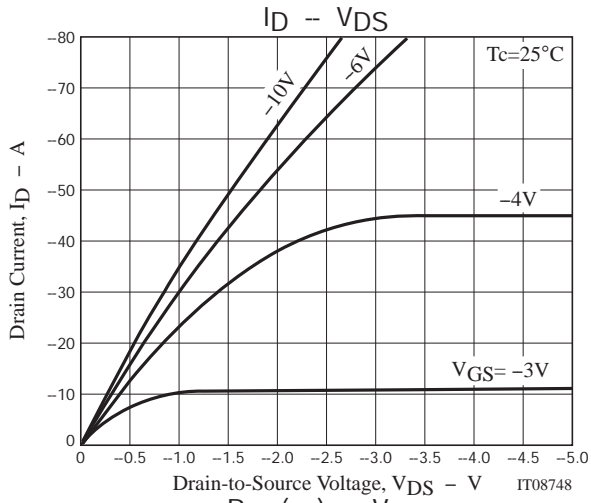


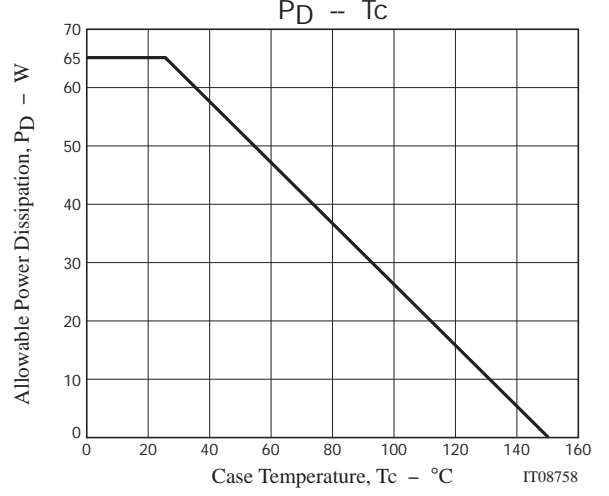
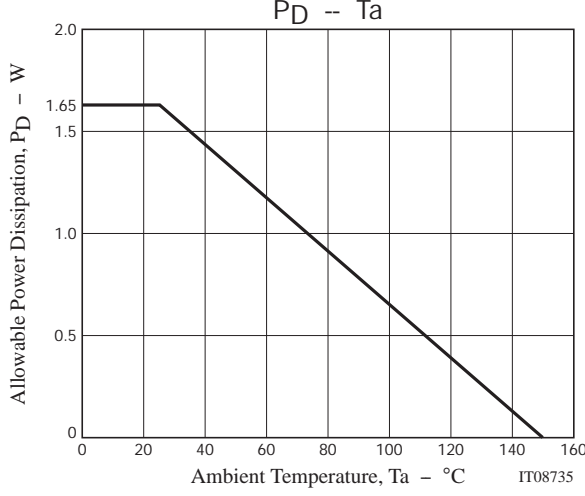
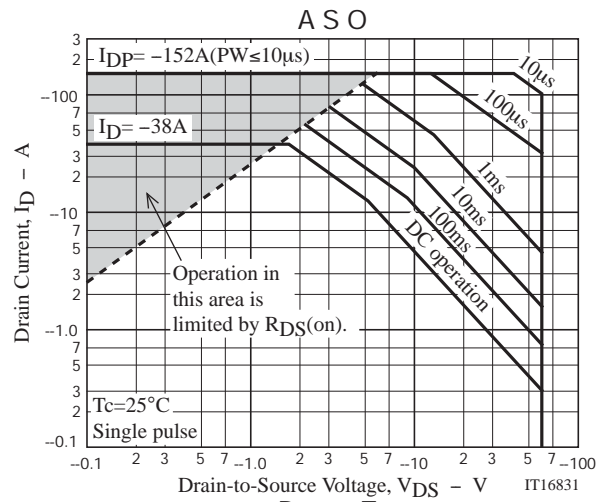
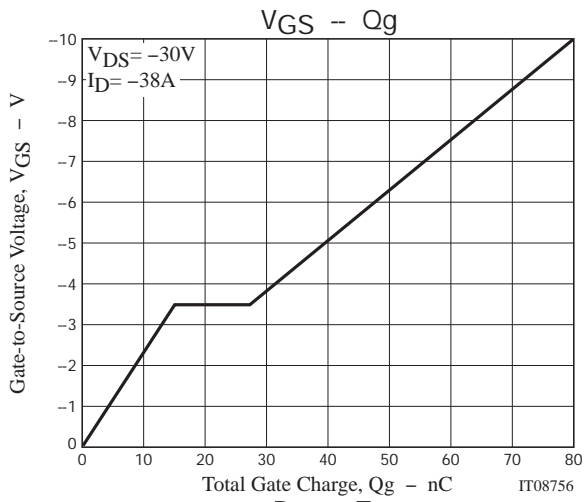
Fig.2 Switching Time Test Circuit



## Ordering Information

| Device       | Package   | Shipping        | memo    |
|--------------|-----------|-----------------|---------|
| 2SJ661-1E    | TO-262-3L | 50pcs./magazine | Pb Free |
| 2SJ661-DL-1E | TO-263-2L | 800pcs./reel    |         |





Taping Specification

2SJ661-DL-1E

1. Packing Format

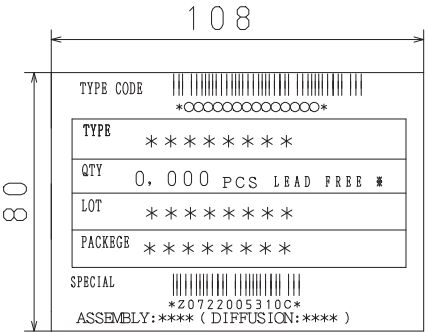
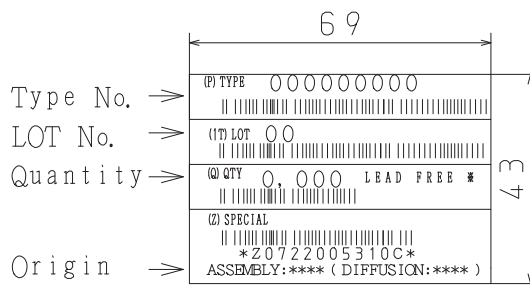
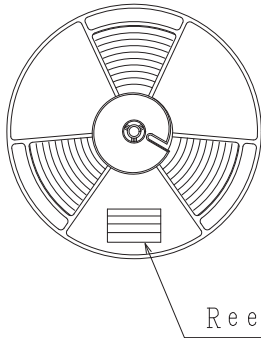
| Package Name | Maximum Number of devices contained (pcs) |           |           | Packing format   |  |
|--------------|---|-----------|-----------|--|--|
|              | Reel                                      | Inner box | Outer box | Inner BOX  | Outer BOX  |
| TO-263-2L    | 800                                       | 1600      | 6400      | SPD-0V0011<br>2 reel contained<br>Dimensions:mm (external)<br>351×340×68 | SPD-0V0009<br>4 inner boxes contained<br>Dimensions:mm (external)<br>390×370×318 |

Reel label, Inner box label  
(unit:mm)

Outer box label

Packing method

It is a label at the time of factory shipments.  
The form of a label may change in physical distribution process.



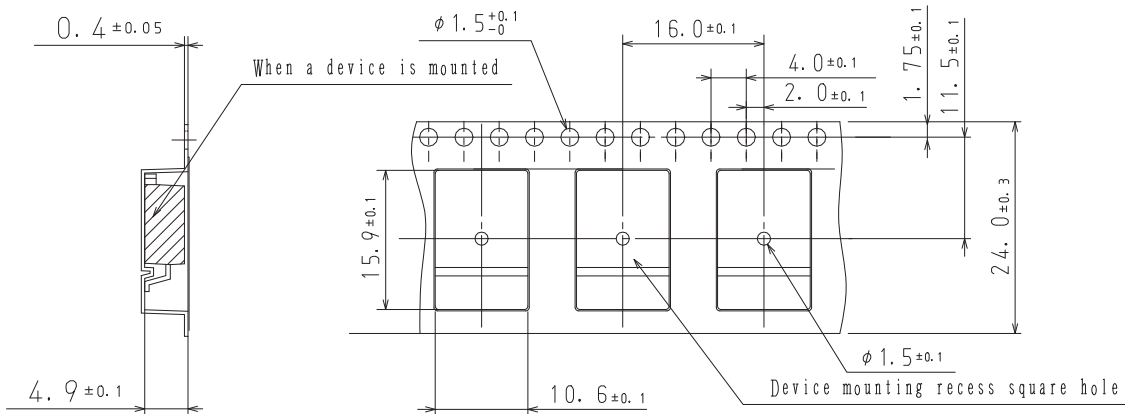
NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

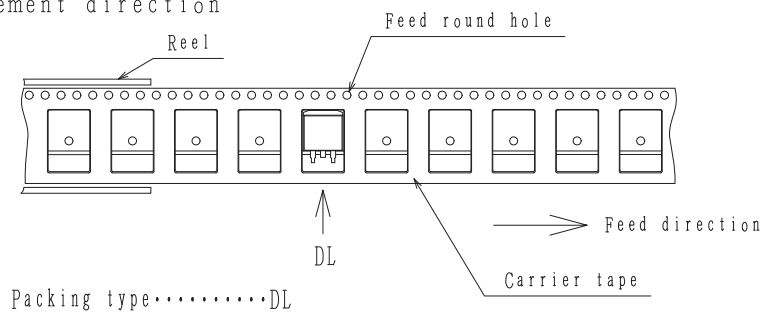
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |

2. Taping configuration

2-1. Carrier tape size (unit:mm)

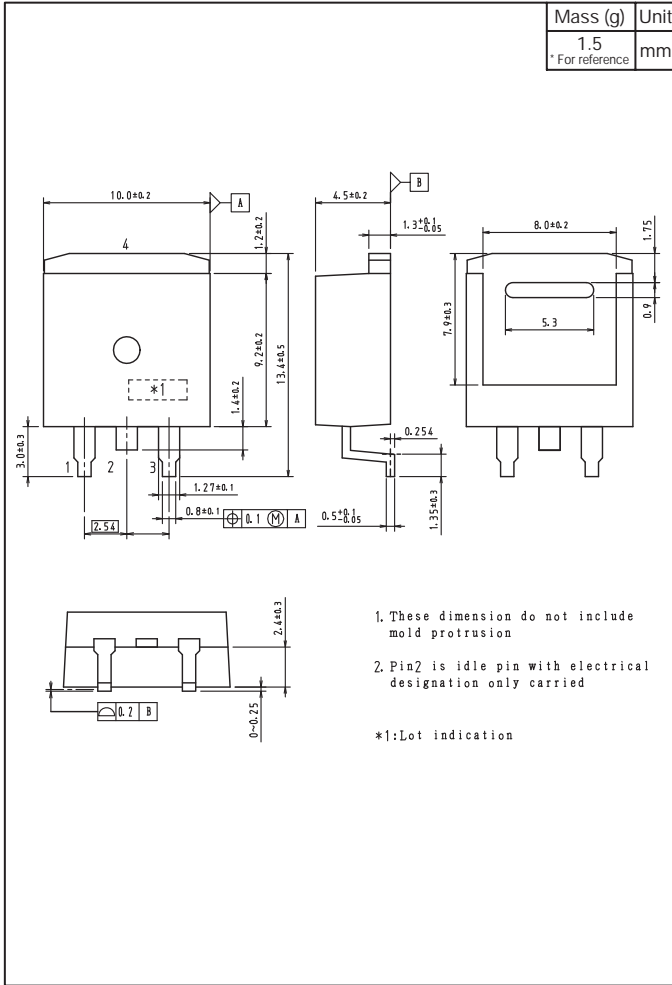


2-2. Device placement direction

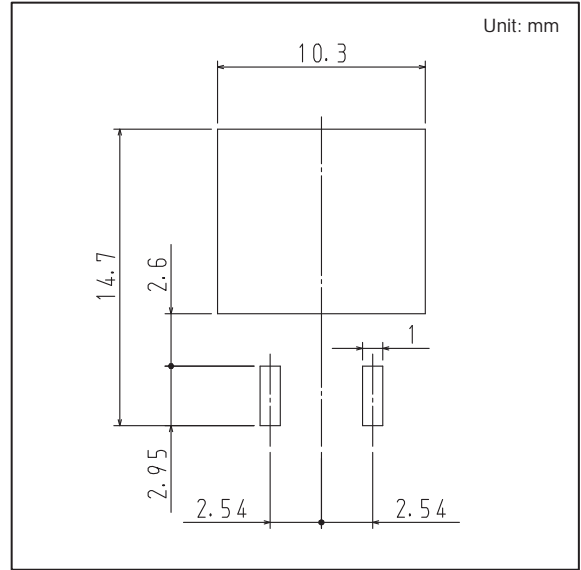


Outline Drawing

2SJ661-DL-1E



Land Pattern Example



Magazine Specification

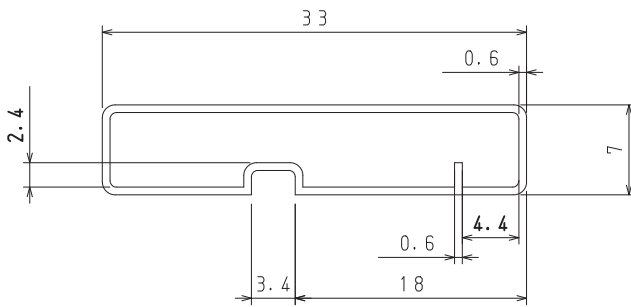
2SJ661-1E

1. Packing Format

| Package Name | Maximum Number of devices contained (pcs) |           |           | Packing format   |  |
|--------------|---|-----------|-----------|--|--|
|              | Magazine                                  | Inner box | Outer box | Inner BOX  | Outer BOX  |
| TO-262-3L    | 50  | 1,000     | 4000      | SPD-0V0001<br>20 magazines contained<br>Dimensions:mm (external)<br>568×150×55 | SPD-LV0010<br>4 inner boxes contained<br>Dimensions:mm (external)<br>590×225×178 |

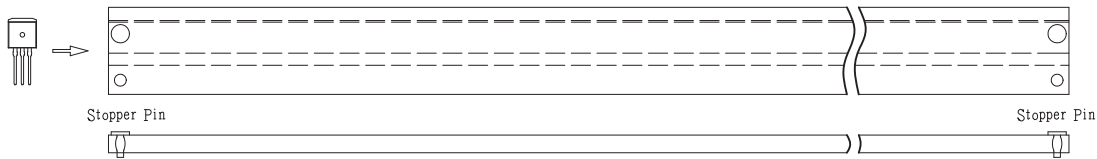
2. Magazine dimensions

(unit:mm)

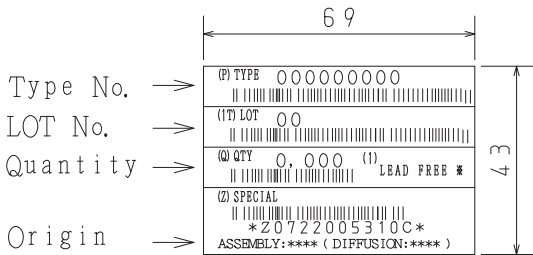


Tolerance=±0.2mm  
 Thickness=0.6+0.2/-0mm  
 Length =512.6±1mm  
 Material =PVC (Antistatic treatment)

3. Storage method to magazine

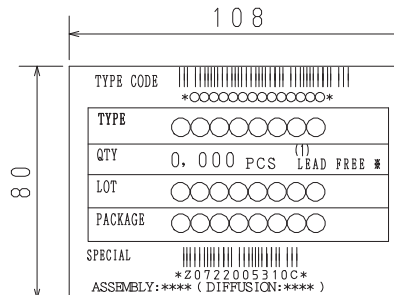


4. Inner box label (unit:mm)



5. Outer box label (unit:mm)

It is a label at the time of factory shipments.  
 The form of a label may change in physical distribution process.



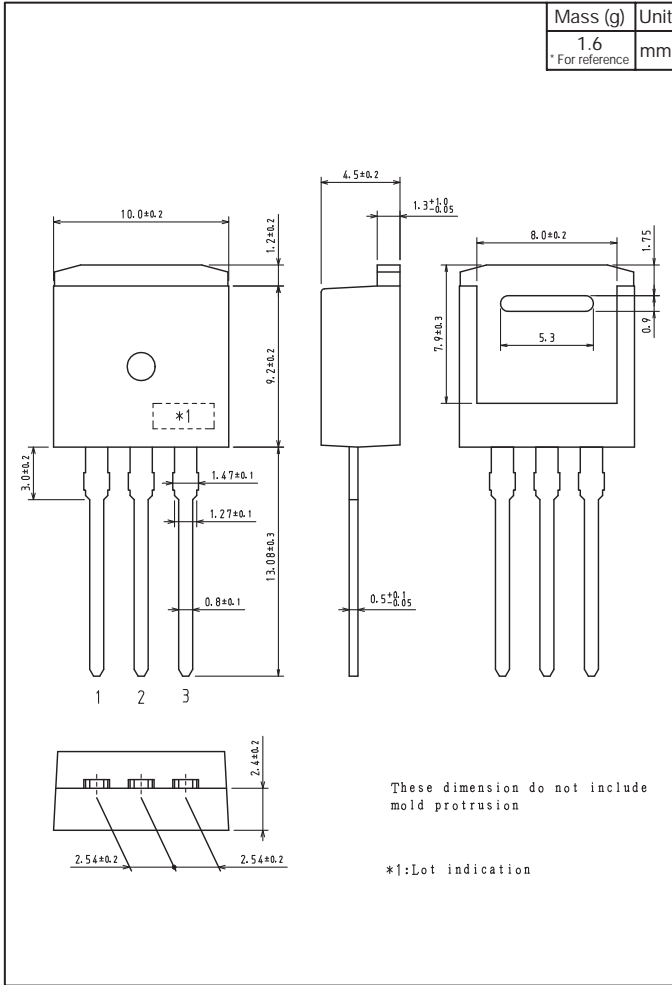
NOTE (1)

The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

|             |                |
|-------------|----------------|
| Label       | JEITA Phase    |
| LEAD FREE 3 | JEITA Phase 3A |

Outline Drawing

2SJ661-1E





Note on usage : Since the 2SJ661 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.