



5LP01S

P-Channel Small Signal MOSFET -50V, -0.07A, 23Ω, Single SMCP

ON Semiconductor®
<http://onsemi.com>

Features

- Low ON-resistance
- Ultrahigh-speed switching
- 2.5V drive

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -50 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -0.07 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -0.28 | A |
| Allowable Power Dissipation | P _D | | 0.15 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

This product is designed to "ESD immunity < 200V**", so please take care when handling.

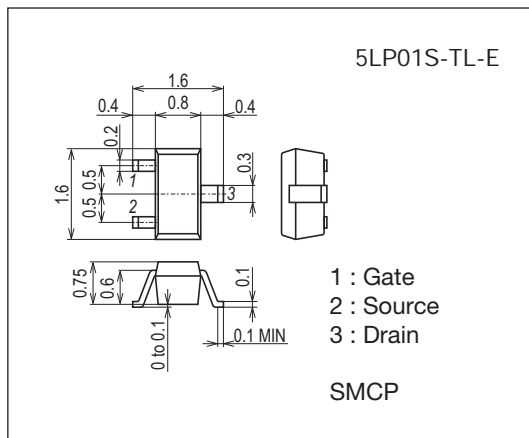
* Machine Model

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.

Package Dimensions

unit : mm (typ)

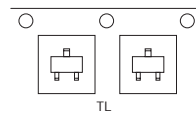
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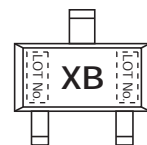
Product & Package Information

- Package : SMCP
- JEITA, JEDEC : SC-75, SOT-416
- Minimum Packing Quantity : 3,000 pcs./reel

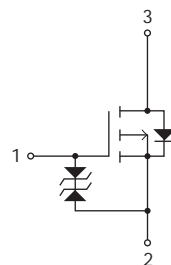
Packing Type: TL



Marking



Electrical Connection

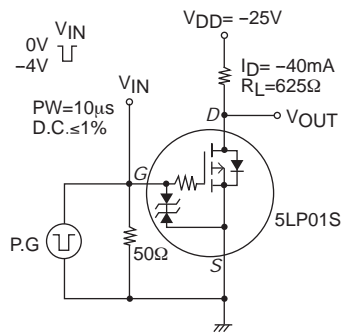


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Electrical Characteristics at Ta=25°C

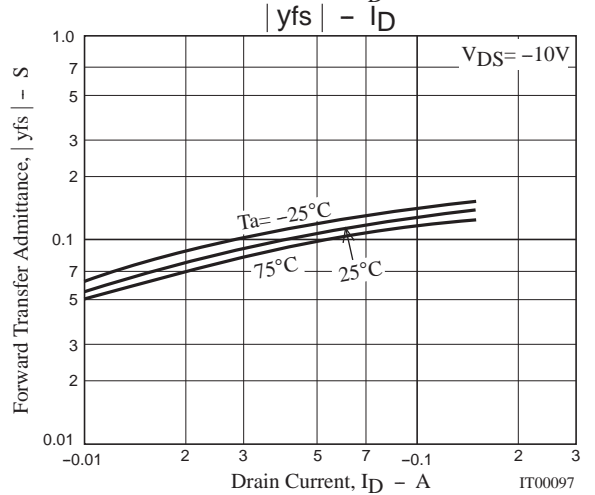
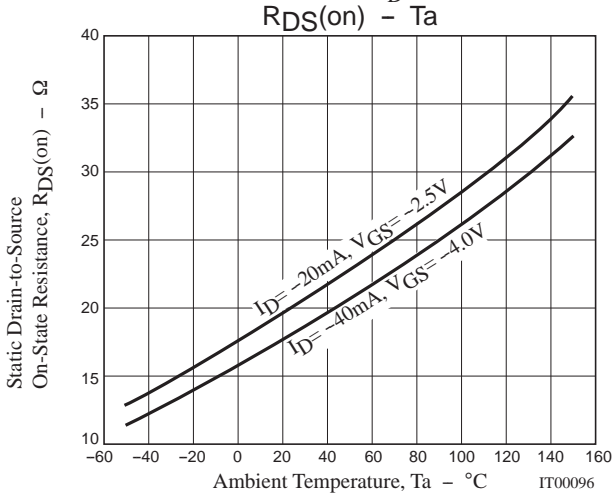
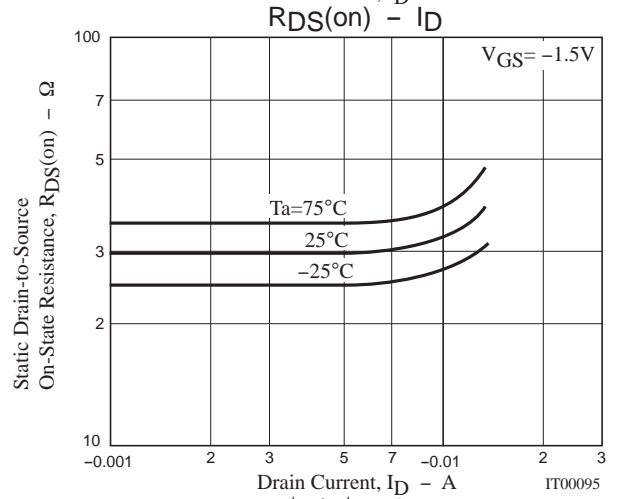
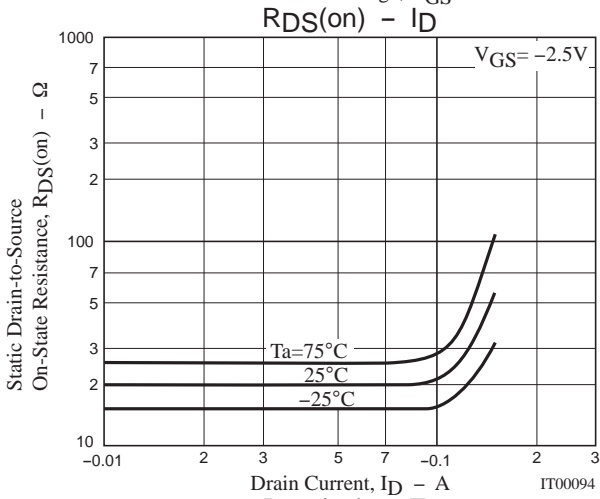
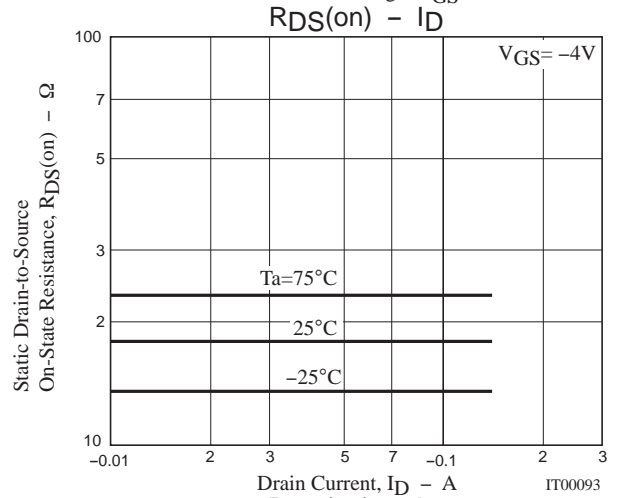
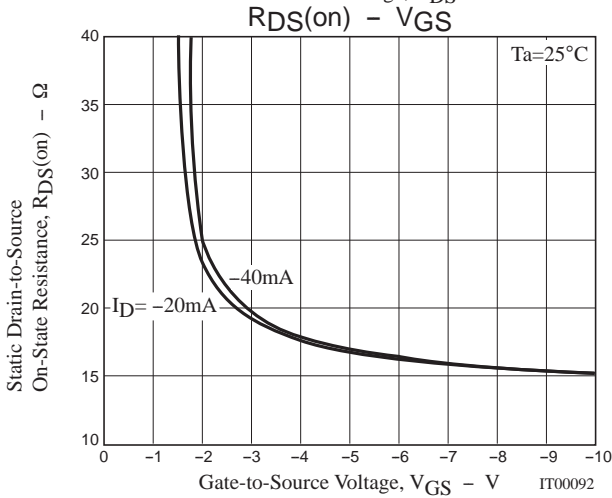
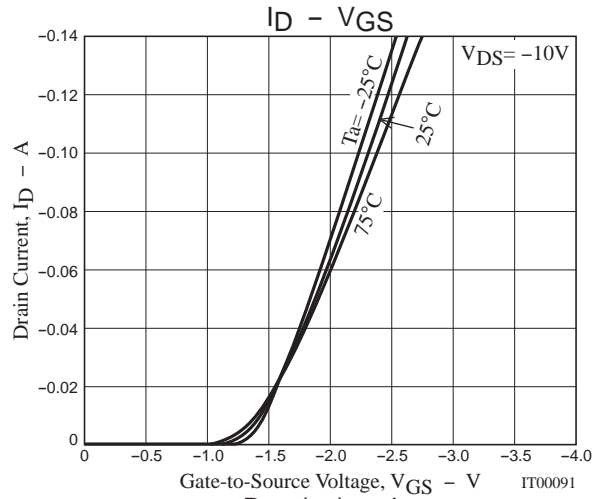
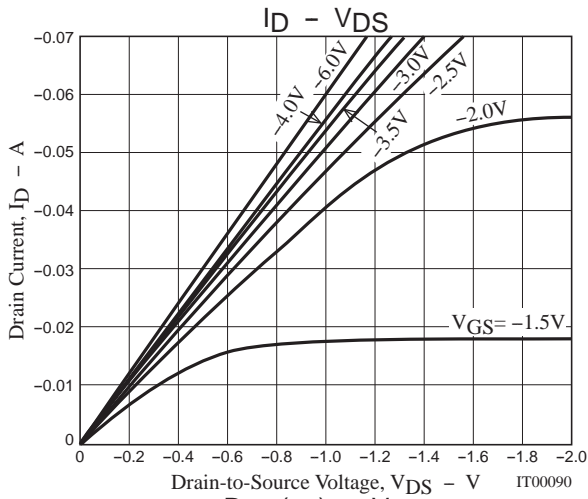
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|----------------------|--|---------|-------|------|------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | V(BR)DSS | I _D = -1mA, V _{GS} =0V | -50 | | | V |
| Zero-Gate Voltage Drain Current | I _{DSS} | V _{DS} = -50V, V _{GS} =0V | | | -1 | μA |
| Gate-to-Source Leakage Current | I _{GSS} | V _{GS} =±8V, V _{DS} =0V | | | ±10 | μA |
| Cutoff Voltage | V _{GS(off)} | V _{DS} = -10V, I _D = -100μA | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | y _{fs} | V _{DS} = -10V, I _D = -40mA | 70 | 100 | | mS |
| Static Drain-to-Source On-State Resistance | R _{DS(on)1} | I _D = -40mA, V _{GS} = -4V | | 18 | 23 | Ω |
| | R _{DS(on)2} | I _D = -20mA, V _{GS} = -2.5V | | 20 | 28 | Ω |
| | R _{DS(on)3} | I _D = -5mA, V _{GS} = -1.5V | | 30 | 60 | Ω |
| Input Capacitance | C _{iss} | | | 7.4 | | pF |
| Output Capacitance | C _{oss} | V _{DS} = -10V, f=1MHz | | 4.2 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 1.3 | | pF |
| Turn-ON Delay Time | t _{d(on)} | See specified Test Circuit. | | 20 | | ns |
| Rise Time | t _r | | | 35 | | ns |
| Turn-OFF Delay Time | t _{d(off)} | | | 160 | | ns |
| Fall Time | t _f | | | 150 | | ns |
| Total Gate Charge | Q _g | | | | 1.40 | |
| Gate-to-Source Charge | Q _{gs} | V _{DS} = -10V, V _{GS} = -10V, I _D = -70mA | | 0.16 | | nC |
| Gate-to-Drain "Miller" Charge | Q _{gd} | | | 0.23 | | nC |
| Diode Forward Voltage | V _{SD} | I _S = -70mA, V _{GS} =0V | | -0.85 | -1.2 | V |

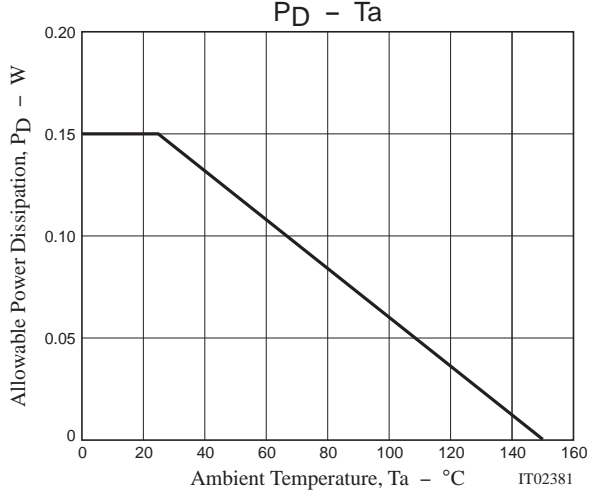
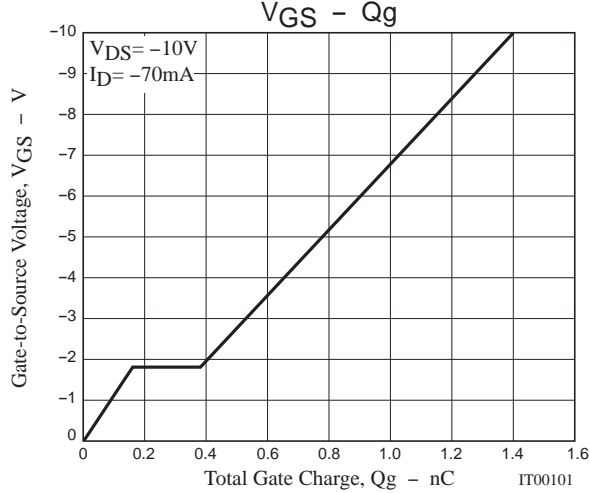
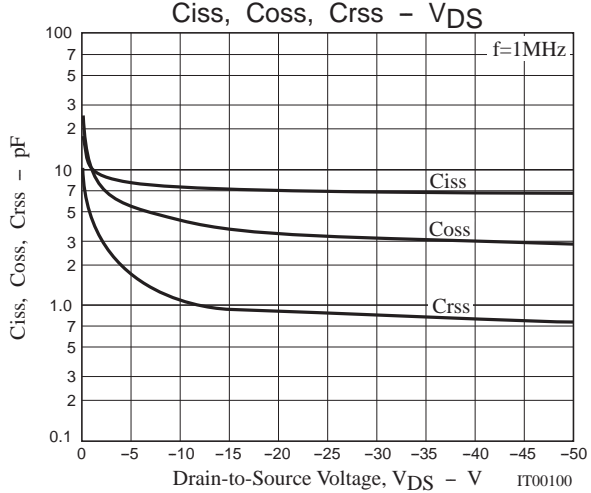
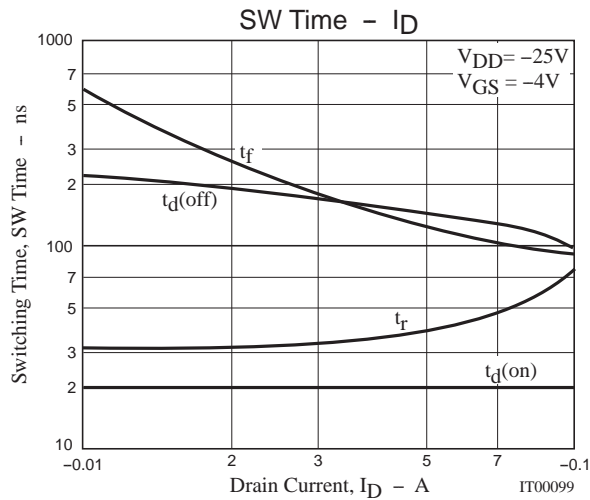
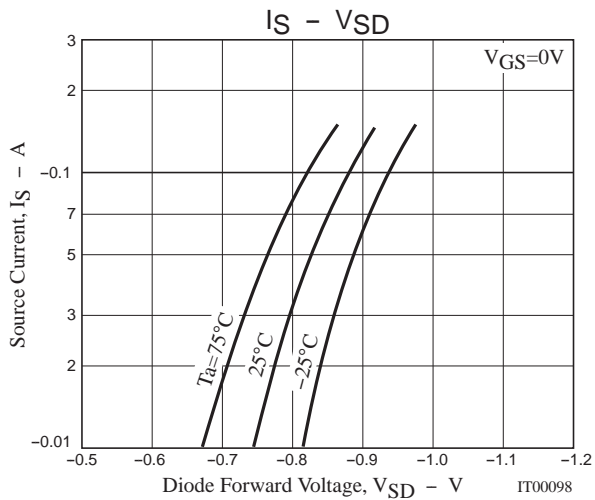
Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|-------------|---------|----------------|---------|
| 5LP01S-TL-E | SMCP | 3,000pcs./reel | Pb Free |





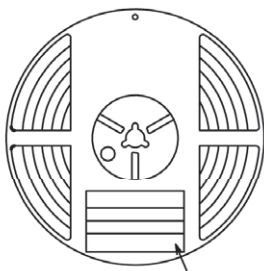
Embossed Taping Specification

5LP01S-TL-E

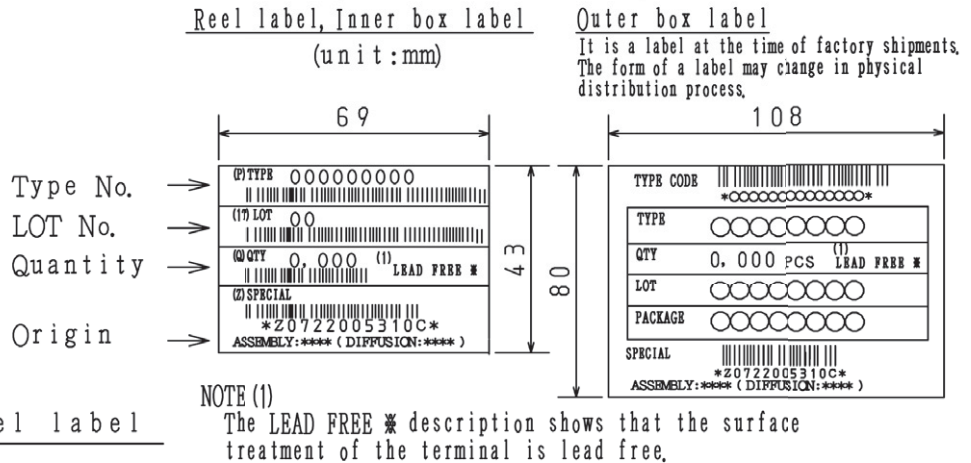
1. Packing Format

| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|--------------|-------------------|---|-----------|-----------|---|--|
| | | Reel | Inner box | Outer box | Inner BOX (C-1) | Outer BOX (A-7) |
| SMCP | SMCP | 3,000 | 15,000 | 90,000 | 5 reels contained Dimensions:mm (external) 183×72×185 | 6 inner boxes contained Dimensions:mm (external) 440×195×210 |

Packing method



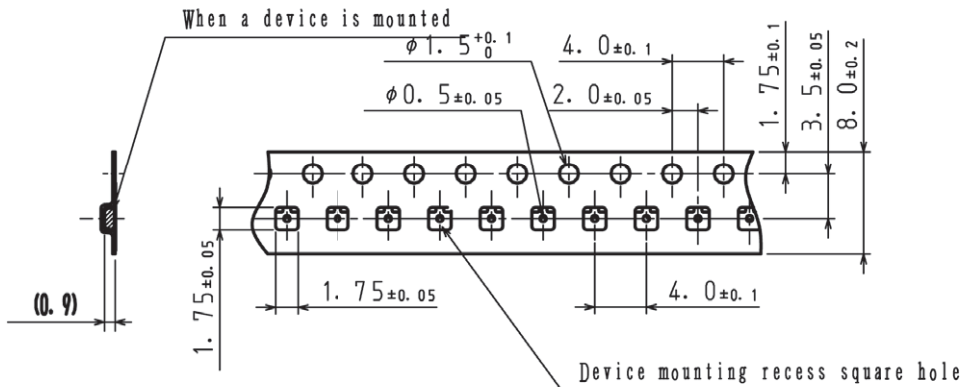
Reel label



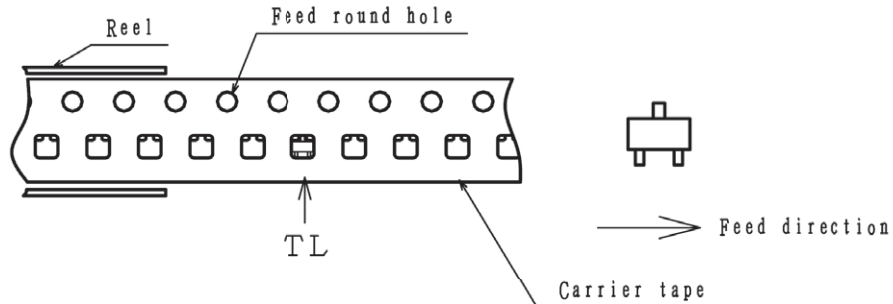
| Label | JEITA Phase |
|-------|---------------|
| | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

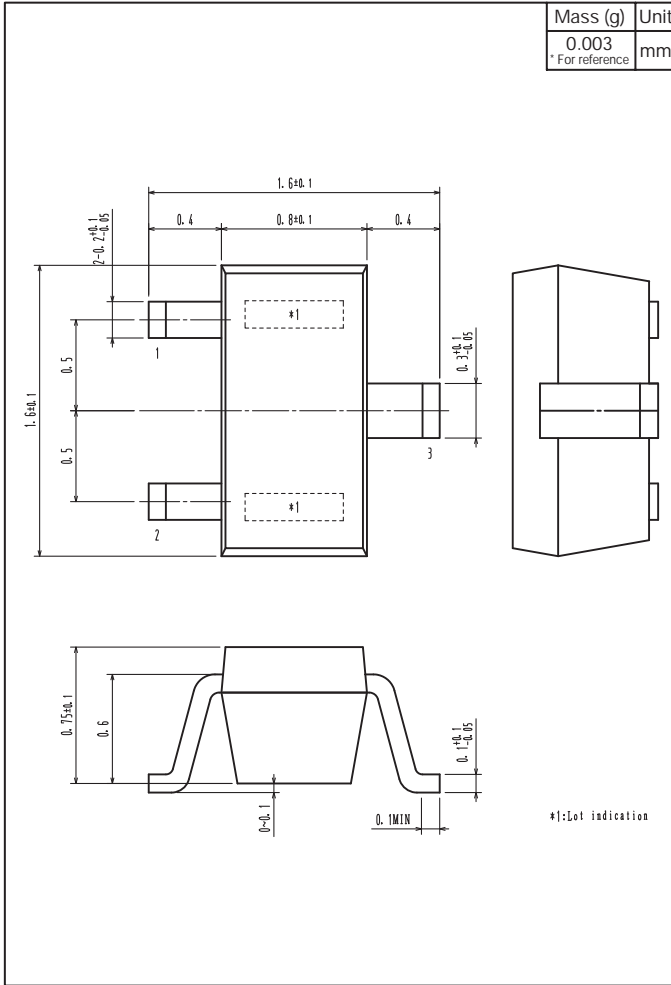


Those with one electrode terminal on the feed hole side.....TL

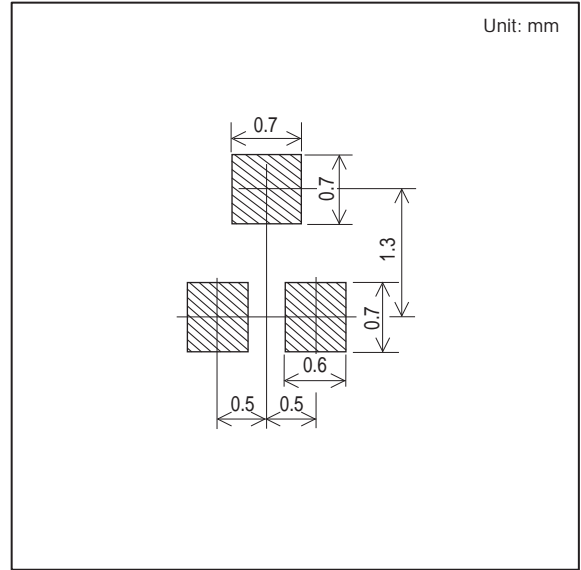
5LP01S

Outline Drawing

5LP01S-TL-E



Land Pattern Example



Note on usage : Since the 5LP01S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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