



3LP01M — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|------------------|------------------------|-------------|------|
| Drain-to-Source Voltage | V _{DSS} | | -30 | V |
| Gate-to-Source Voltage | V _{GSS} | | ±10 | V |
| Drain Current (DC) | I _D | | -0.1 | A |
| Drain Current (Pulse) | I _{DP} | PW≤10μs, duty cycle≤1% | -0.4 | A |
| Allowable Power Dissipation | P _D | | 0.15 | W |
| Channel Temperature | T _{ch} | | 150 | °C |
| Storage Temperature | T _{stg} | | -55 to +150 | °C |

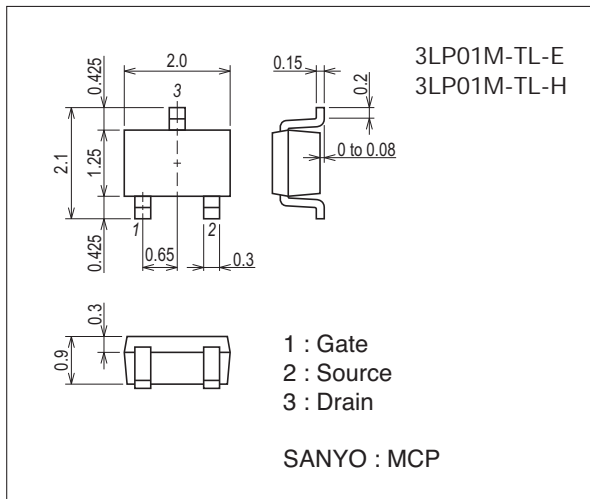
This product is designed to "ESD immunity < 200V**", so please take care when handling.

* Machine Model

Package Dimensions

unit : mm (typ)

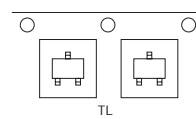
7023A-010



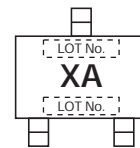
Product & Package Information

- Package : MCP
- JEITA, JEDEC : SC-70, SOT-323
- Minimum Packing Quantity : 3,000 pcs./reel

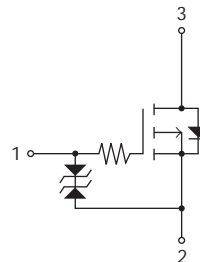
Packing Type: TL



Marking



Electrical Connection

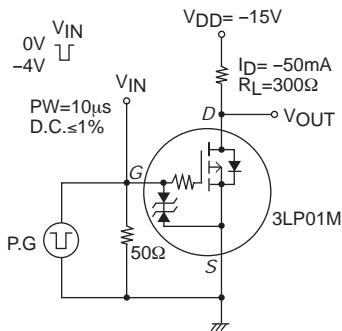


3LP01M

Electrical Characteristics at $T_a=25^{\circ}\text{C}$

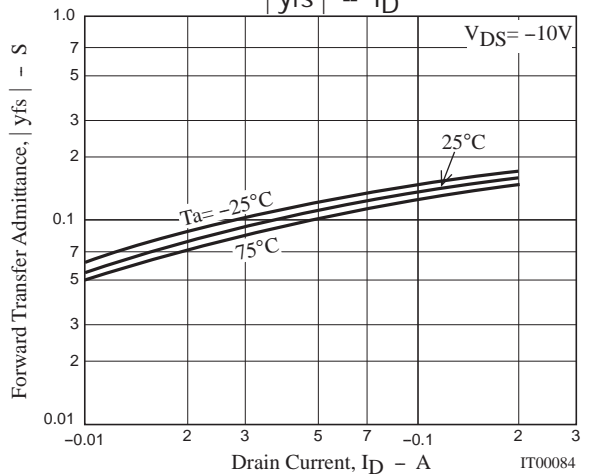
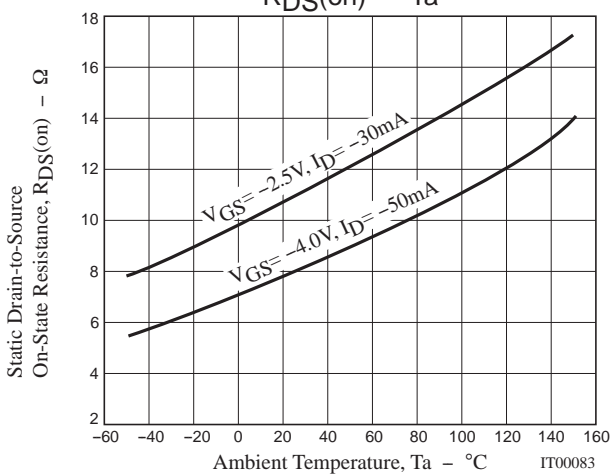
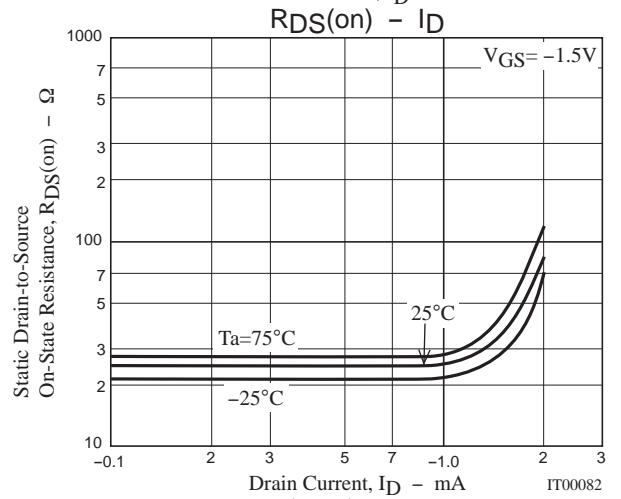
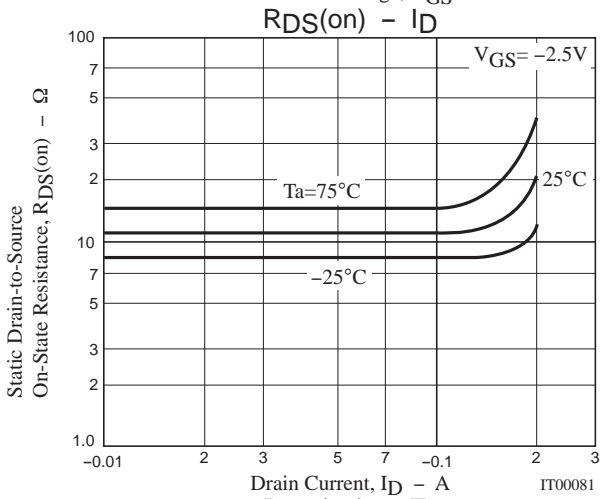
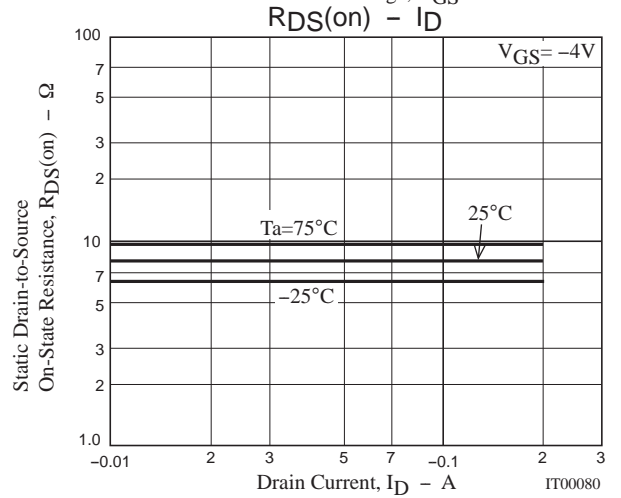
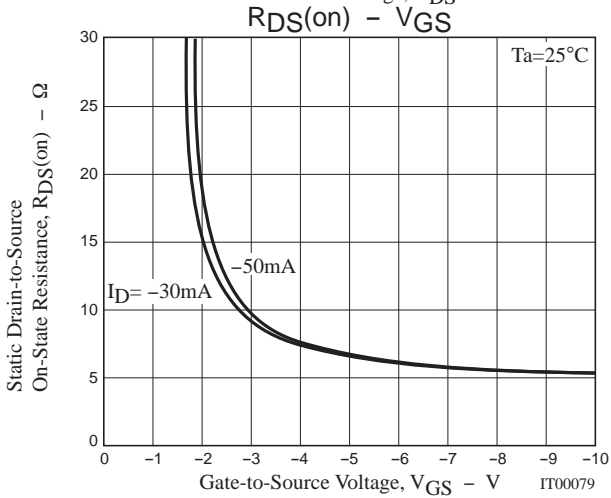
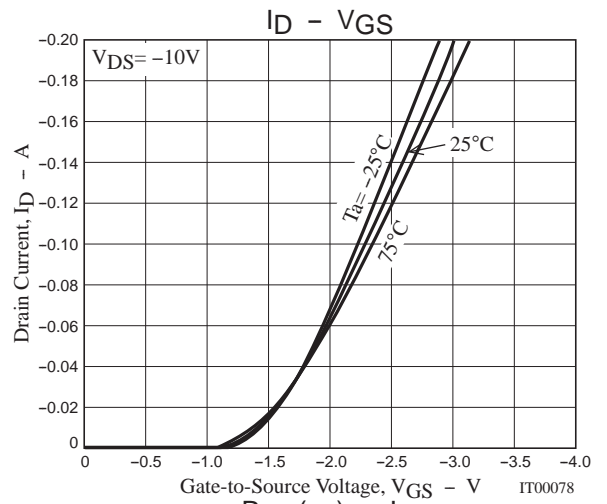
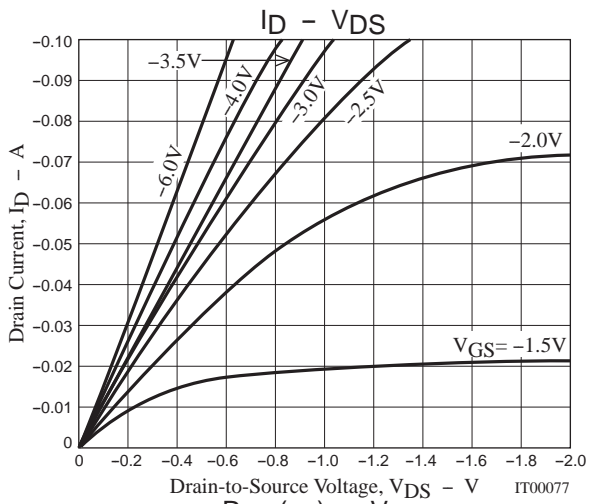
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|---------------|---|-----------------------------|-------|----------|---------------|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$ | -30 | | | V |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -30\text{V}$, $V_{GS} = 0\text{V}$ | | | -1 | μA |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS} = \pm 8\text{V}$, $V_{DS} = 0\text{V}$ | | | ± 10 | μA |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS} = -10\text{V}$, $I_D = -100\mu\text{A}$ | -0.4 | | -1.4 | V |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS} = -10\text{V}$, $I_D = -50\text{mA}$ | 80 | 110 | | mS |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D = -50\text{mA}$, $V_{GS} = -4\text{V}$ | | 8 | 10.4 | Ω |
| | $R_{DS(on)2}$ | $I_D = -30\text{mA}$, $V_{GS} = -2.5\text{V}$ | | 11 | 15.4 | Ω |
| | $R_{DS(on)3}$ | $I_D = -1\text{mA}$, $V_{GS} = -1.5\text{V}$ | | 27 | 54 | Ω |
| Input Capacitance | C_{iss} | | | 7.5 | | pF |
| Output Capacitance | C_{oss} | $V_{DS} = -10\text{V}$, $f = 1\text{MHz}$ | | 5.7 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | 1.8 | | pF |
| Turn-ON Delay Time | $t_{d(on)}$ | | See specified Test Circuit. | | 24 | |
| Rise Time | t_r | | | 55 | | ns |
| Turn-OFF Delay Time | $t_{d(off)}$ | | | 120 | | ns |
| Fall Time | t_f | | | 130 | | ns |
| Total Gate Charge | Q_g | $V_{DS} = -10\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -100\text{mA}$ | | | 1.43 | |
| Gate-to-Source Charge | Q_{gs} | | | 0.18 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | | | 0.25 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S = -100\text{mA}$, $V_{GS} = 0\text{V}$ | | -0.83 | -1.2 | V |

Switching Time Test Circuit

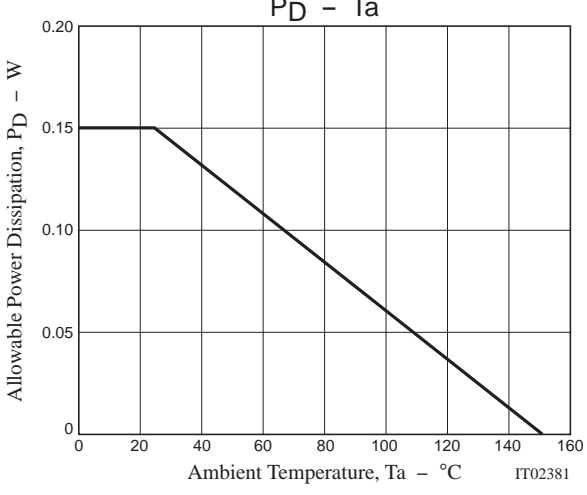
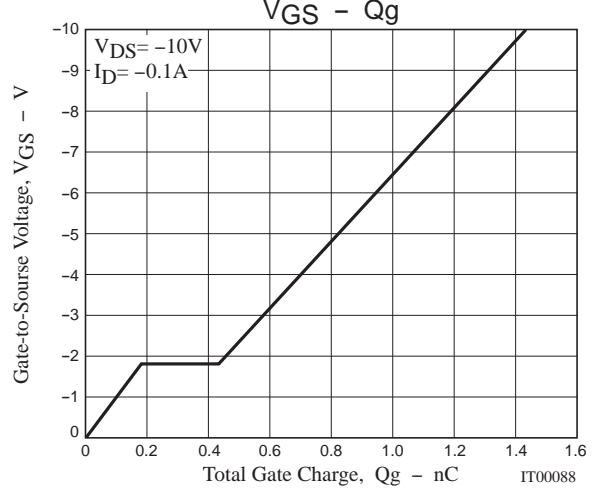
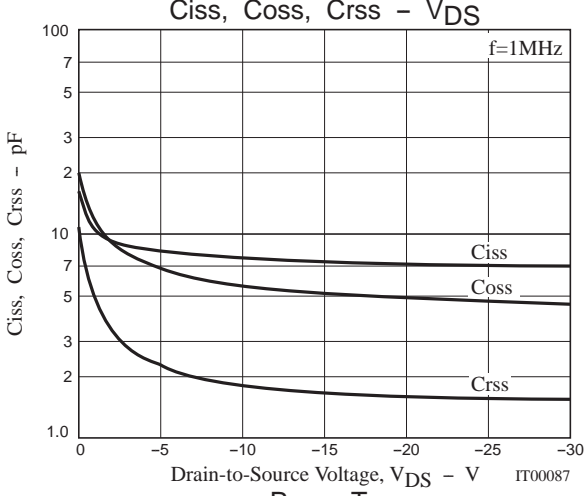
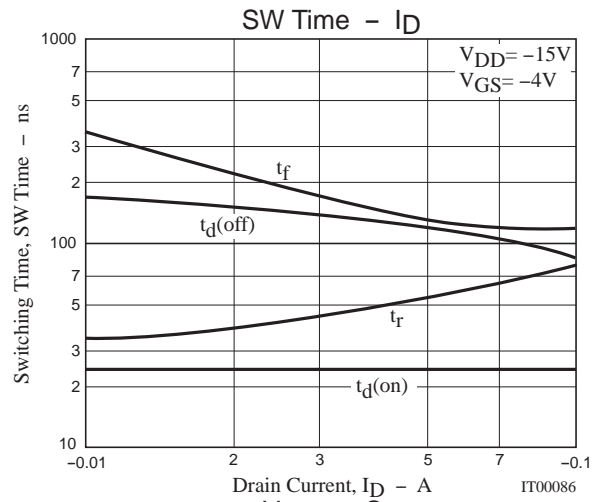
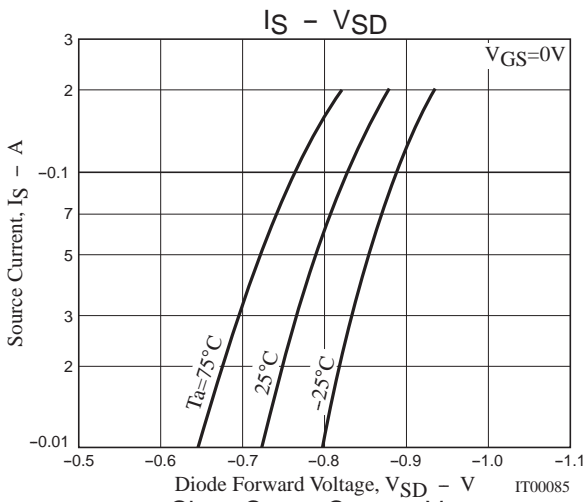


Ordering Information

| Device | Package | Shipping | memo |
|-------------|---------|----------------|--------------------------|
| 3LP01M-TL-E | MCP | 3,000pcs./reel | Pb Free |
| 3LP01M-TL-H | MCP | 3,000pcs./reel | Pb Free and Halogen Free |



3LP01M



3LP01M

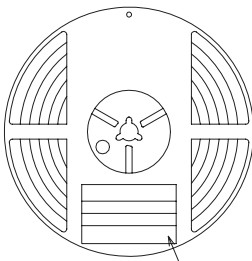
Embossed Taping Specification

3LP01M-TL-E, 3LP01M-TL-H

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) |
| MCP | MCP | 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 |

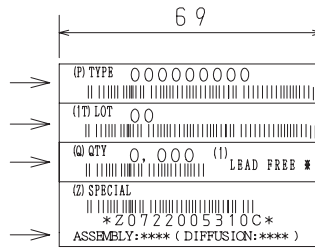
Packing method



Reel label

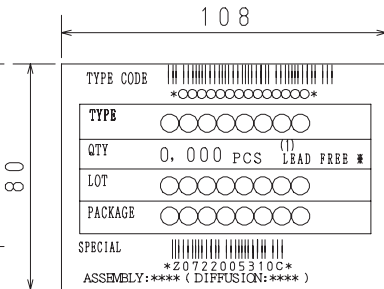
Type No.
LOT No.
Quantity
Origin

Reel label, Inner box label
(unit: mm)



Outer box label

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



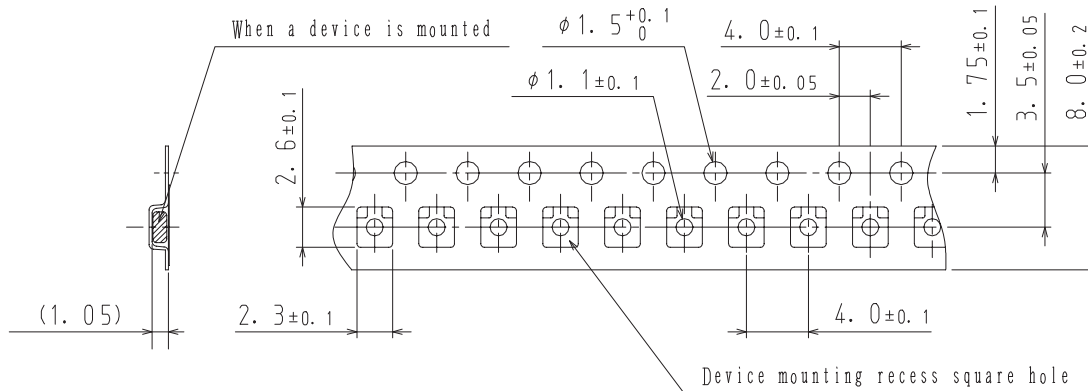
NOTE (1)

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

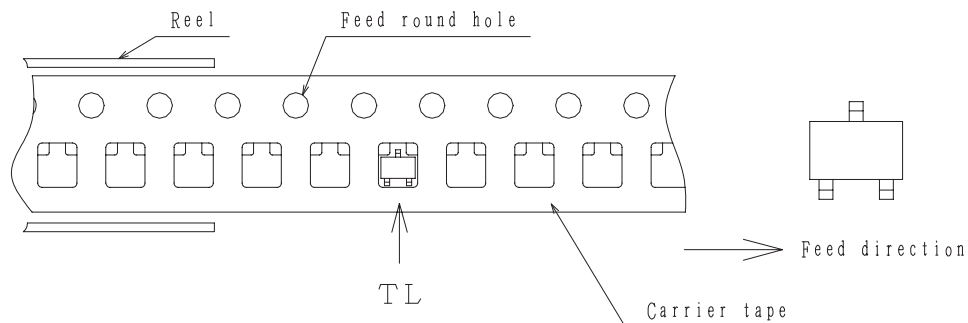
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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



2-2. Device placement direction

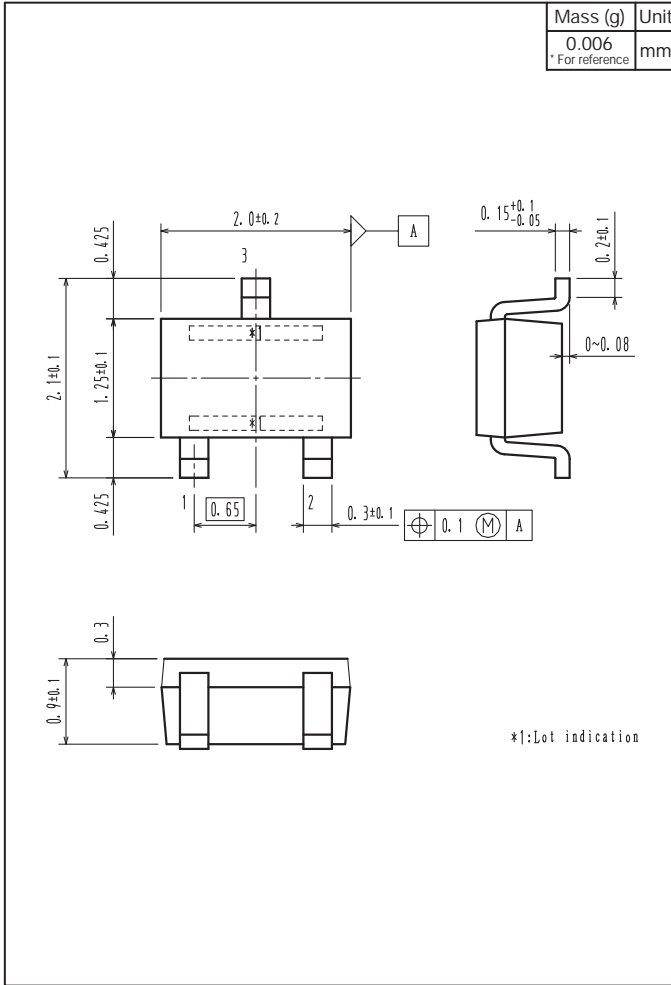


Those with one electrode terminal on the feed hole side.....TL

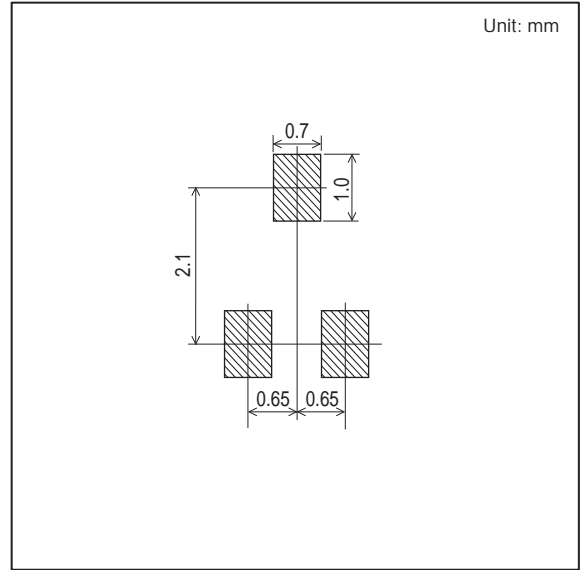
3LP01M

Outline Drawing

3LP01M-TL-E, 3LP01M-TL-H



Land Pattern Example



Note on usage : Since the 3LP01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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