



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 5LN01M — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### 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 <sub>DSS</sub>		50	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		0.1	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	0.4	A
Allowable Power Dissipation	P <sub>D</sub>		0.15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

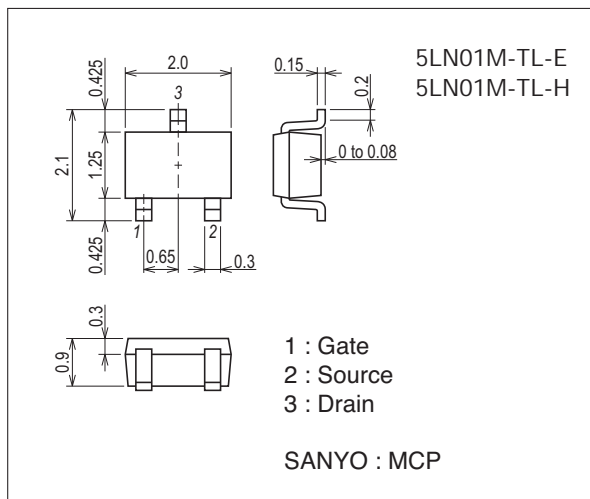
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

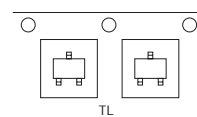
7023A-010



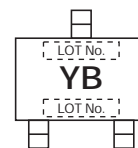
### Product & Package Information

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

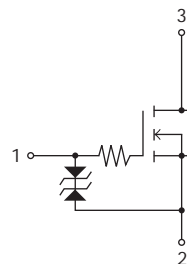
### Packing Type: TL



### Marking



### Electrical Connection



SANYO Semiconductor Co., Ltd.

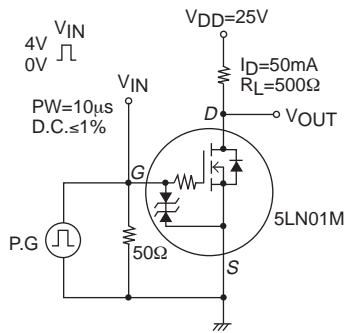
<http://semicon.sanyo.com/en/network>

# 5LN01M

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

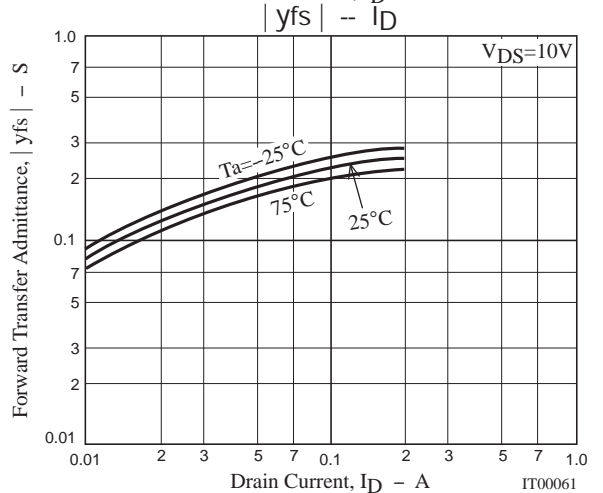
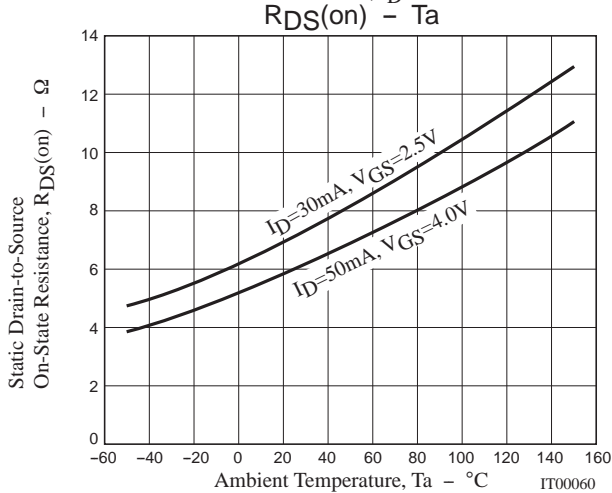
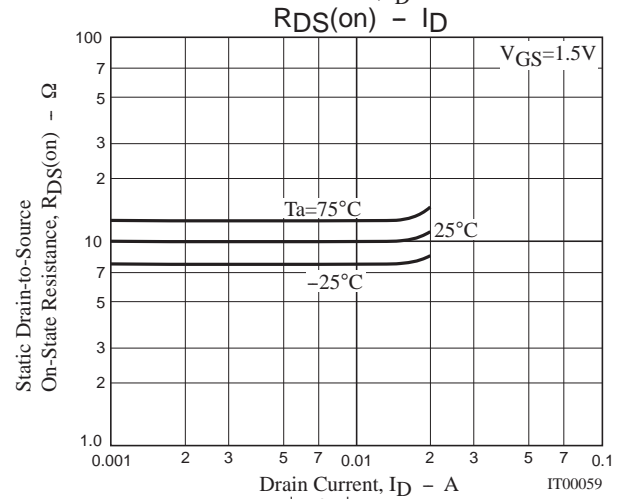
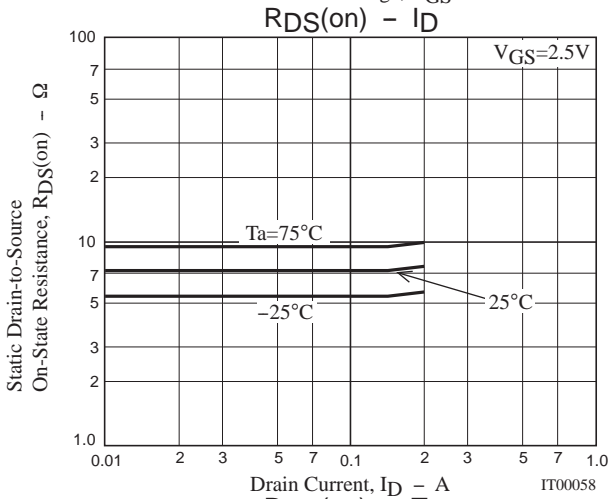
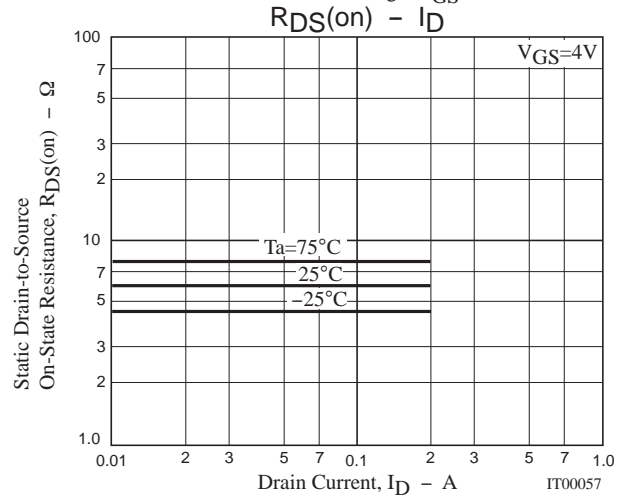
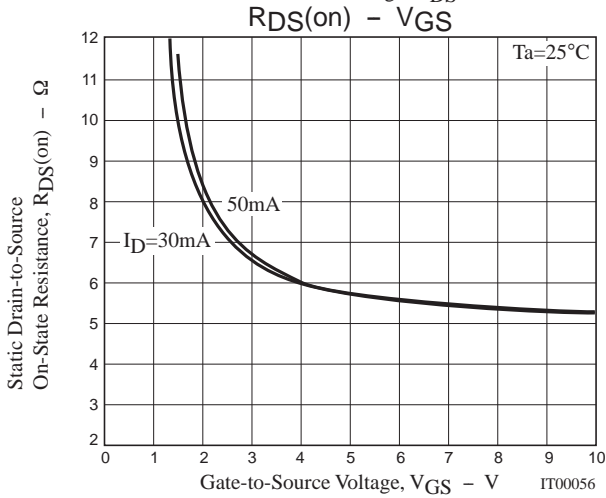
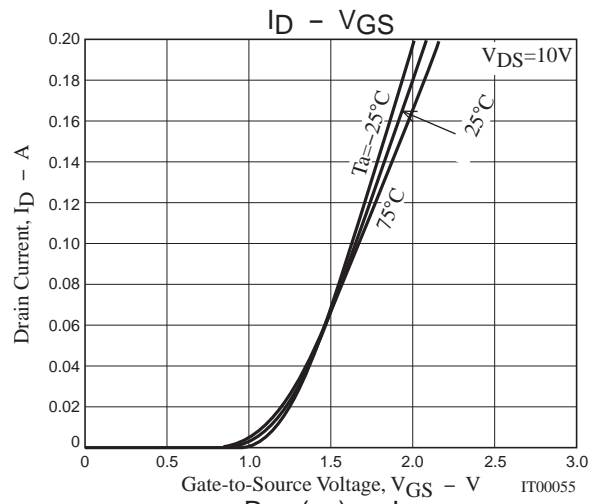
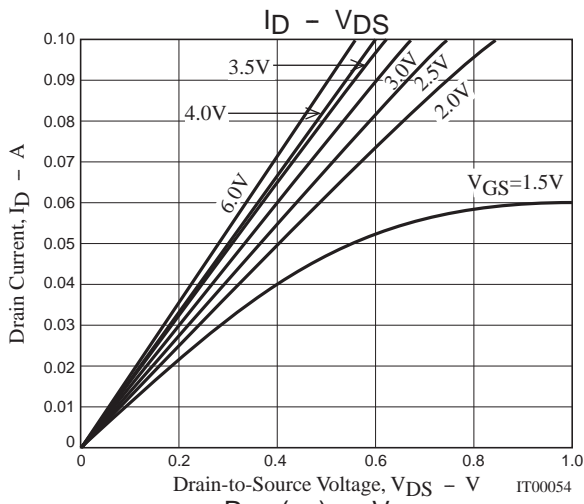
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	50			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=50\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 8\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=100\mu\text{A}$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$ , $I_D=50\text{mA}$	0.13	0.18		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50\text{mA}$ , $V_{GS}=4\text{V}$		6	7.8	$\Omega$
	$R_{DS(on)2}$	$I_D=30\text{mA}$ , $V_{GS}=2.5\text{V}$		7.1	9.9	$\Omega$
	$R_{DS(on)3}$	$I_D=10\text{mA}$ , $V_{GS}=1.5\text{V}$		10	20	$\Omega$
Input Capacitance	$C_{iss}$			6.6		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10\text{V}$ , $f=1\text{MHz}$		4.7		pF
Reverse Transfer Capacitance	$C_{rss}$			1.7		pF
Turn-ON Delay Time	$t_{d(on)}$		See specified Test Circuit.		18	
Rise Time	$t_r$			42		ns
Turn-OFF Delay Time	$t_{d(off)}$			190		ns
Fall Time	$t_f$			105		ns
Total Gate Charge	$Q_g$	$V_{DS}=10\text{V}$ , $V_{GS}=10\text{V}$ , $I_D=100\text{mA}$			1.57	
Gate-to-Source Charge	$Q_{gs}$			0.20		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			0.32		nC
Diode Forward Voltage	$V_{SD}$	$I_S=100\text{mA}$ , $V_{GS}=0\text{V}$		0.85	1.2	V

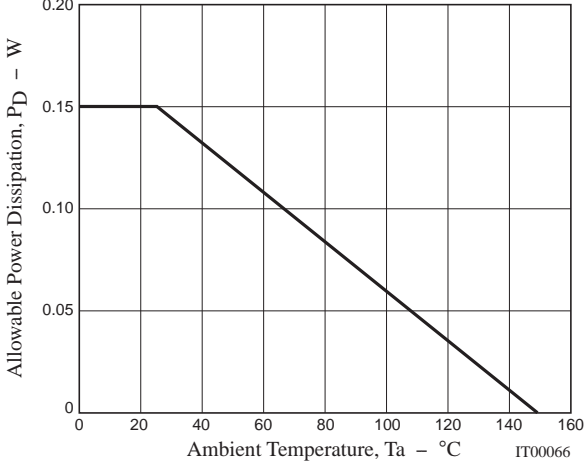
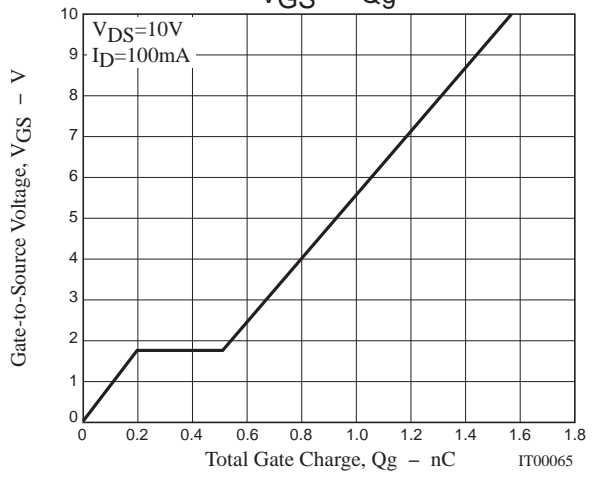
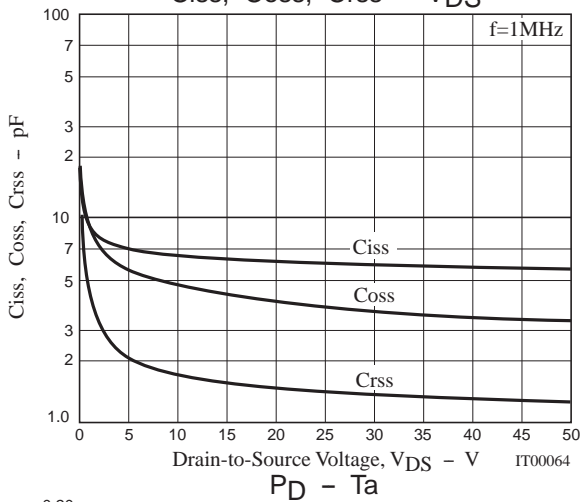
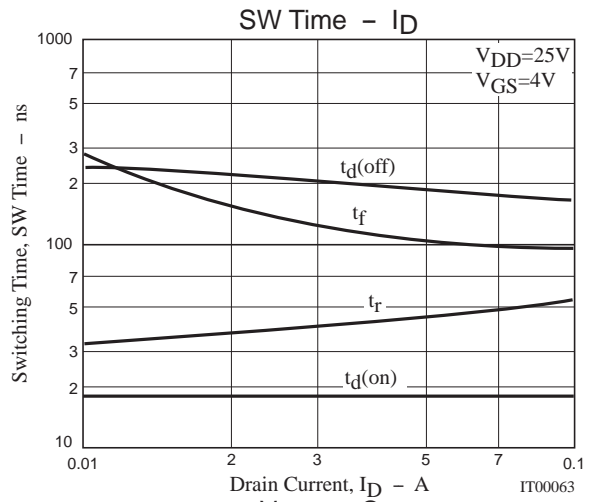
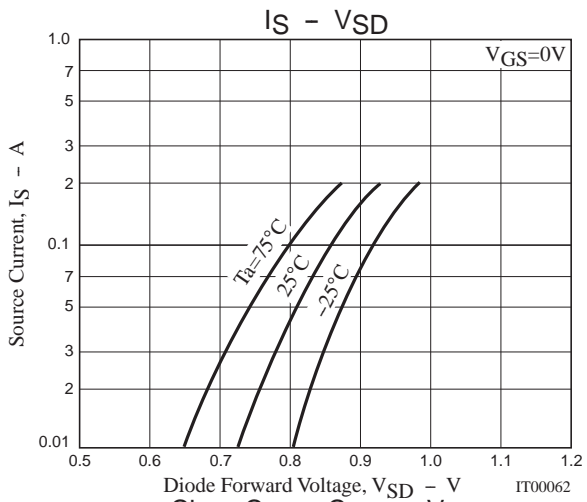
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
5LN01M-TL-E	MCP	3,000pcs./reel	Pb Free
5LN01M-TL-H	MCP	3,000pcs./reel	Pb Free and Halogen Free





# 5LN01M

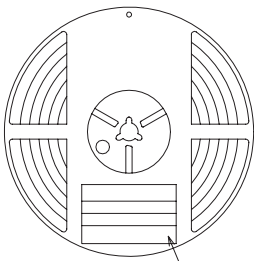
## Embossed Taping Specification

5LN01M-TL-E, 5LN01M-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

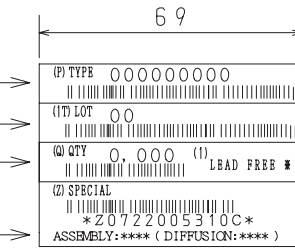
#### Packing method



Reel label

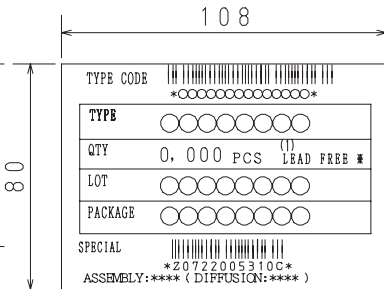
Type No.  
LOT No.  
Quantity  
Origin

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.



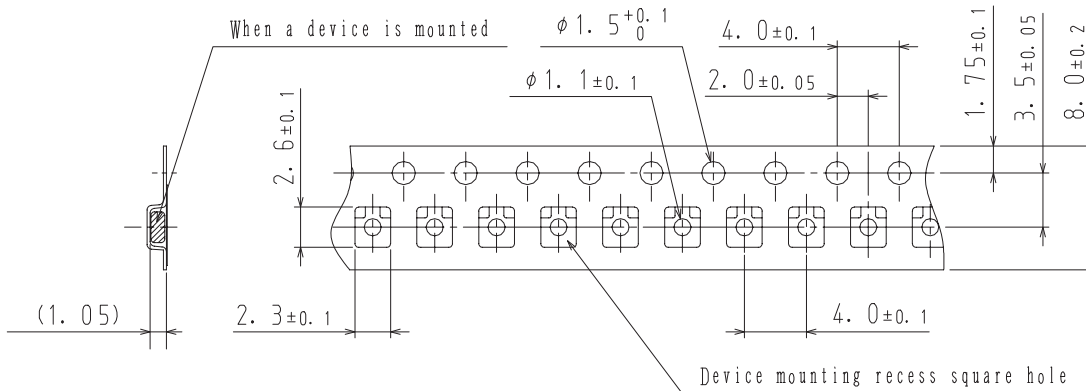
NOTE (1)

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

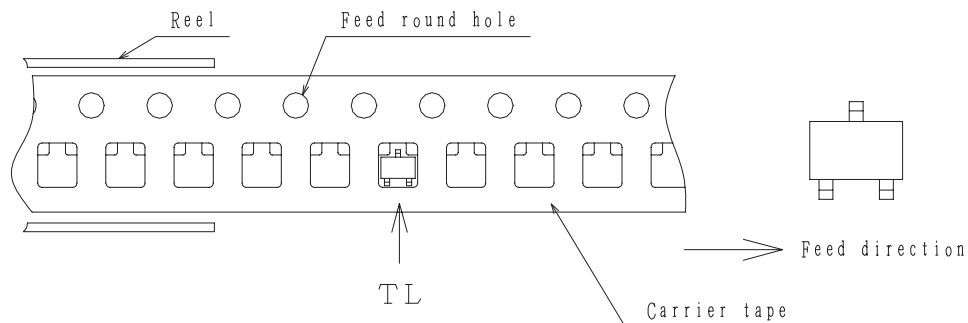
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

### 2. Taping configuration

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



#### 2-2. Device placement direction

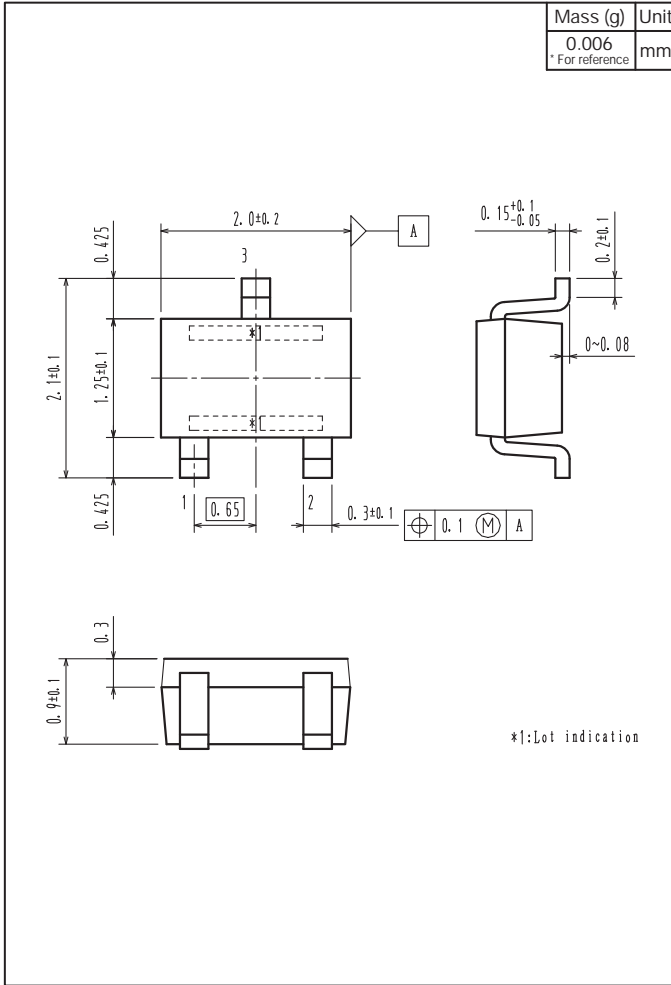


Those with one electrode terminal on the feed hole side.....TL

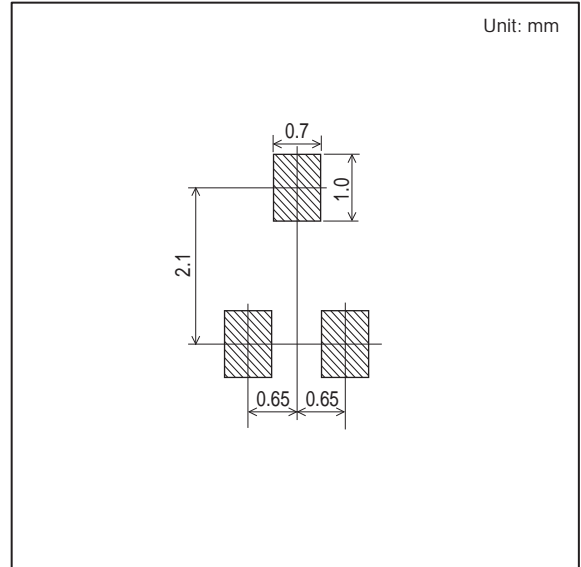
# 5LN01M

## Outline Drawing

5LN01M-TL-E, 5LN01M-TL-H



## Land Pattern Example



Note on usage : Since the 5LN01M is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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