



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# 3LN01S — General-Purpose Switching Device Applications

N-Channel Silicon MOSFET

## 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>		30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±10	V
Drain Current (DC)	I <sub>D</sub>		0.15	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	0.6	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

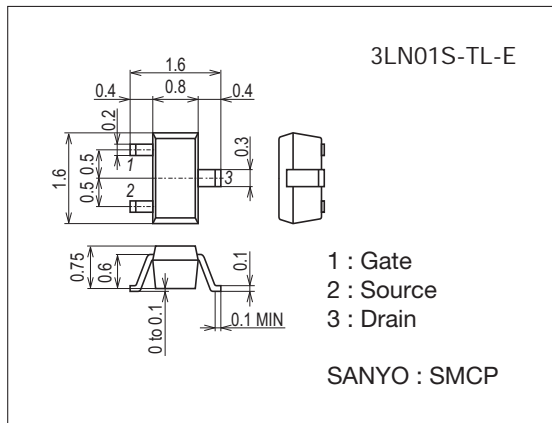
This product is designed to "ESD immunity < 200V\*", so please take care when handling.

\* Machine Model

## Package Dimensions

unit : mm (typ)

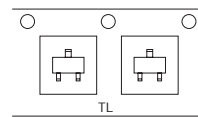
7013A-013



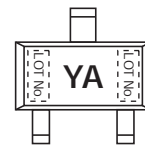
## Product & Package Information

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

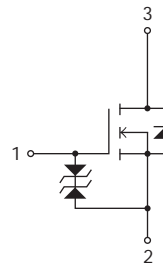
## Packing Type: TL



## Marking



## Electrical Connection

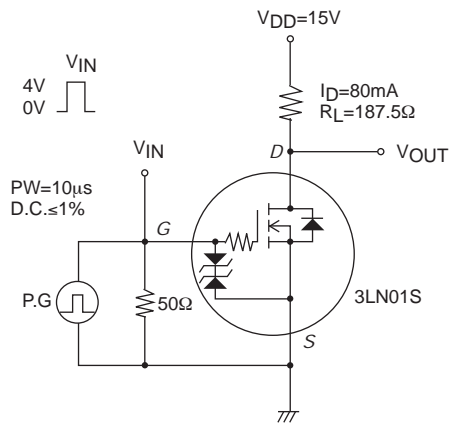


# 3LN01S

## Electrical Characteristics at Ta=25°C

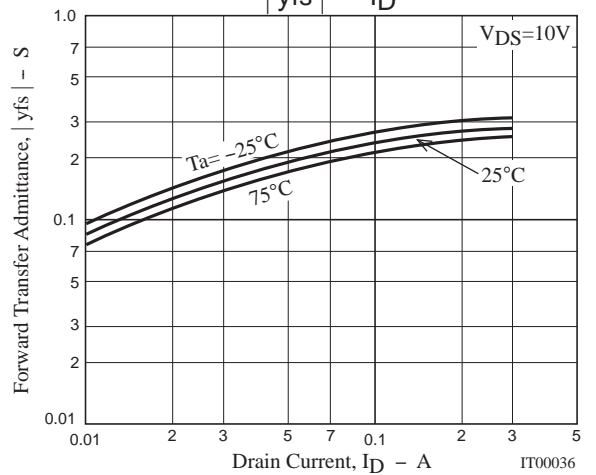
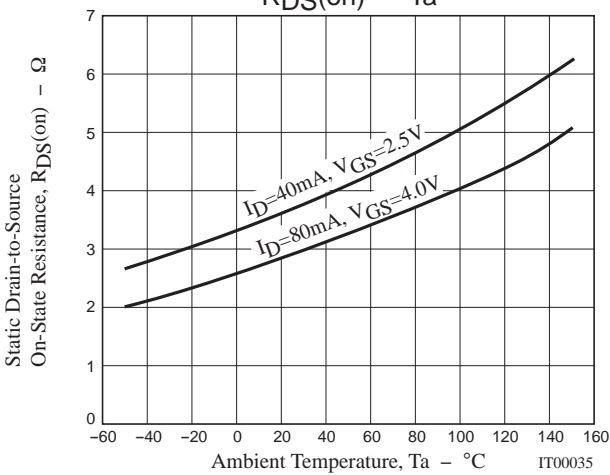
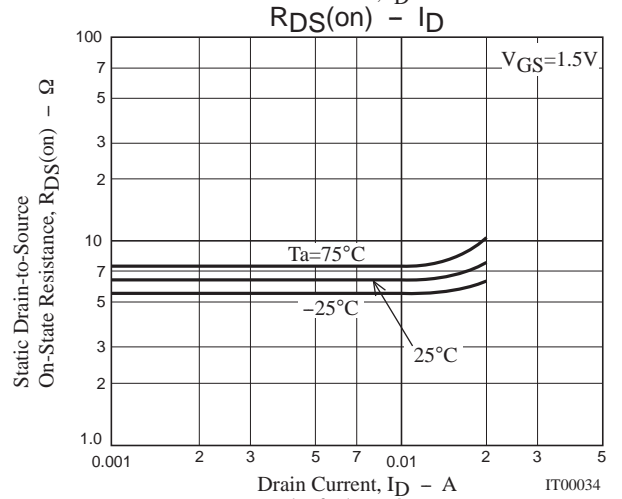
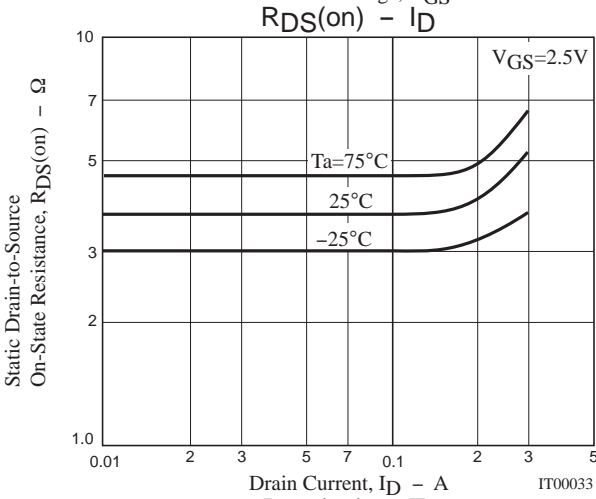
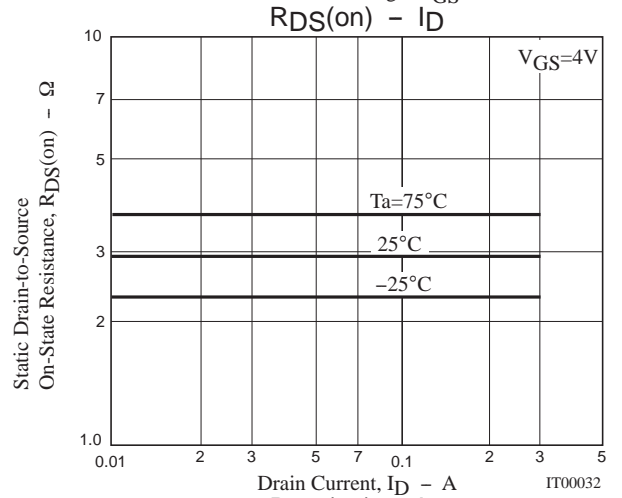
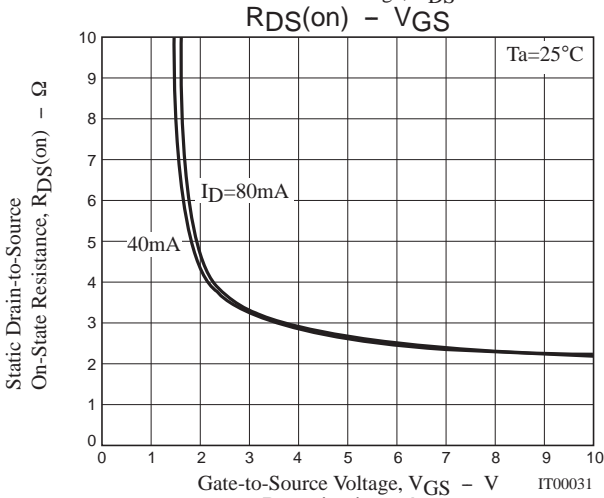
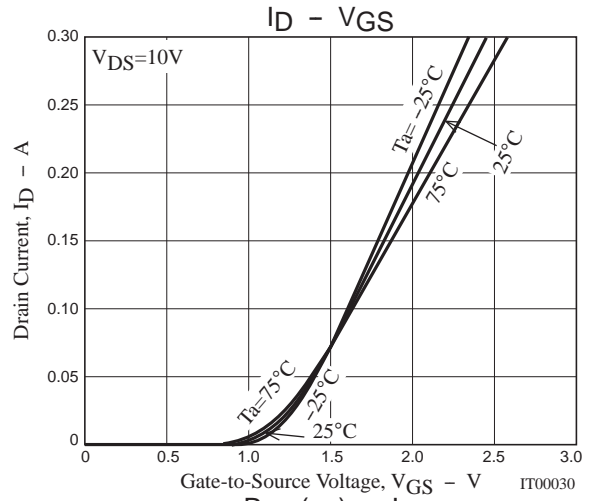
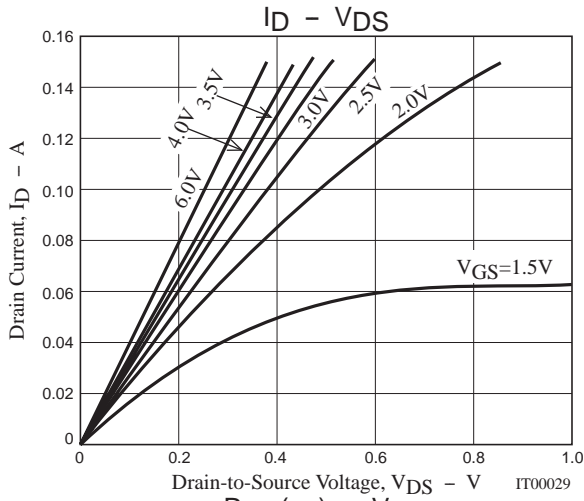
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =100μA	0.4		1.3	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =80mA	0.15	0.22		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =80mA, V <sub>GS</sub> =4V		2.9	3.7	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =40mA, V <sub>GS</sub> =2.5V		3.7	5.2	Ω
	R <sub>DS(on)3</sub>	I <sub>D</sub> =10mA, V <sub>GS</sub> =1.5V		6.4	12.8	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		7.0		pF
Output Capacitance	C <sub>oss</sub>			5.9		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			2.3		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		19	
Rise Time	t <sub>r</sub>			65		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			155		ns
Fall Time	t <sub>f</sub>			120		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =150mA			1.58	
Gate-to-Source Charge	Q <sub>gs</sub>			0.26		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			0.31		nC
Diode Forward Voltage	V <sub>SD</sub>		I <sub>S</sub> =150mA, V <sub>GS</sub> =0V		0.87	1.2

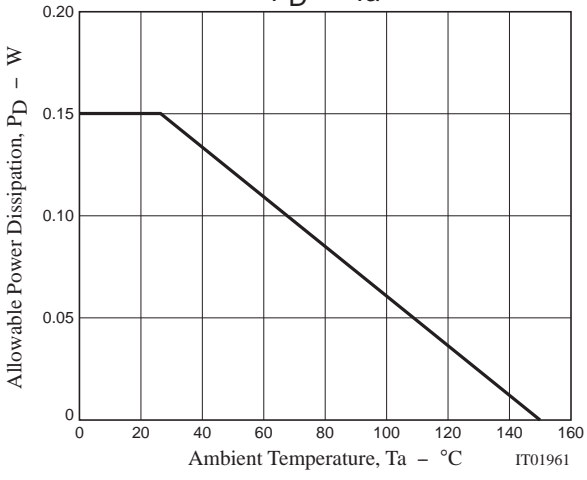
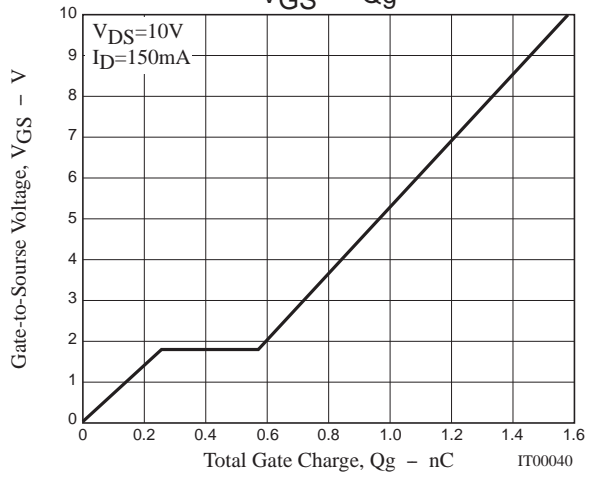
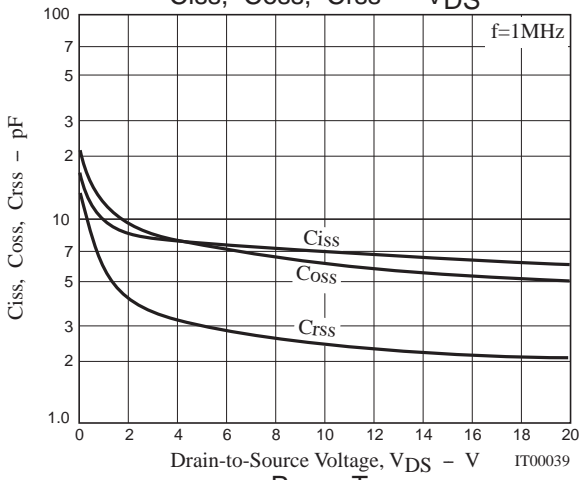
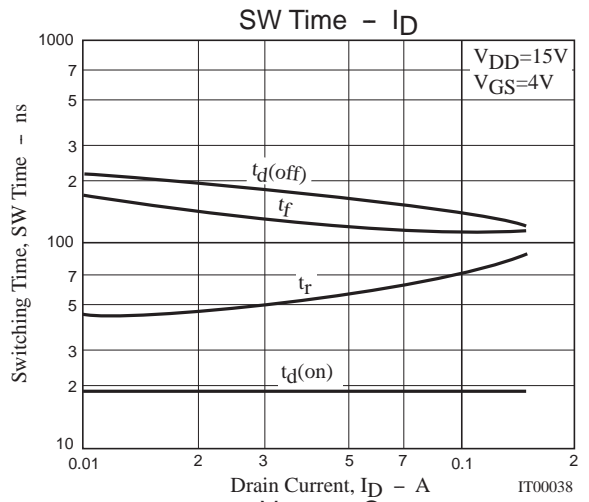
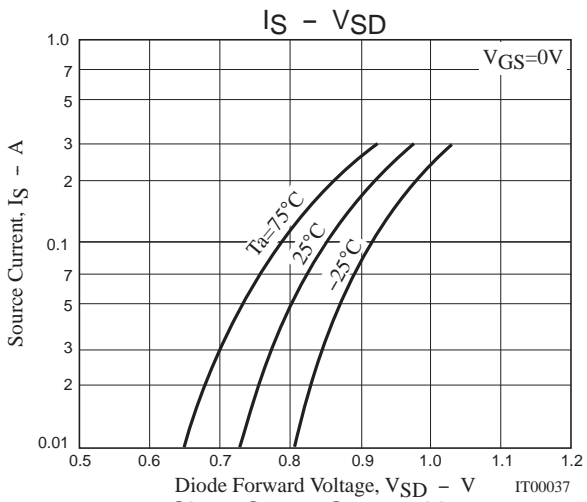
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
3LN01S-TL-E	SMCP	3,000pcs./reel	Pb Free





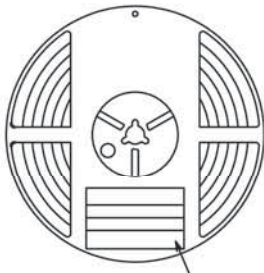
Embossed Taping Specification

3LN01S-TL-E

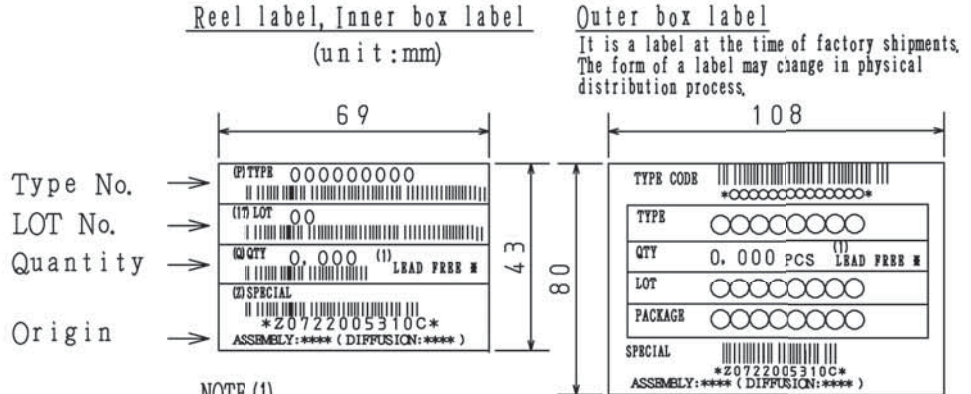
1. Packing Format

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

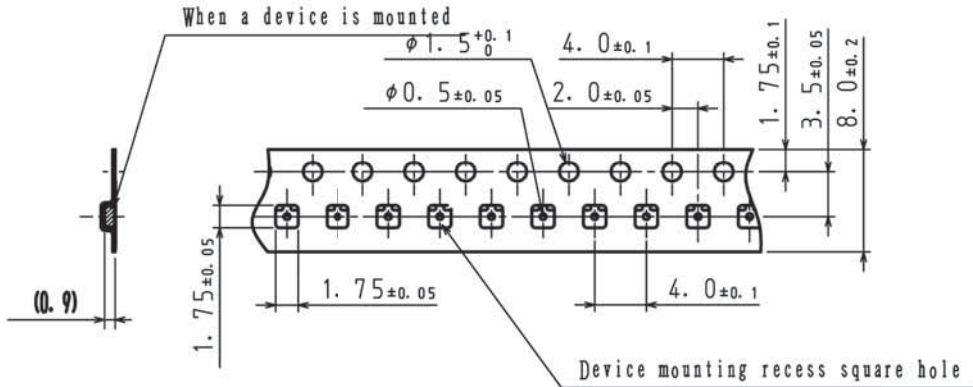


NOTE (1)  
The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

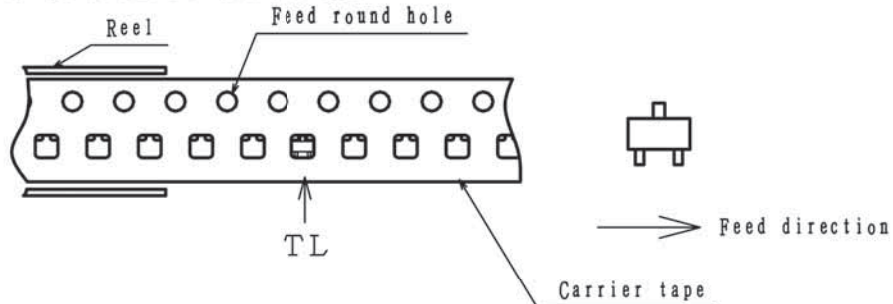
Label	JEITA Phase
.....	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

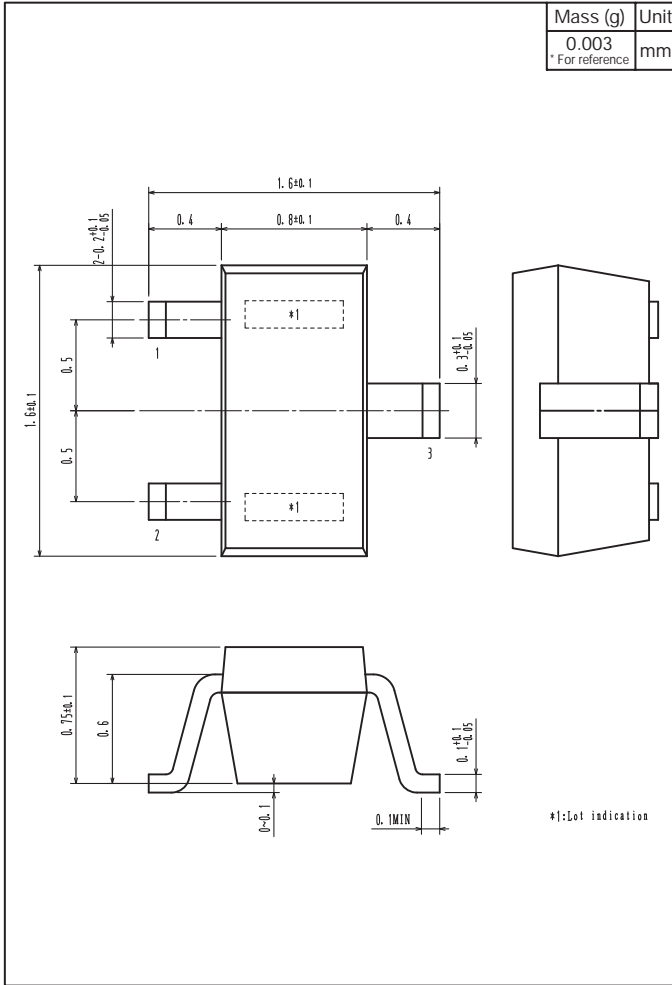


Those with one electrode terminal on the feed hole side.....TL

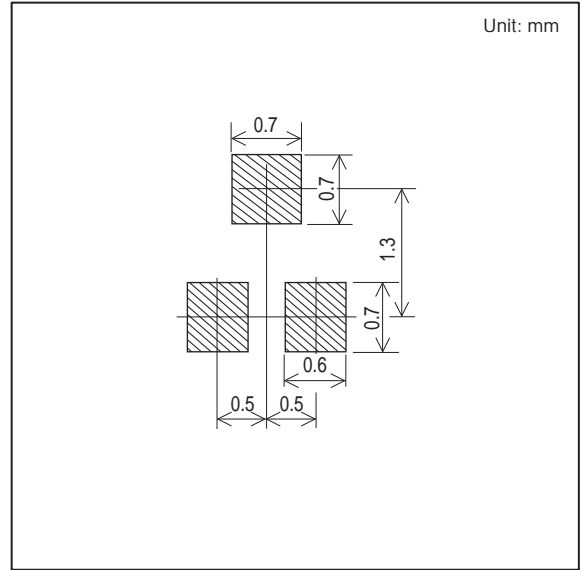
# 3LN01S

## Outline Drawing

3LN01S-TL-E



## Land Pattern Example



Note on usage : Since the 3LN01S is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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