



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

# 5LN01C — 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>		0.25	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

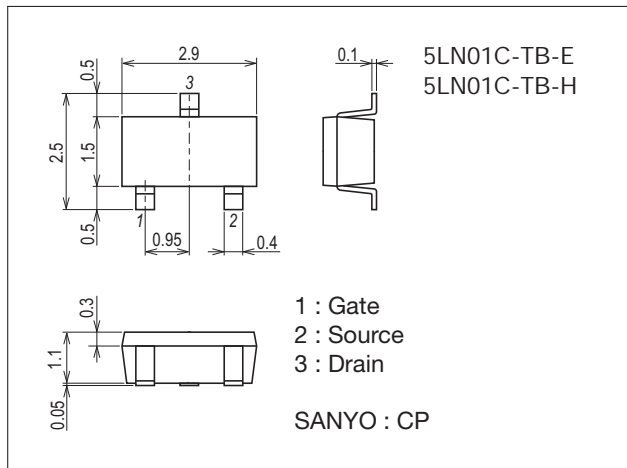
This product is designed to "ESD immunity < 200V\*\*", so please take care when handling.

\* Machine Model

### Package Dimensions

unit : mm (typ)

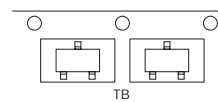
7013A-013



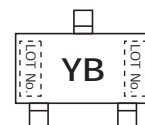
### Product & Package Information

- Package : CP
- JEITA, JEDEC : SC-59, TO-236, SOT-23, TO-236AB
- Minimum Packing Quantity : 3,000 pcs./reel

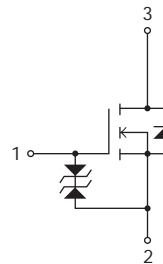
### Packing Type: TB



### Marking



### Electrical Connection

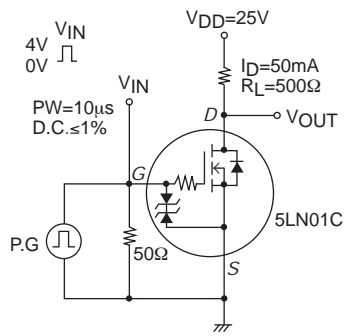


# 5LN01C

## Electrical Characteristics at Ta=25°C

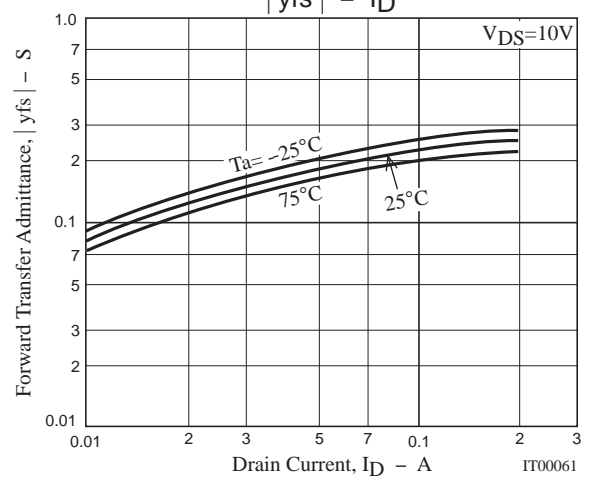
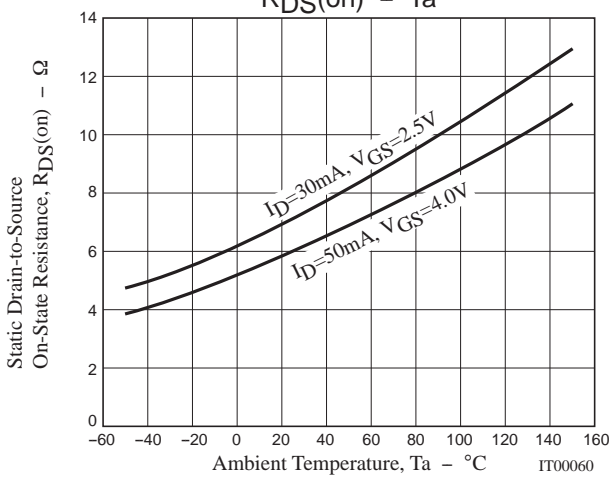
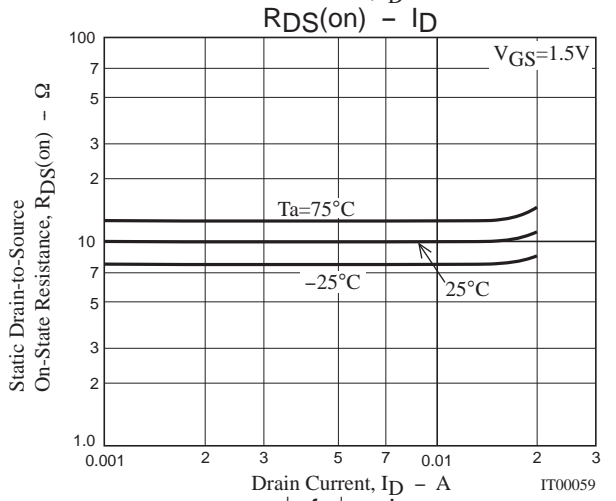
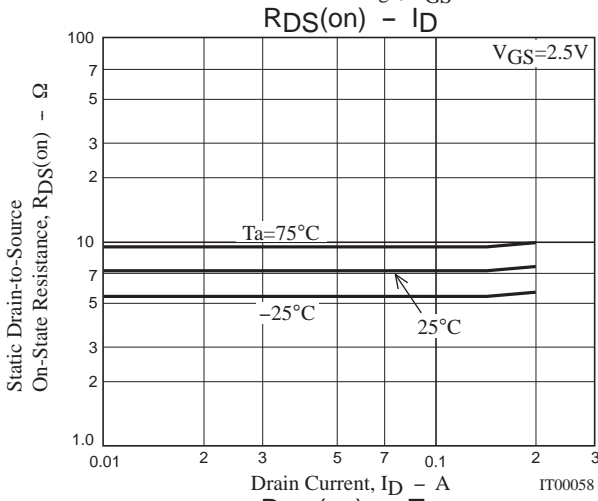
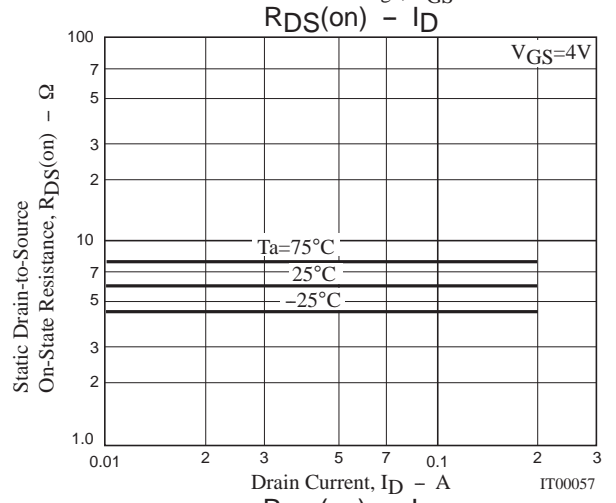
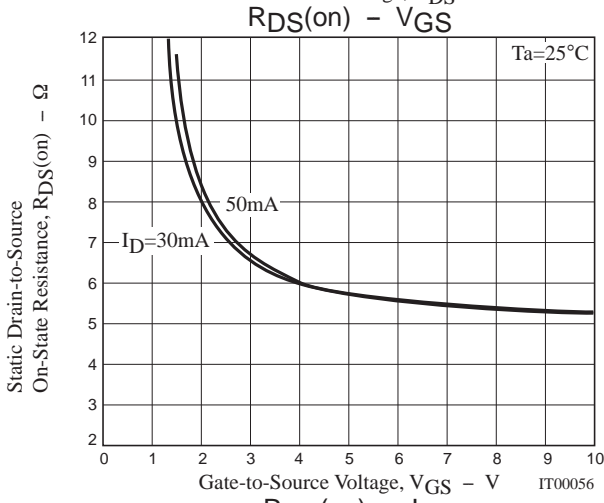
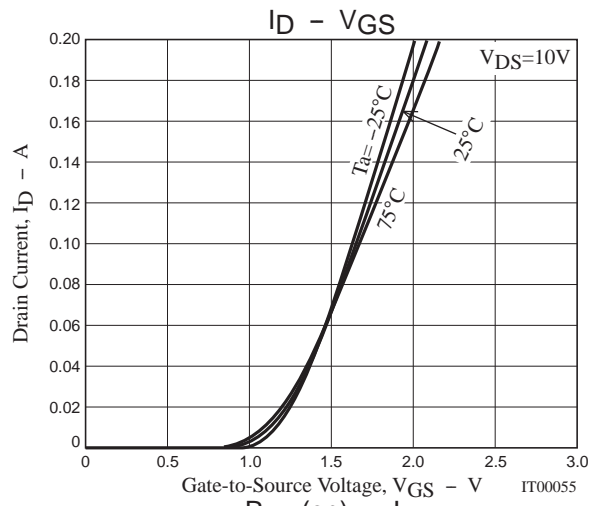
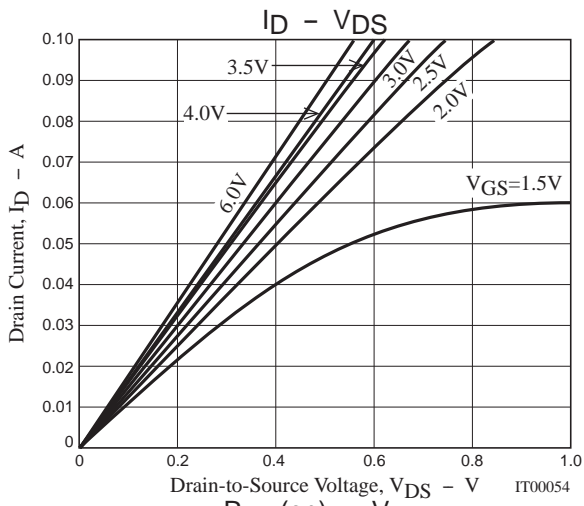
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	I <sub>D</sub> =1mA, V <sub>GS</sub> =0V	50			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V			1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</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> =50mA	0.13	0.18		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =50mA, V <sub>GS</sub> =4V		6	7.8	Ω
	R <sub>DS(on)2</sub>	I <sub>D</sub> =30mA, V <sub>GS</sub> =2.5V		7.1	9.9	Ω
	R <sub>DS(on)3</sub>	I <sub>D</sub> =10mA, V <sub>GS</sub> =1.5V		10	20	Ω
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, f=1MHz		6.6		pF
Output Capacitance	C <sub>oss</sub>			4.7		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			1.7		pF
Turn-ON Delay Time	t <sub>d(on)</sub>		See specified Test Circuit.		18	
Rise Time	t <sub>r</sub>			42		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>			190		ns
Fall Time	t <sub>f</sub>			105		ns
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V, I <sub>D</sub> =100mA			1.57	
Gate-to-Source Charge	Q <sub>gs</sub>			0.20		nC
Gate-to-Drain "Miller" Charge	Q <sub>gd</sub>			0.32		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =100mA, V <sub>GS</sub> =0V		0.85	1.2	V

## Switching Time Test Circuit

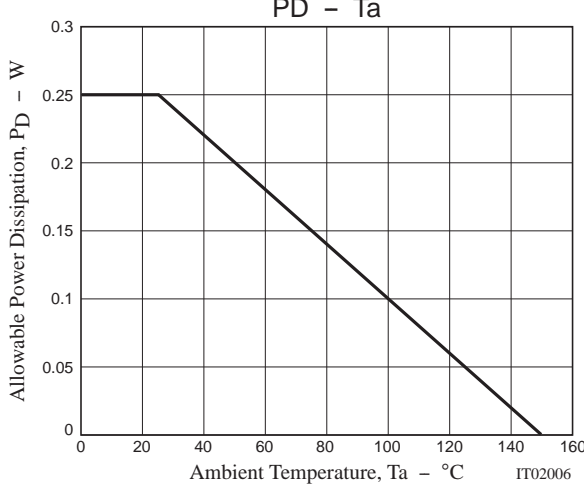
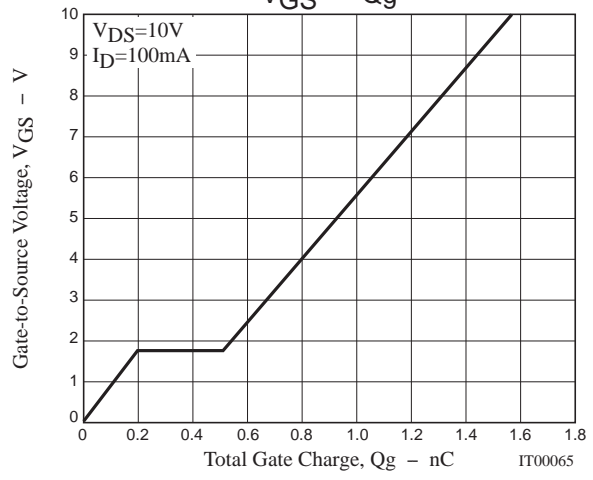
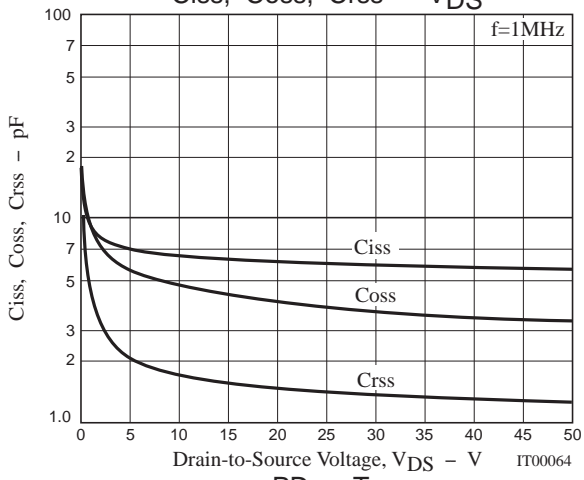
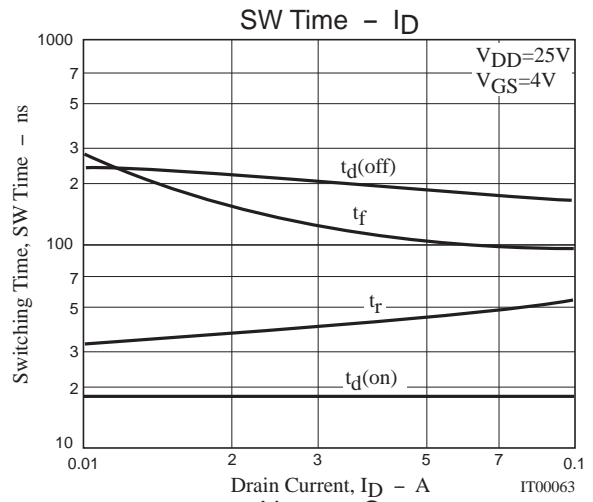
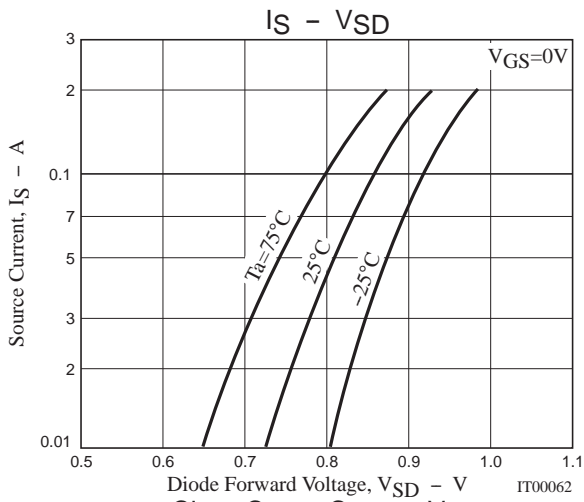


## Ordering Information

Device	Package	Shipping	memo
5LN01C-TB-E	CP	3,000pcs./reel	Pb Free
5LN01C-TB-H	CP	3,000pcs./reel	Pb Free and Halogen Free



# 5LN01C



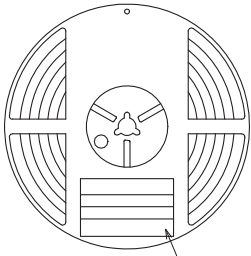
Embossed Taping Specification

5LN01C-TB-E, 5LN01C-TB-H

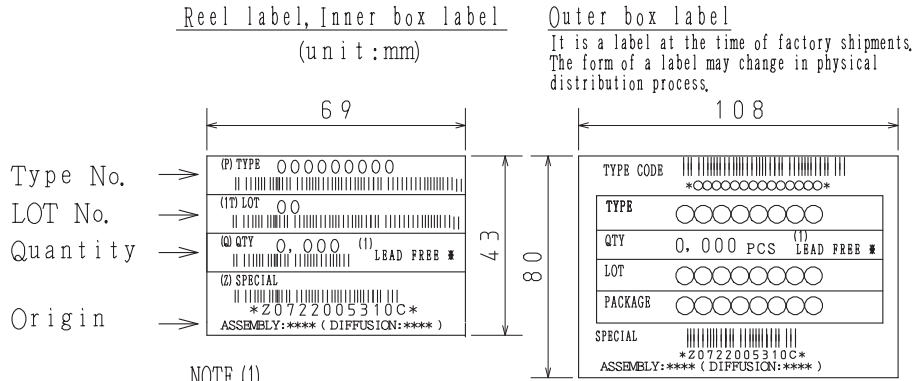
1. Packing Format

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)
CP	CP	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



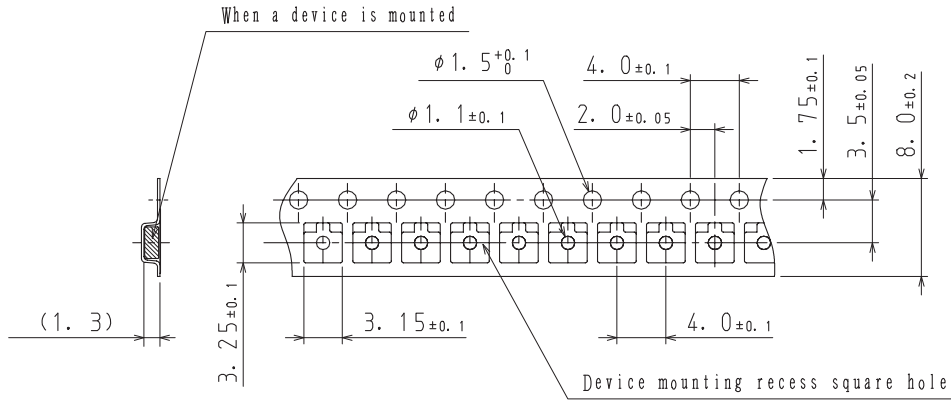
NOTE (1)

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

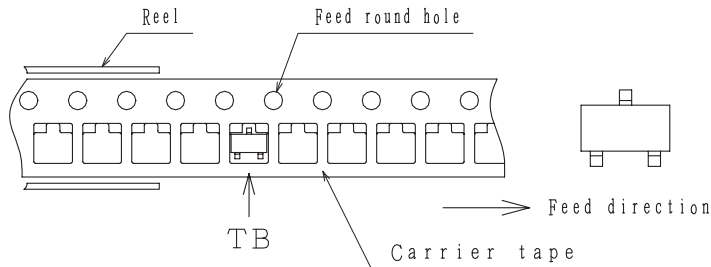
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



2-2. Device placement direction

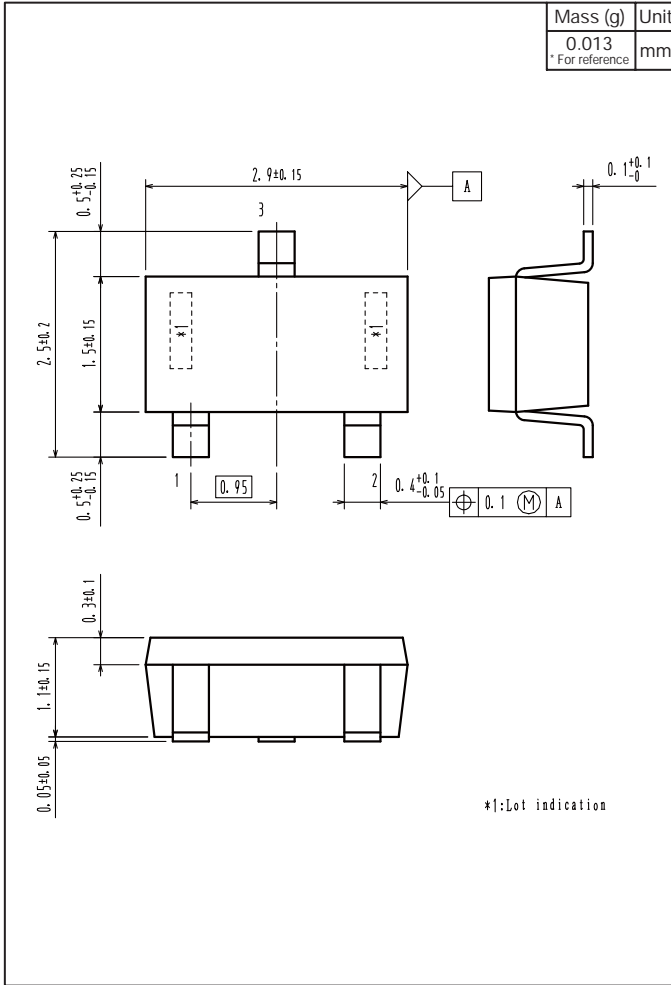


Those with one electrode terminal on the feed hole side.....TB

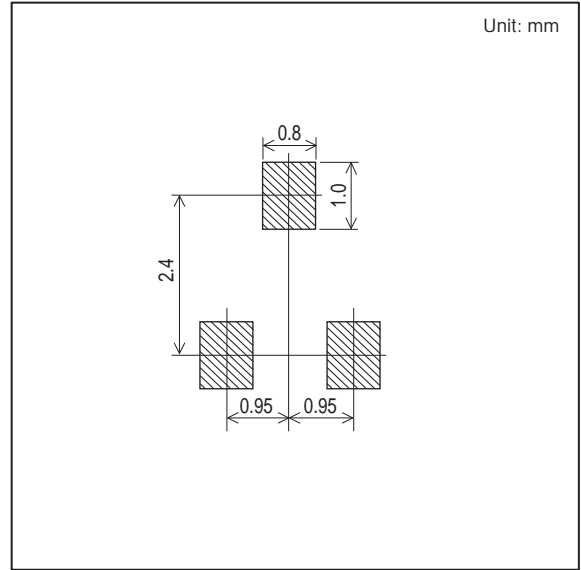
# 5LN01C

## Outline Drawing

5LN01C-TB-E, 5LN01C-TB-H



## Land Pattern Example



Note on usage : Since the 5LN01C is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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