Ordering number : ENA0420A

# TND314S

## Excellent Power Device

### Dual inverter driver for general purpose, Dual SOIC8

ON Semiconductor®

http://onsemi.com

## Features

- Dual inverter
- Withstand voltage of 25V is assured
- Peak output current : 1A
- Fully compatible input to TTL / CMOS ($V_{IH}$=up to 2.6V, at $V_{DD}$=4.5 to 25V)
- Built-in input pull-down resistance
- Monolithic structure (High voltage CMOS process adopted)
- Wide range of operating voltage : 4.5V to 25V
- Fast switching time (25ns typical at 1000pF load)
- Halogen free compliance

## Specifications

### Absolute Maximum Ratings at Ta=25°C

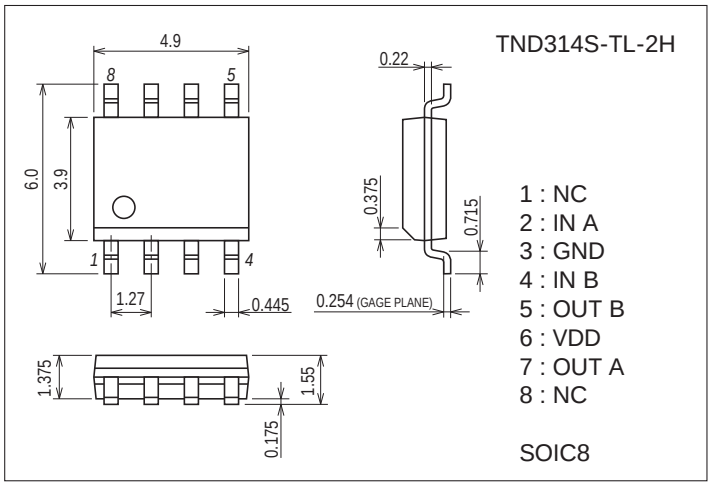
| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Supply Voltage | $V_{DD}$ | | 0 to 25 | V |
| Input Voltage | $V_{IN}$ | | GND−0.3 to $V_{DD}$+0.3 | V |
| Allowable Power Dissipation | $P_D$ max | | 0.3 | W |
| Junction Temperature | Tj | | −55 to +150 | °C |
| Storage Temperature | Tstg | | −55 to +150 | °C |

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)

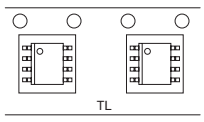
7072-005



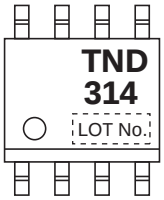

### Product & Package Information

- Package : SOIC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

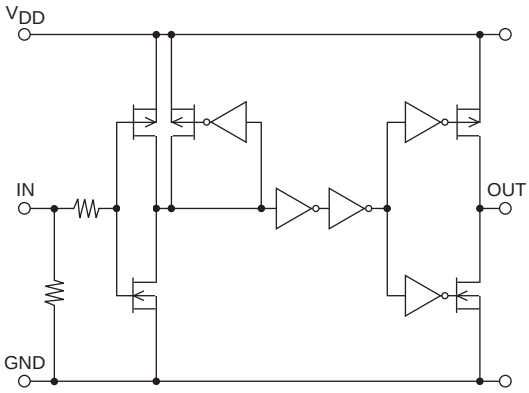
### Packing Type: TL




### Marking




### Block Diagram



## Recommend Operating Conditions at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Operating Supply Voltage | $V_{DD}$ | | 4.5 to 25 | V |
| Operating Temperature | Topr | | −40 to +125 | °C |

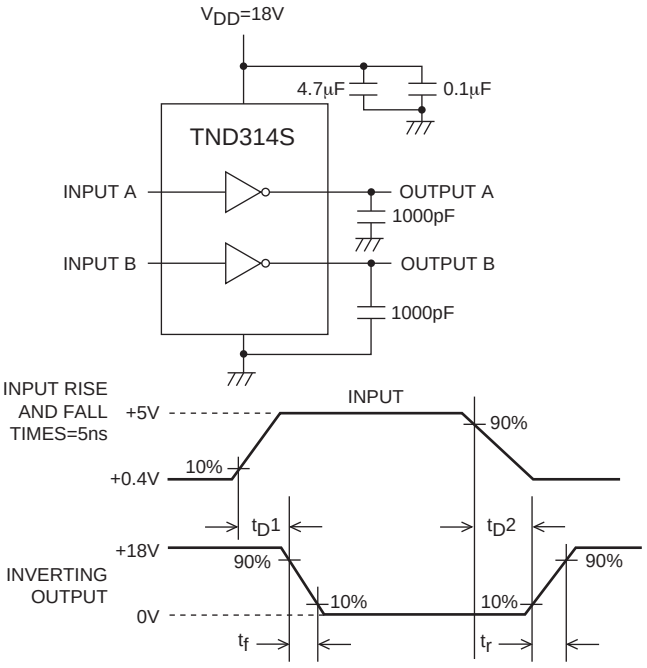
## Electrical Characteristics (AC Characteristics) at Ta=25°C, $V_{DD}$=18V, $V_{IN}$=5V

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Turn-On Rise Time | $t_r$ | $C_L$=1000pF | | 30 | 45 | ns |
| Turn-Off Fall Time | $t_f$ | $C_L$=1000pF | | 30 | 45 | ns |
| Delay Time | $t_D1$ | $C_L$=1000pF | | 25 | 40 | ns |
| | $t_D2$ | $C_L$=1000pF | | 45 | 60 | ns |

## Electrical Characteristics (DC Characteristics) at Ta=25°C, $V_{DD}$=4.5 to 25V

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Logic “1” Input Voltage | $V_{IH}$ | | 2.6 | | | V |
| Logic “0” Input Voltage | $V_{IL}$ | | | | 0.8 | V |
| Logic “1” Input Bias Current | $I_{IN}$+ | $V_{IN}$=$V_{DD}$=25V | | 40 | 100 | μA |
| Logic “0” Input Bias Current | $I_{IN}$− | $V_{IN}$=0V or $V_{DD}$ | −1 | | 1 | μA |
| High-level Output Voltage | $V_{OH}$ | $I_O$=0A | $V_{DD}$−0.1 | | | V |
| Low-level Output Voltage | $V_{OL}$ | $I_O$=0A | | | 0.1 | V |
| $V_{DD}$ Supply Current | Isupp | $V_{DD}$=10V, $V_{IN}$=3V, (both inputs) | | 1.0 | 4.5 | mA |
| | | $V_{DD}$=10V, $V_{IN}$=0V, (both inputs) | | | 0.2 | mA |
| Output High Short Circuit Pulsed Current | $I_O$+ | $V_{DD}$=18V, PW≤10μs, $V_{OUT}$=0V | | 1.0 | | A |
| Output Low Short Circuit Pulsed Current | $I_O$− | $V_{DD}$=18V, PW≤10μs, $V_{OUT}$=18V | | 1.0 | | A |
| Output On Resistance | ROUT | $V_{DD}$=18V, Iload=10mA, $V_{OUT}$=“H” | | 8 | 12 | Ω |
| | | $V_{DD}$=18V, Iload=10mA, $V_{OUT}$=“L” | | 6 | 10 | Ω |

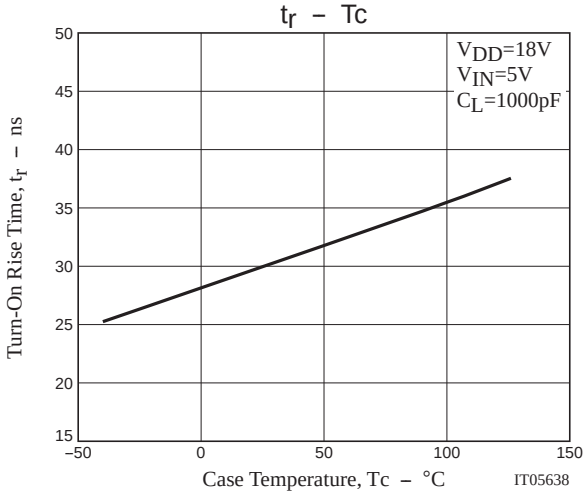
## Switching Time Test Circuit



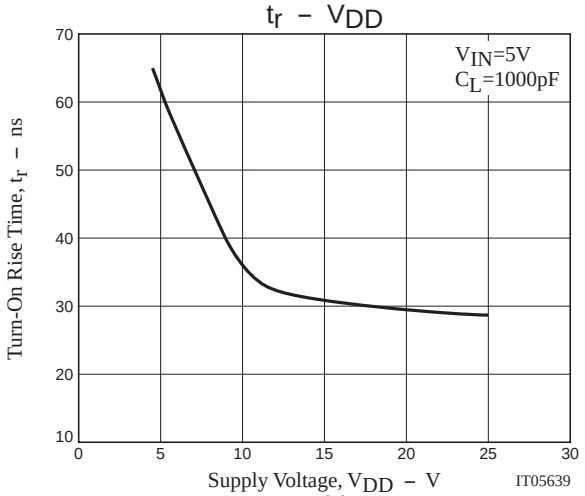

## Ordering Information

| Devices | Package | Shipping | memo |
|---|---|---|---|
| TND314S-TL-2H | SOIC8 | 2,500pcs./reel | Pb Free and Halogen Free |

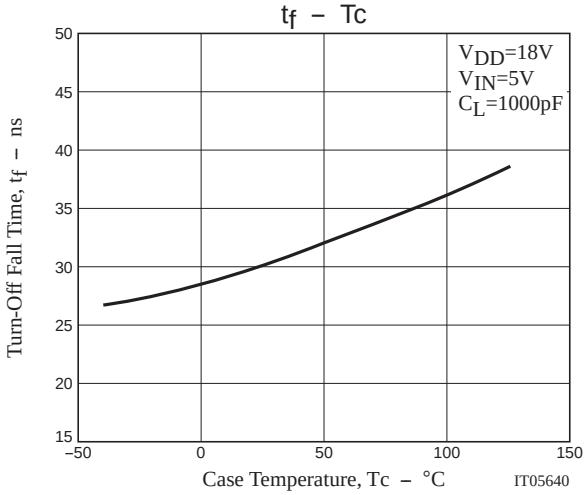
$t_r$ – Tc



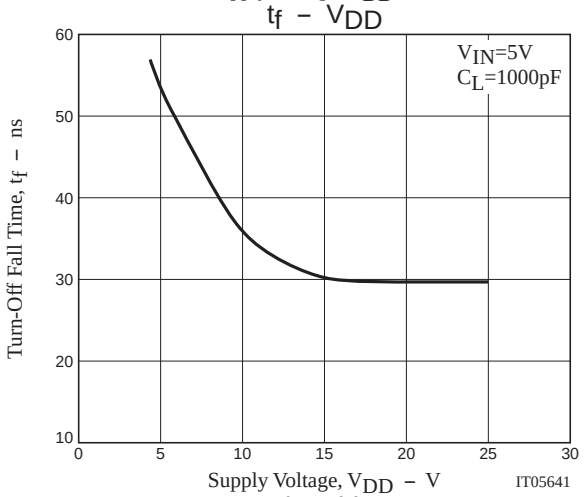

$t_r$ – $V_{DD}$



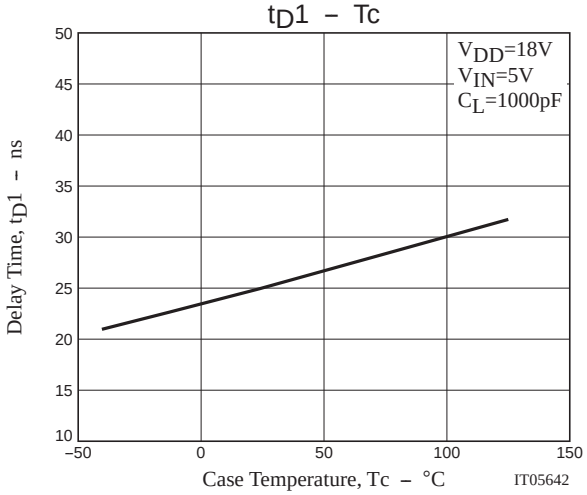

$t_f$ – Tc



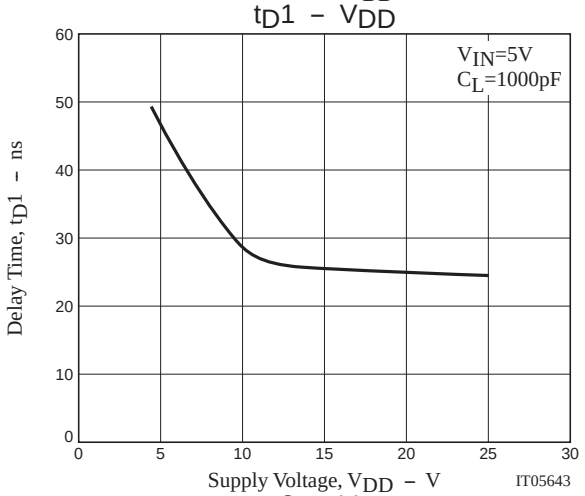

$t_f$ – $V_{DD}$



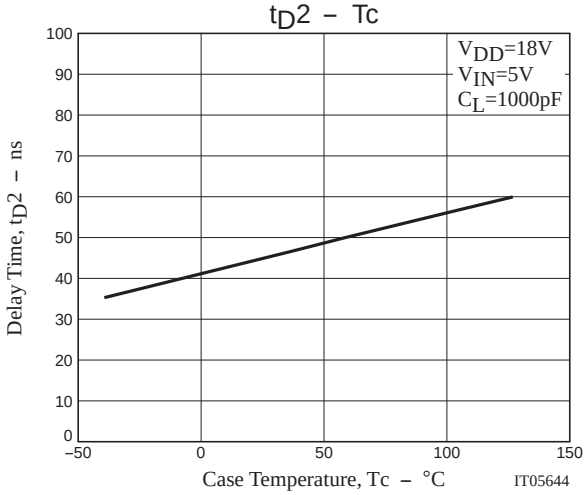

$t_{D}1$ – Tc



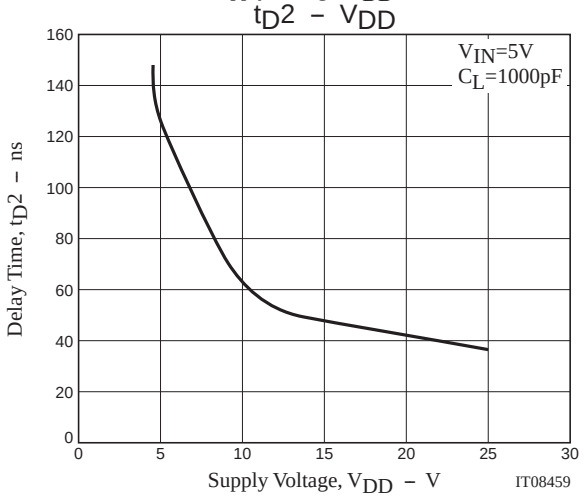

$t_{D}1$ – $V_{DD}$



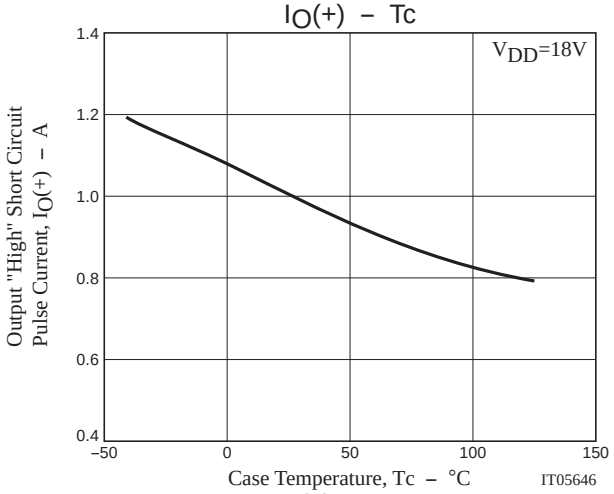

$t_{D}2$ – Tc



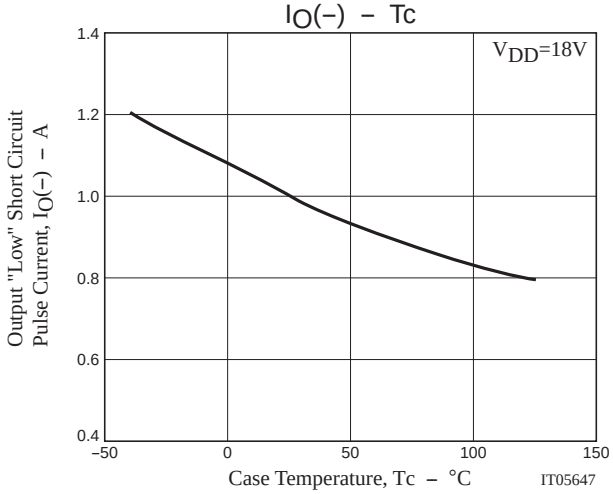

$t_{D}2$ – $V_{DD}$



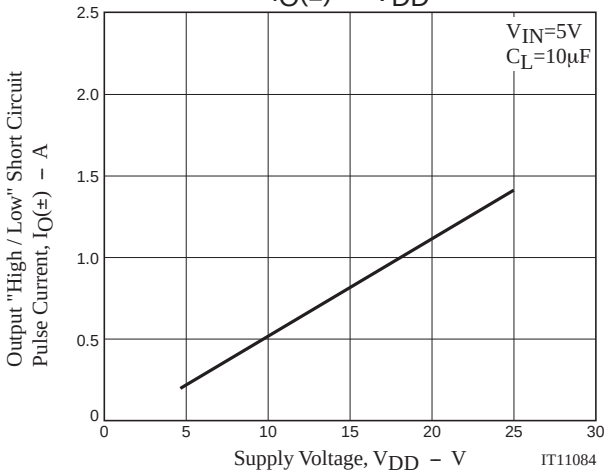
$I_{O(+)}$ – Tc



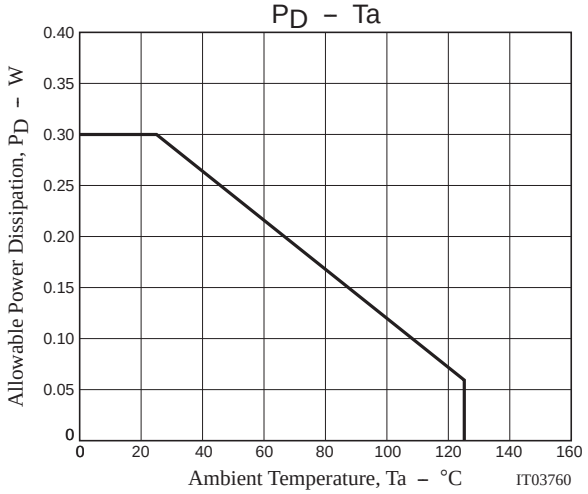

$I_{O(-)}$ – Tc




$I_{O(\pm)}$ – $V_{DD}$




$P_D$ – Ta



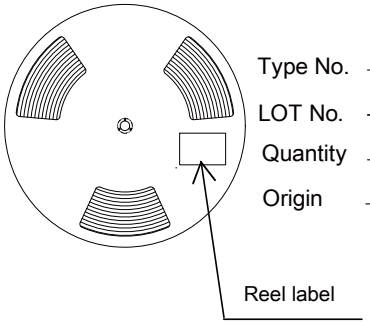
## Taping Specification

TND314S-TL-2H

1. Packing Format

| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|---|---|---|---|---|---|---|
| | | Reel | Inner box | Outer box | Inner BOX W206-112 | Outer BOX W207-124 |
| SOIC8 | B202-101 | 2,500 | 12,500 | 25,000 | 5 reels contained<br>Dimensions :mm(external)<br>340×95×340 | 2 inner boxes contained<br>Dimensions :mm(external)<br>360×210×375 |

Packing method

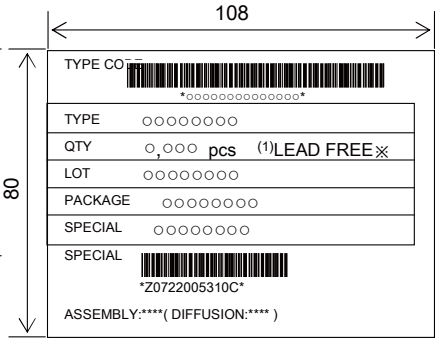



Reel label,Inner box label
(unit: mm)




NOTE(1)
The LEAD FREE 4 description shows that it is complete lead free.

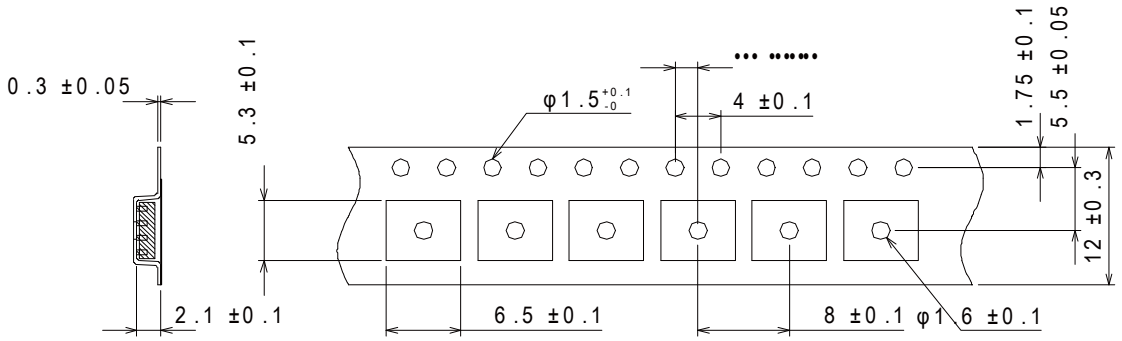
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



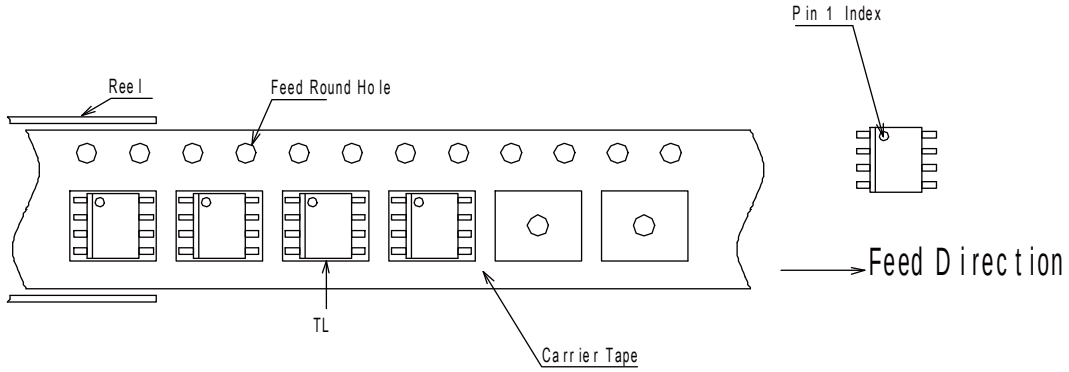

| Label | JEITA Phase |
|---|---|
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

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

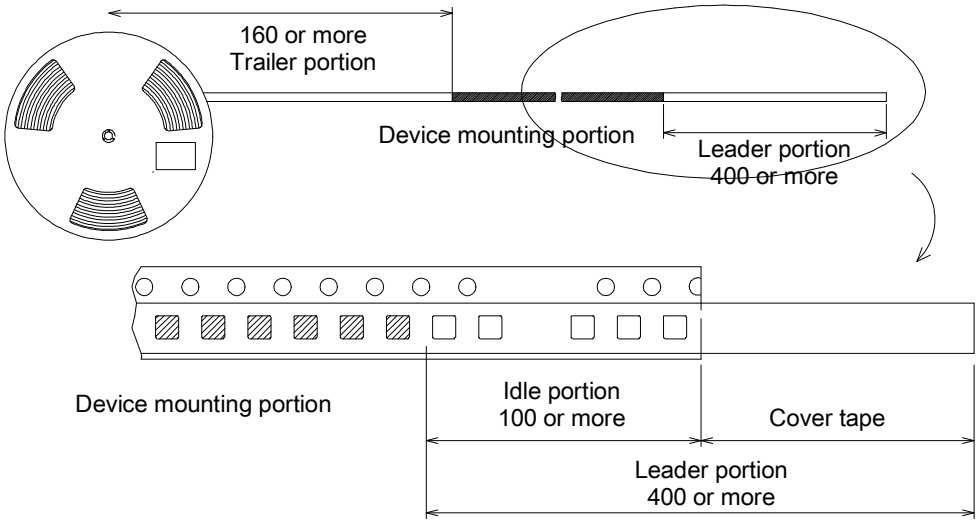



2-2. Device placement direction



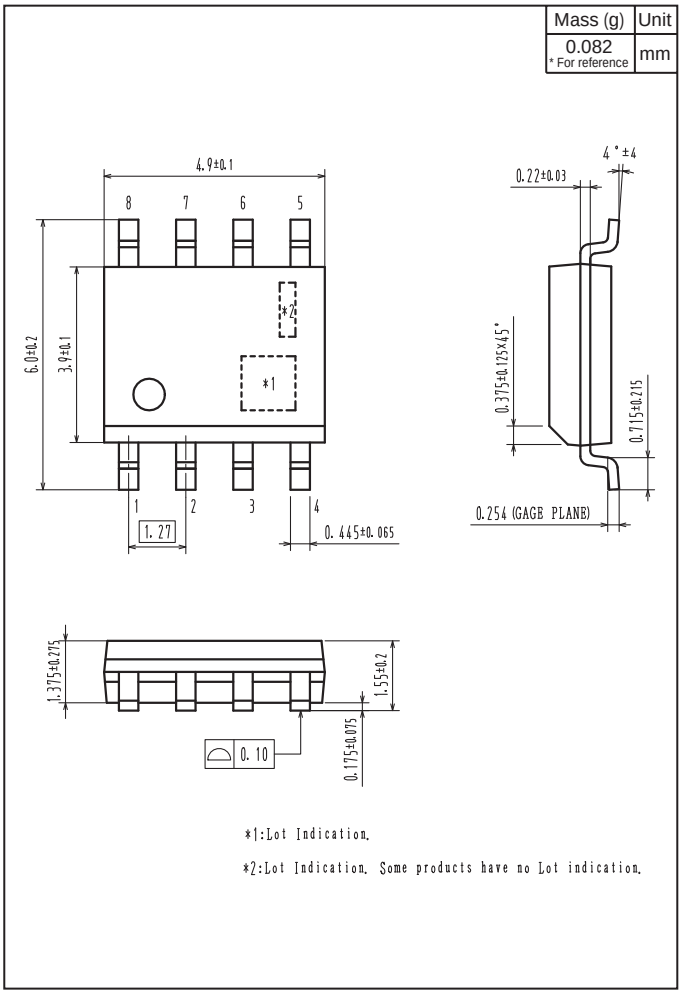

Packing type·····TL

2-3. Leader portion and trailer portion (unit: mm )

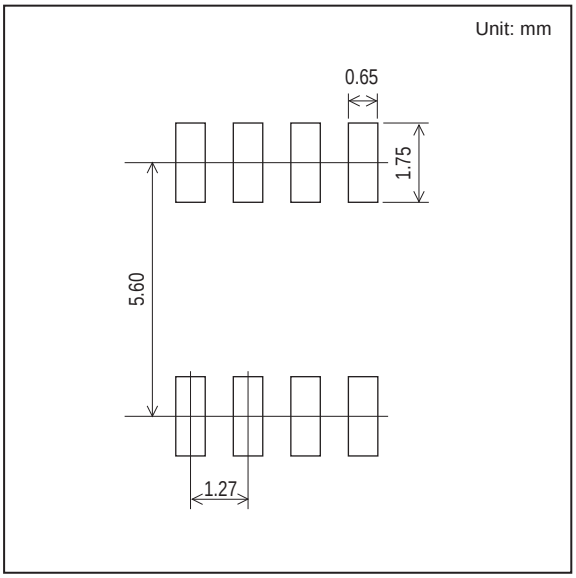


## Outline Drawing

TND314S-TL-2H




## Land Pattern Example



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