



# TND523SS

## Excellent Power Device Single-phase High Side Drive, Single SOIC8

ON Semiconductor®

<http://onsemi.com>

### Features

- Single-phase high side drive
- Allows simplified configuration of driver circuit
- Fully compatible input to LSTTL/CMOS
- Output current: 170mA Source, 340mA Sink
- Monolithic structure
- Withstand voltage of 600V is assured
- High-speed switching
- Halogen free compliance

### Specifications

**Absolute Maximum Ratings** at Ta=25°C (All voltage parameters are absolute voltage referenced to GND)

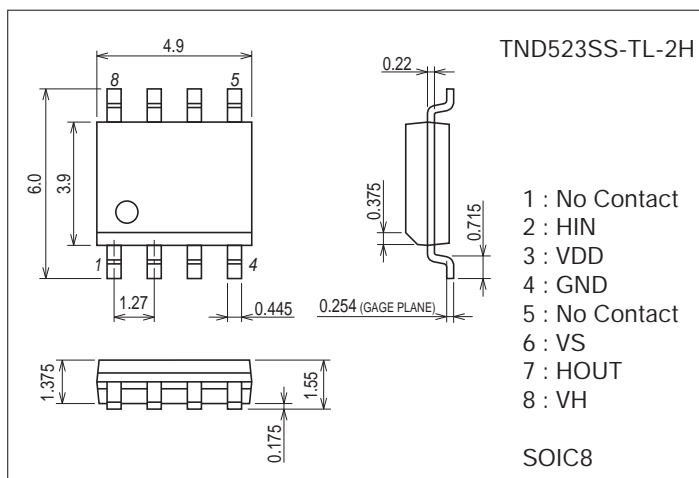
Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Voltage	V <sub>H</sub>		-0.3 to 625	V
High Side Floating Supply Offset Voltage	V <sub>S</sub>		V <sub>H</sub> -25 to V <sub>H</sub> +0.3	V
High Side Output Voltage	V <sub>HOUT</sub>		V <sub>S</sub> -0.3 to V <sub>H</sub> +0.3	V
Logic Supply Voltage	V <sub>DD</sub>		-0.3 to 25	V
Logic Input Voltage	V <sub>HIN</sub>		-0.3 to V <sub>DD</sub> +0.3	V
The Maximum Allowable Offset Voltage Supply	dV <sub>S</sub> /dt		50	V/ns
Allowable Power Dissipation	P <sub>D</sub>		0.3	W
		When mounted on ceramic substrate (1200mm <sup>2</sup> ×0.8mm)	1.1	W
Junction Temperature	T <sub>j</sub>		-55 to +150	°C
Storage Temperature	T <sub>stg</sub>		-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)

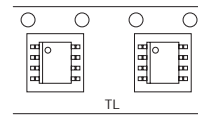
7072-004



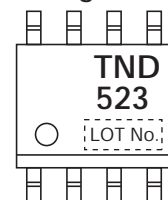
### Product & Package Information

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

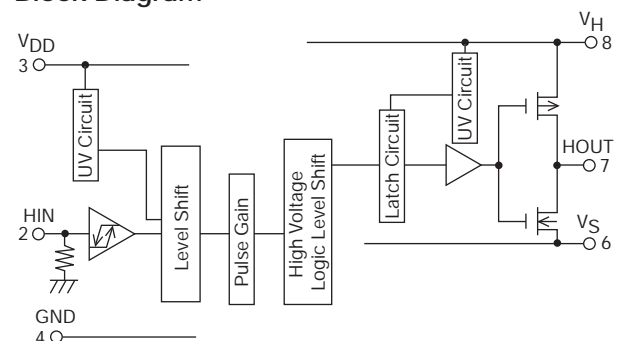
### Packing Type: TL



### Marking



### Block Diagram



# TND523SS

## Recommend Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Voltage	V <sub>H</sub>		V <sub>S</sub> +10 to V <sub>S</sub> +20	V
High Side Floating Supply Offset Voltage	V <sub>S</sub>		0 to 600	V
High Side Output Voltage	V <sub>HOUT</sub>		V <sub>S</sub> to V <sub>H</sub>	V
Logic Supply Voltage	V <sub>DD</sub>		10 to 20	V
Logic Input Voltage	V <sub>HIN</sub>		0 to V <sub>DD</sub>	V
Ambient Temperature	Topr		-40 to +125	°C

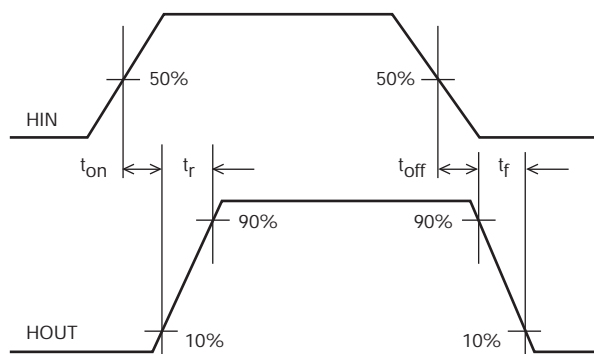
## AC Characteristics at Ta=25°C (V<sub>DD</sub>=V<sub>HS</sub>=15V, C<sub>L</sub>=1000pF)

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t <sub>on</sub>	V <sub>S</sub> =0V	60	90	120	ns
Turn-OFF Delay Time	t <sub>off</sub>	V <sub>S</sub> =0V	55	85	115	ns
Turn-ON Rise Time	t <sub>r</sub>		50	80	110	ns
Turn-OFF Fall Time	t <sub>f</sub>		20	35	55	ns

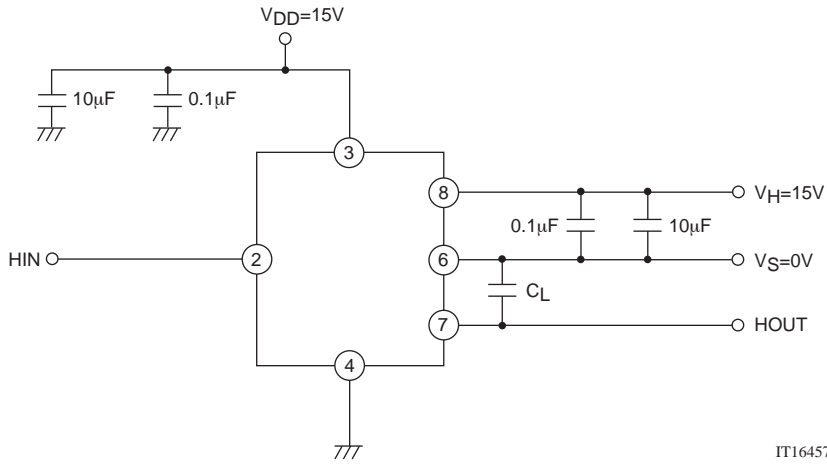
## DC Characteristics at Ta=25°C (V<sub>DD</sub>=V<sub>HS</sub>=15V)

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Logic "1" Input Voltage	V <sub>IH</sub>	V <sub>DD</sub> =10 to 20V	3.0			V
Logic "0" Input Voltage	V <sub>IL</sub>	V <sub>DD</sub> =10 to 20V			0.8	V
High-level Output Voltage, V <sub>BIAS</sub> -V <sub>O</sub>	V <sub>OH</sub>	V <sub>HIN</sub> =V <sub>IH</sub> , I <sub>O</sub> =0A			0.1	V
Low-level Output Voltage, V <sub>O</sub>	V <sub>OL</sub>	V <sub>HIN</sub> =V <sub>IL</sub> , I <sub>O</sub> =0A			0.1	V
Offset Supply Leakage Current	I <sub>LK</sub>	V <sub>H</sub> =V <sub>S</sub> =600V			10	μA
Quiescent V <sub>H</sub> Supply Current	I <sub>QH</sub>	V <sub>HIN</sub> =0V or V <sub>DD</sub>		70	120	μA
Quiescent V <sub>DD</sub> Supply Current	I <sub>QDD</sub>	V <sub>HIN</sub> =0V or V <sub>DD</sub>		140	230	μA
Logic "1" Input Bias Current	I <sub>IN+</sub>	V <sub>HIN</sub> =V <sub>DD</sub>		20	55	μA
Logic "0" Input Bias Current	I <sub>IN-</sub>	V <sub>HIN</sub> =0V			1	μA
V <sub>H</sub> Supply Undervoltage Positive Going Threshold	V <sub>HUV+</sub>		7.6	8.9	9.9	V
V <sub>H</sub> Supply Undervoltage Negative Going Threshold	V <sub>HUV-</sub>		6.7	8.1	9.5	V
V <sub>DD</sub> Supply Undervoltage Positive Going Threshold	V <sub>DDUV+</sub>		7.6	8.9	9.9	V
V <sub>DD</sub> Supply Undervoltage Negative Going Threshold	V <sub>DDUV-</sub>		6.7	8.1	9.5	V
Output High Short Circuit Pulsed Current	I <sub>O+</sub>	V <sub>HOUT</sub> =0V, V <sub>HIN</sub> =15V, PW≤10μs	170	200		mA
Output Low Short Circuit Pulsed Current	I <sub>O-</sub>	V <sub>HOUT</sub> =15V, V <sub>HIN</sub> =0V, PW≤10μs	340	400		mA

## Switching Time Waveform Definition

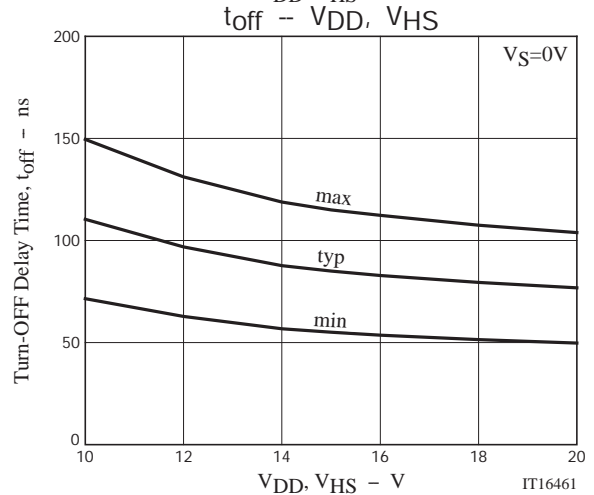
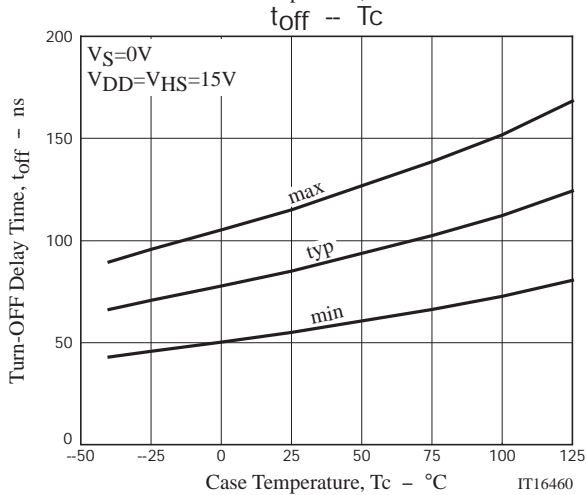
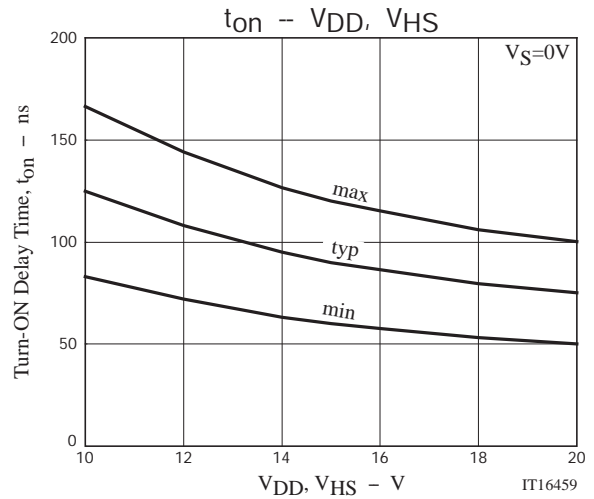
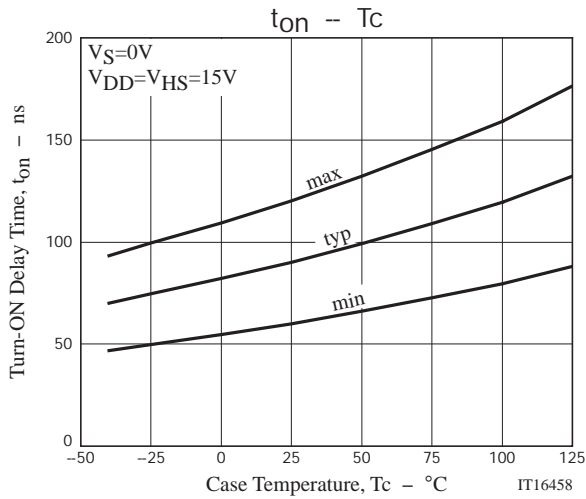


Switching Time Test Circuit

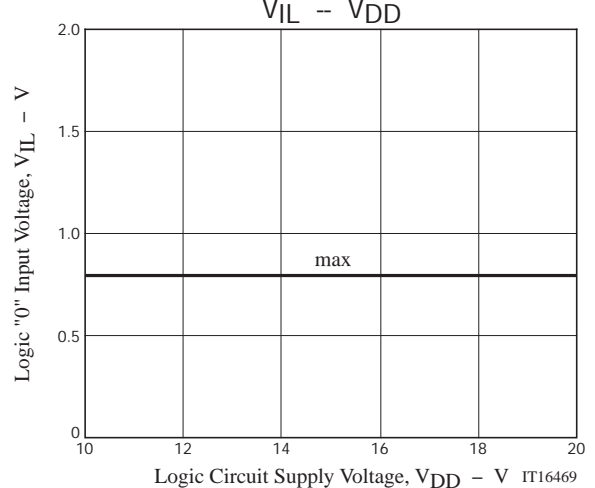
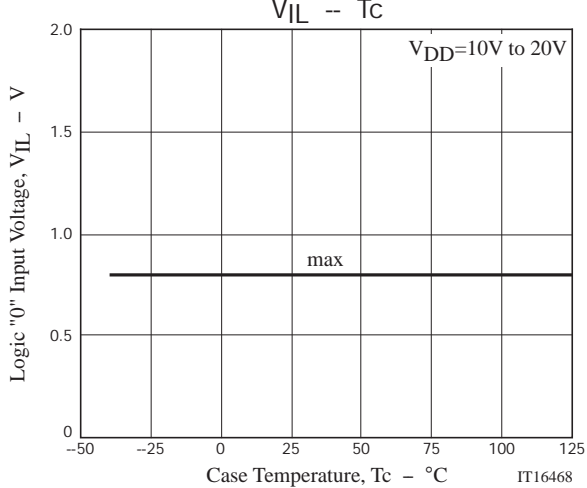
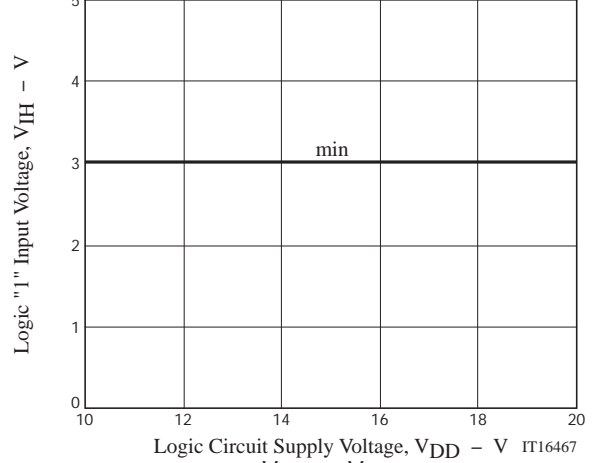
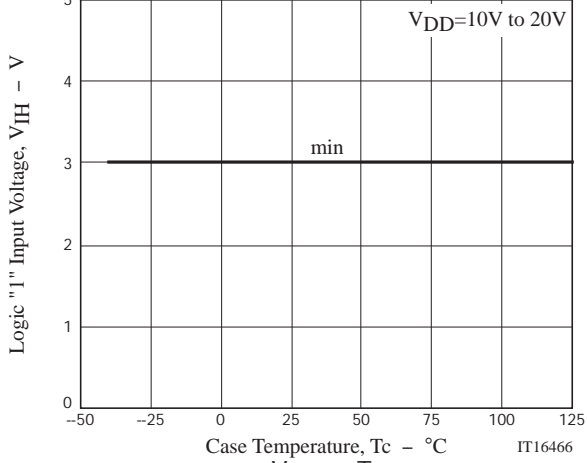
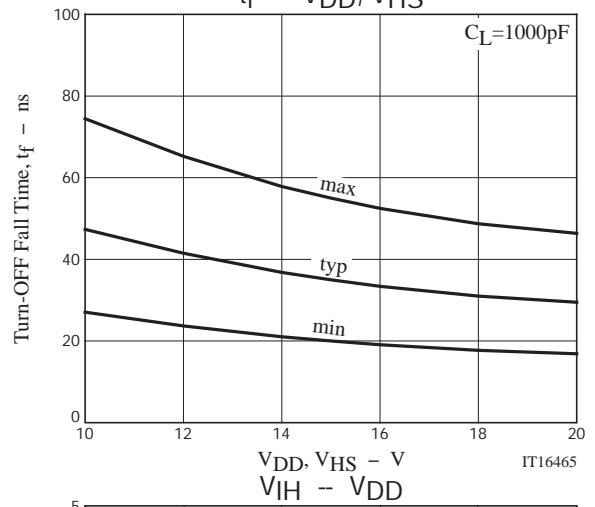
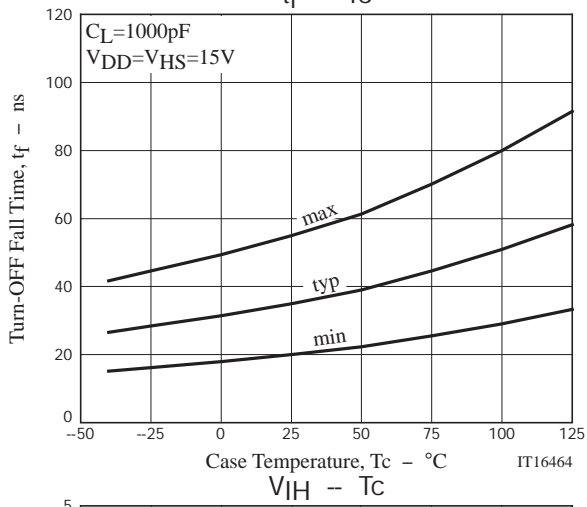
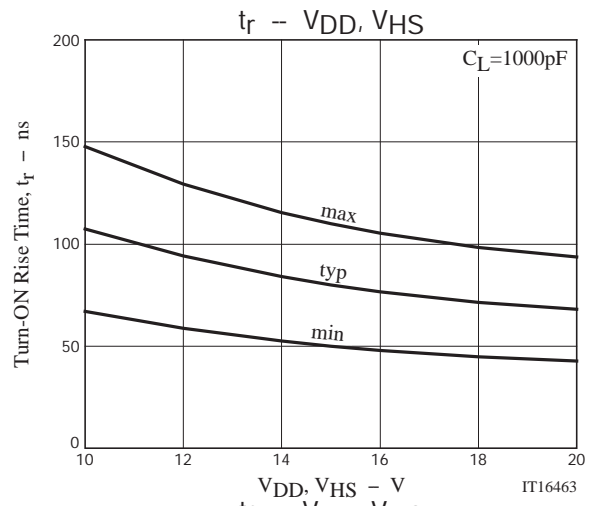
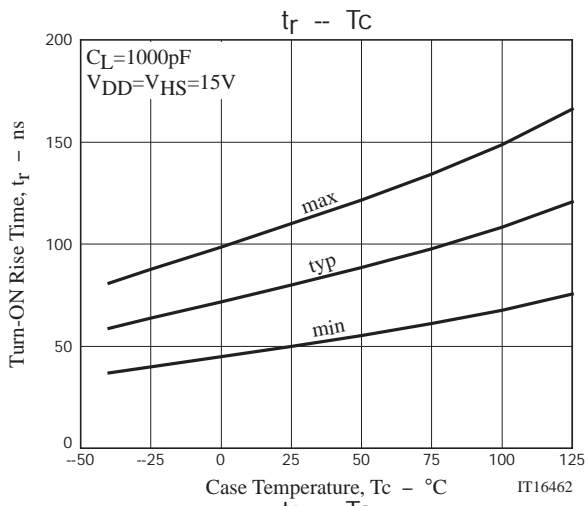


Ordering Information

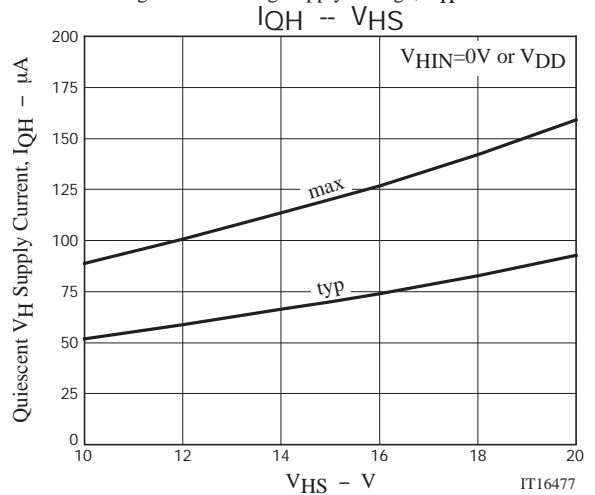
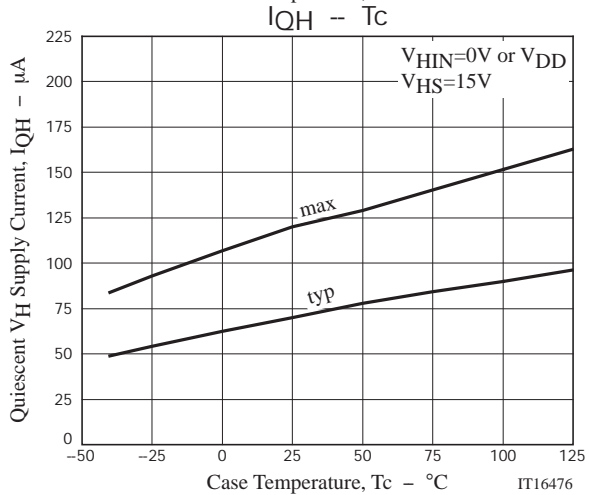
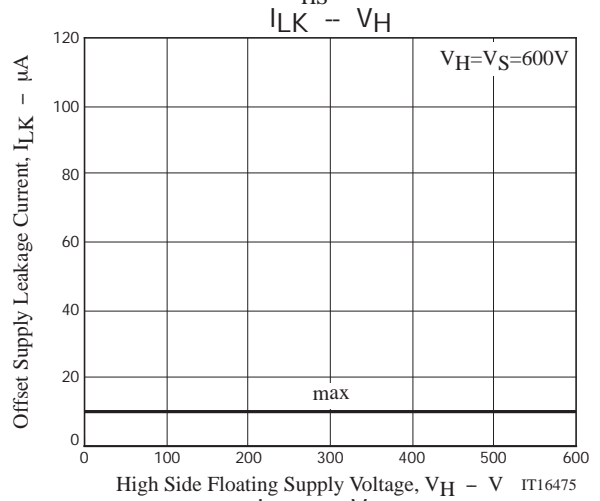
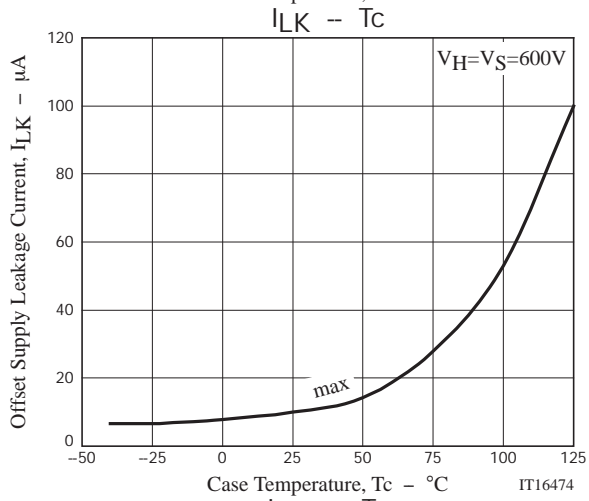
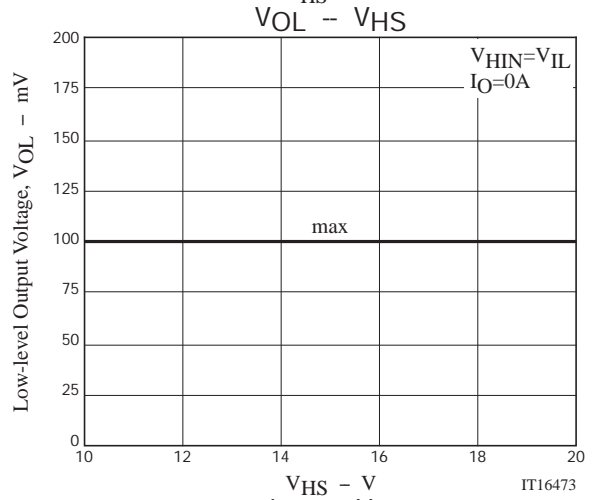
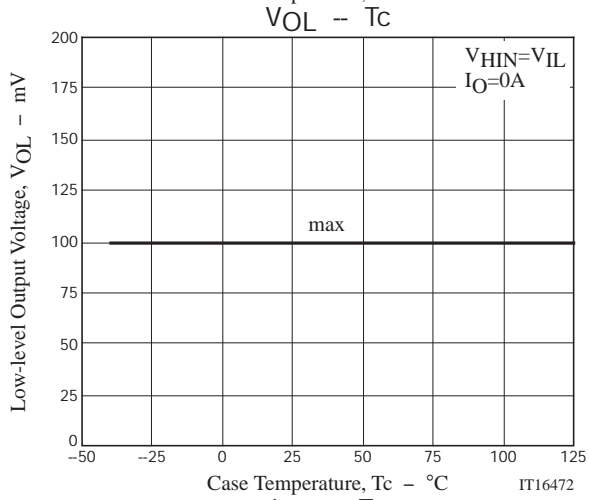
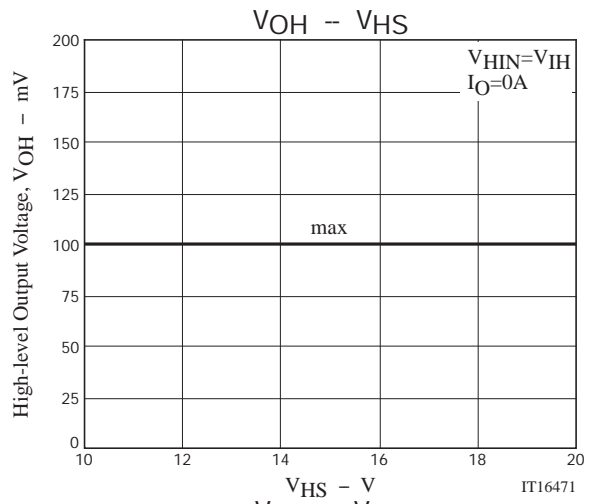
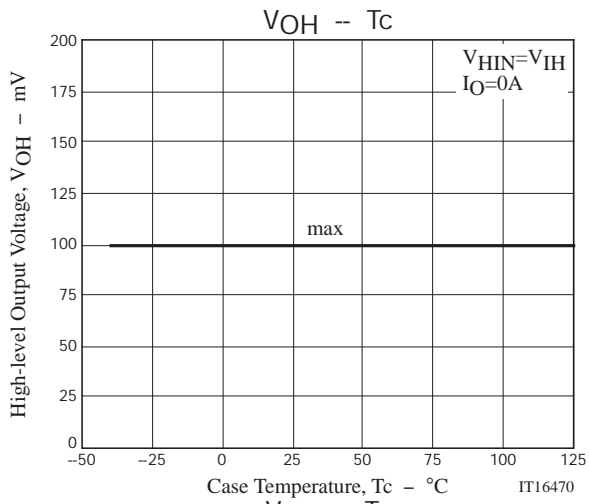
Devices	Package	Shipping	memo
TND523SS-TL-2H	SOIC8	2,500pcs./reel	Pb Free and Halogen Free

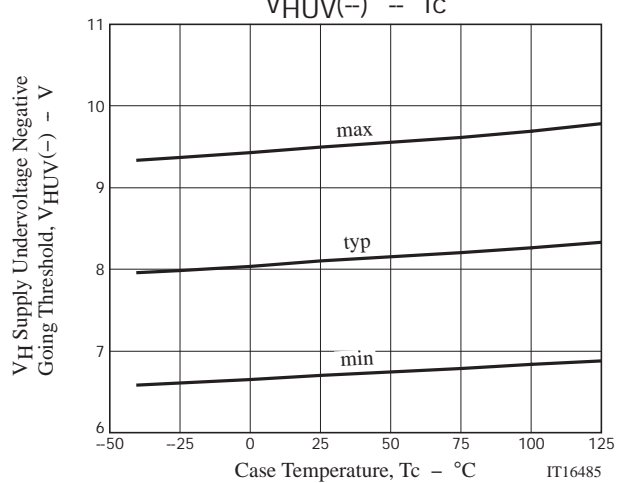
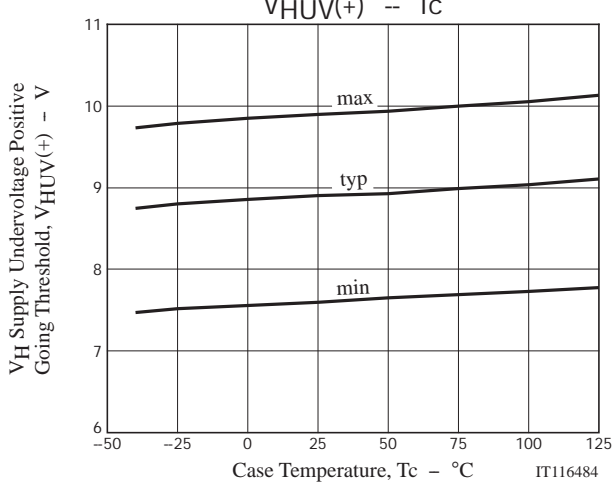
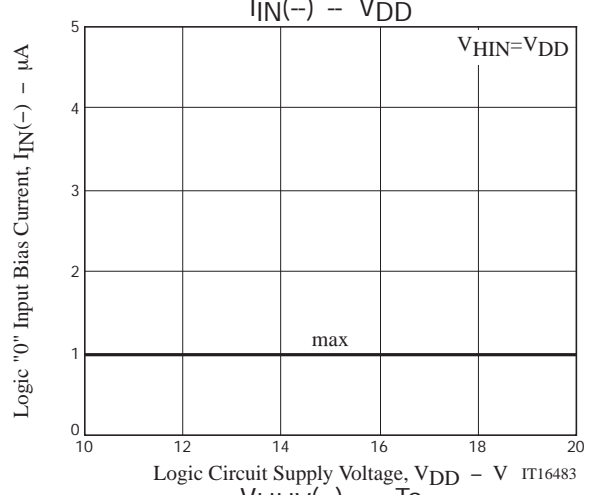
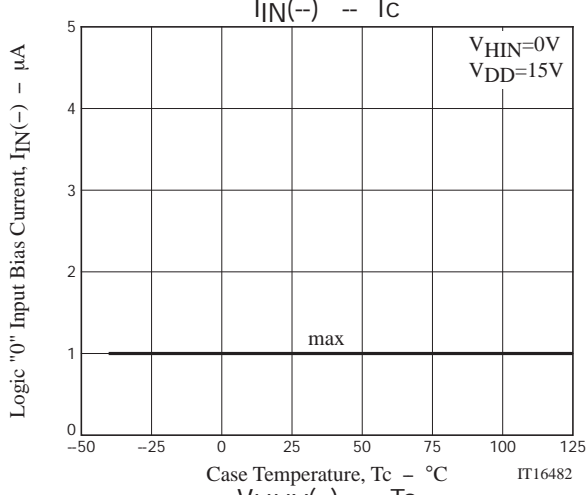
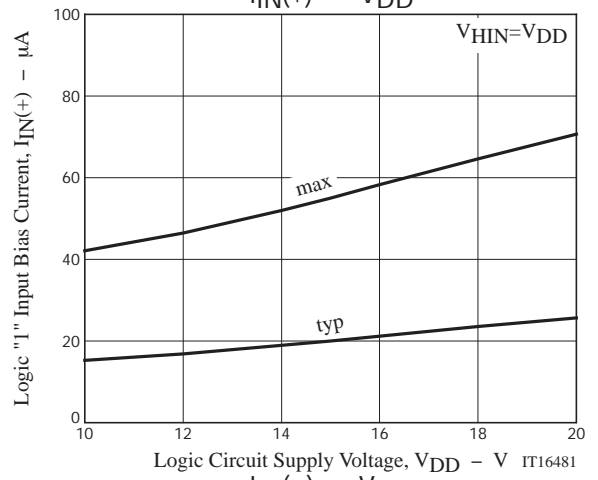
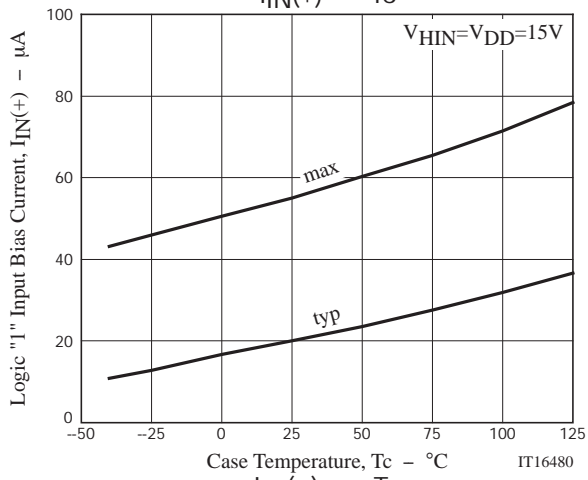
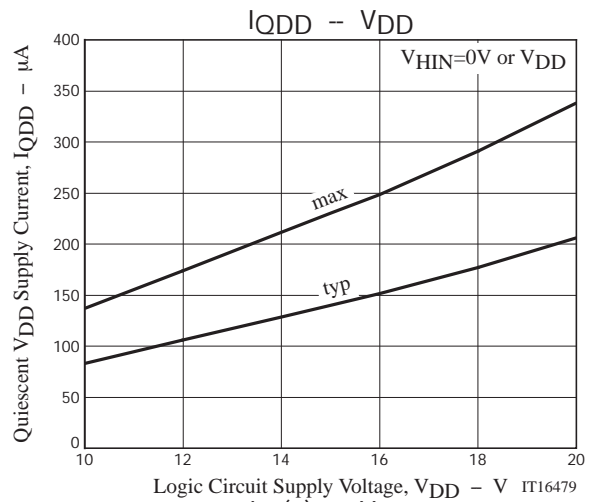
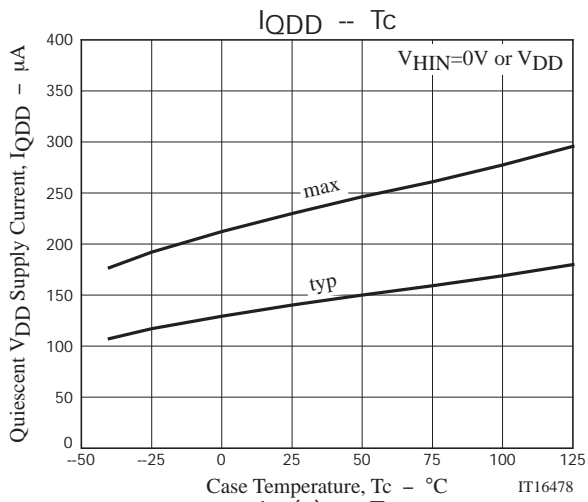


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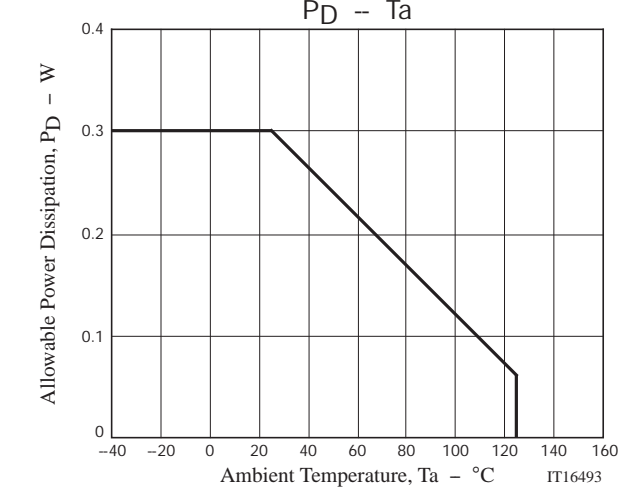
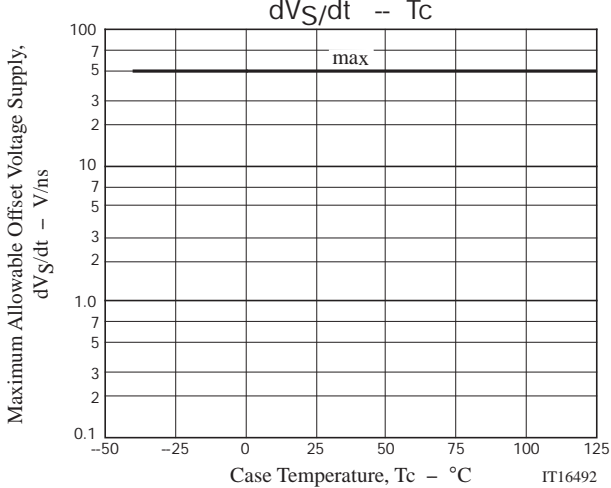
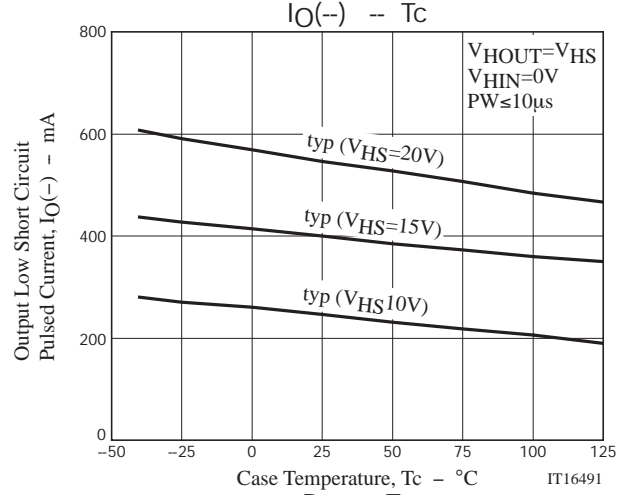
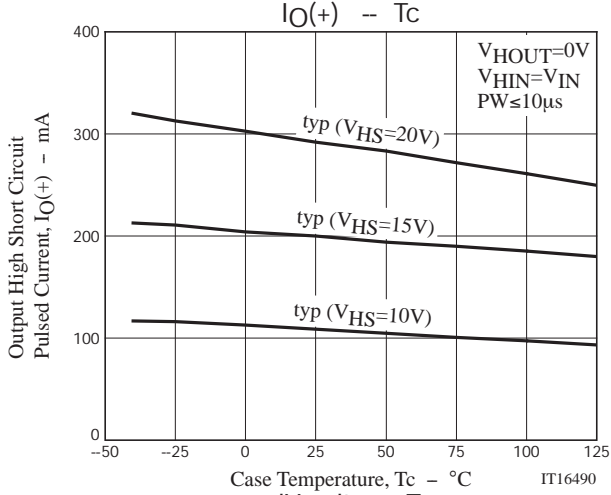
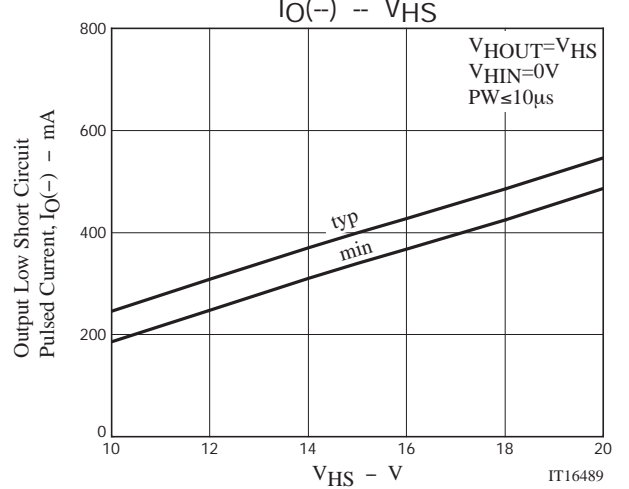
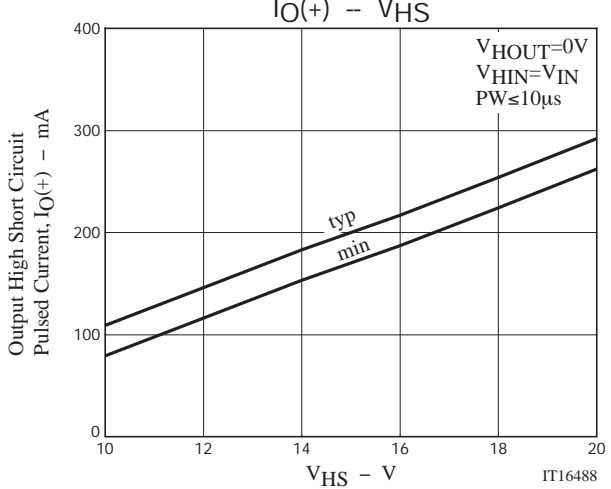
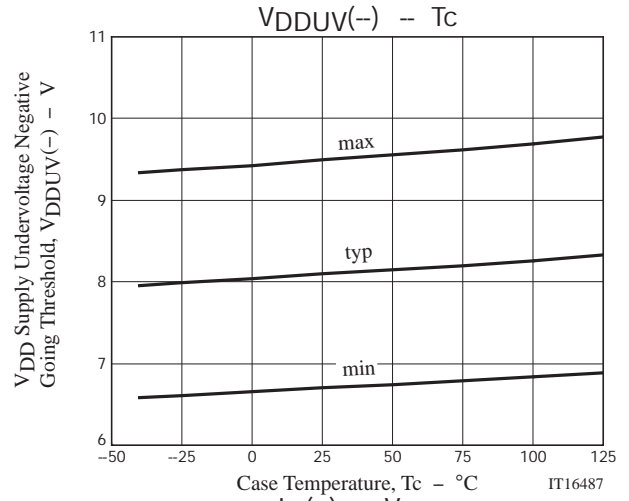
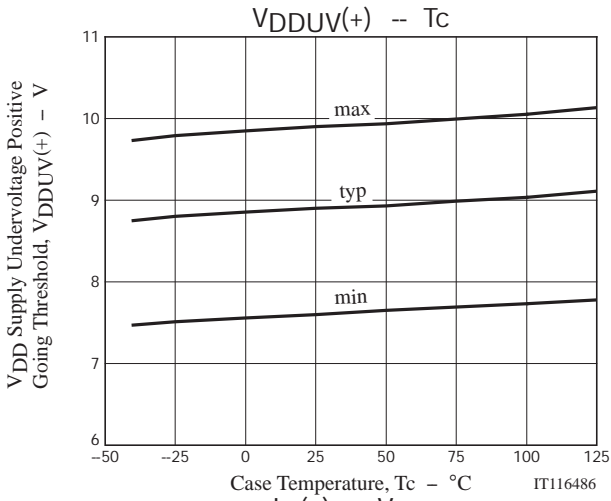


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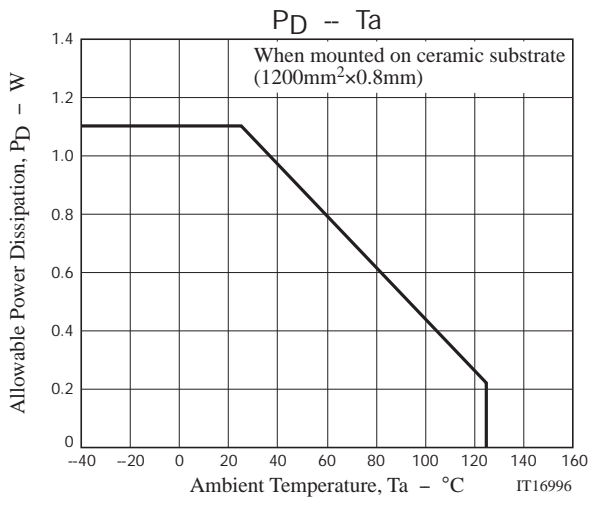




# TND523SS



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Taping Specification  
TND523SS-TL-2H

1. Packing Format

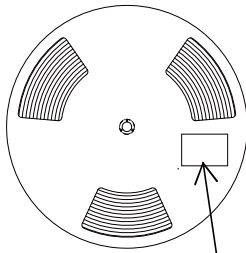
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX W206-112	Outer BOX W207-124
SOIC8	B202-101	2,500	12,500	25,000	5 reels contained Dimensions :mm(external) 340×95×340	2 inner boxes contained Dimensions :mm(external) 360×210×375

Packing method

Reel label, Inner box label  
(unit: mm)

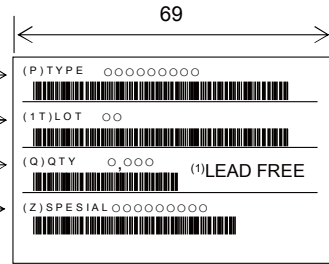
Outer box label

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



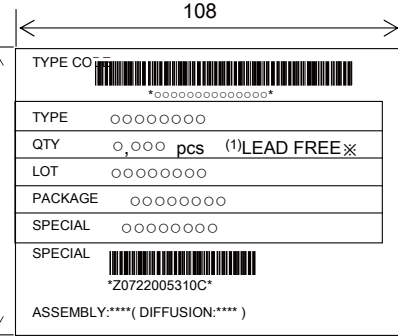
Type No. →  
LOT No. →  
Quantity →  
Origin →

Reel label



NOTE(1)

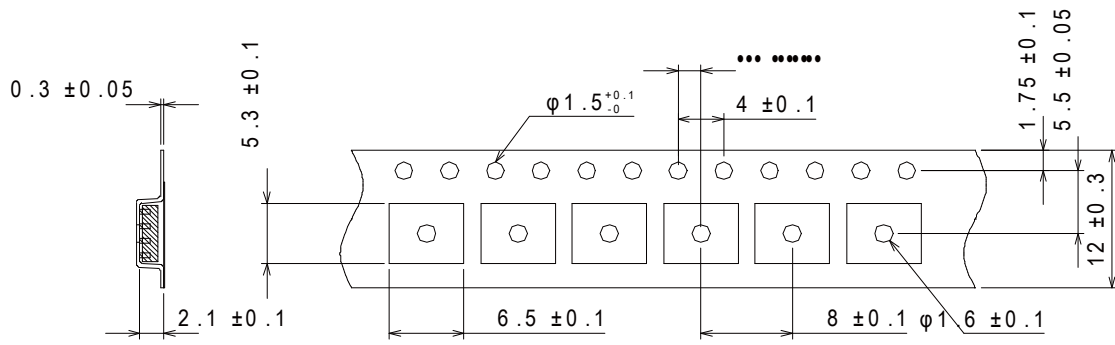
The LEAD FREE 4 description shows that it is complete lead free.



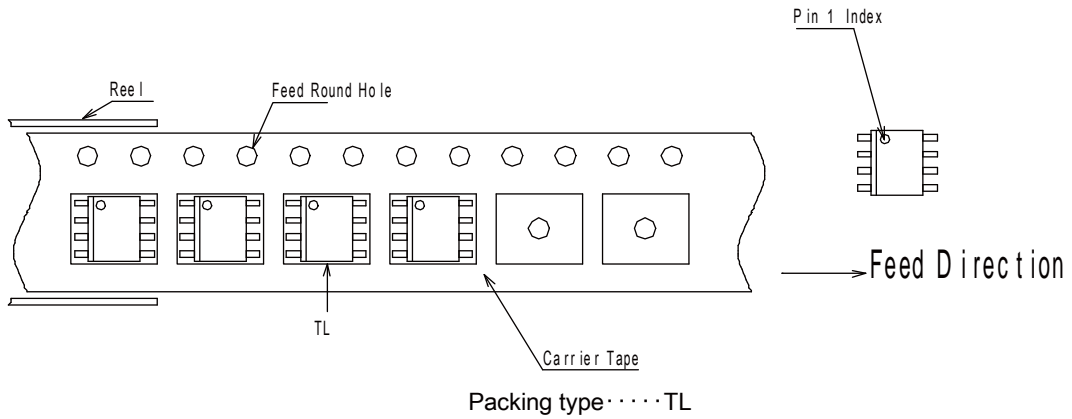
Label	JEITA Phase
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

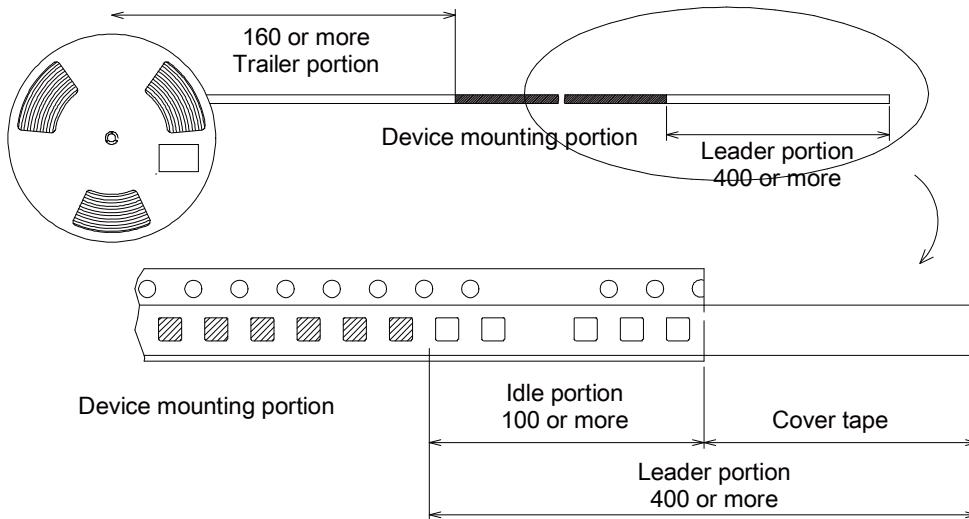
2-1. Carrier tape size (unit: mm)



2-2. Device placement direction

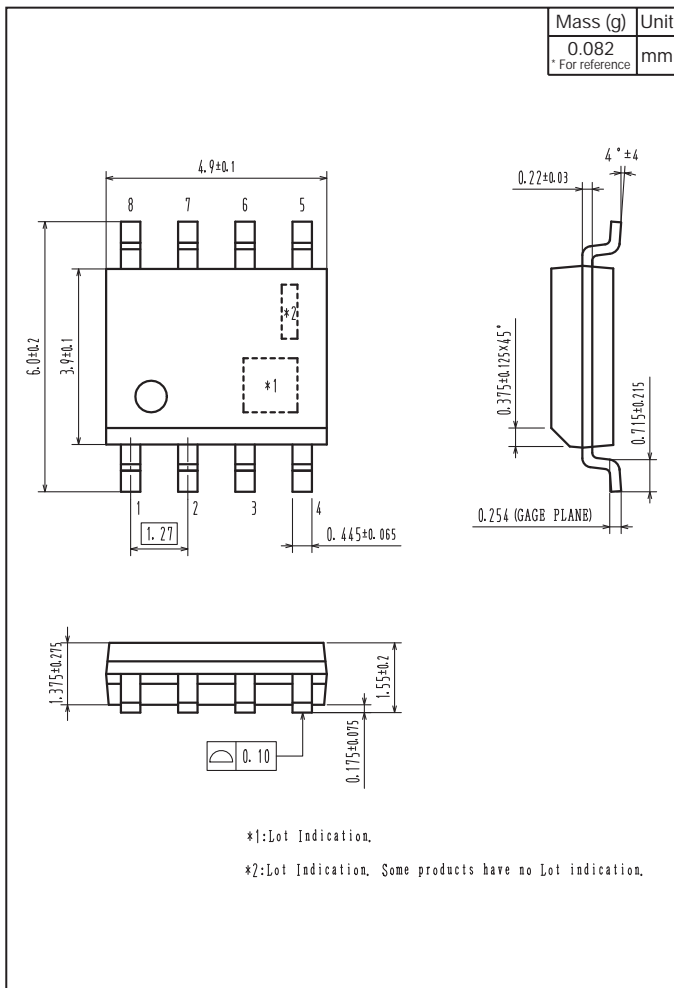


2-3. Leader portion and trailer portion (unit: mm)

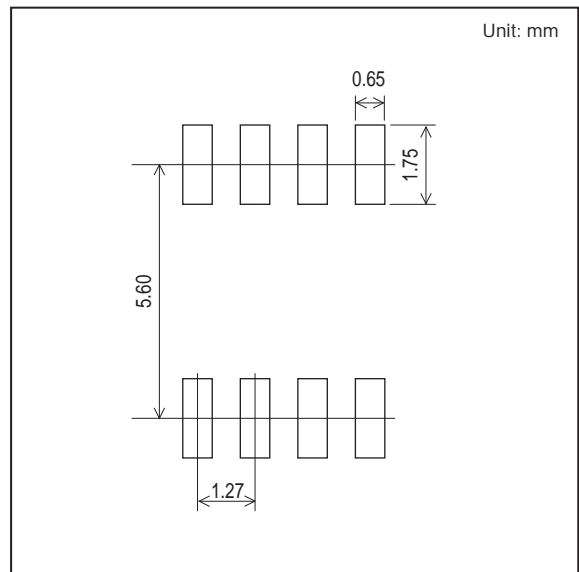


# TND523SS

## Outline Drawing TND523SS-TL-2H



## Land Pattern Example



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