



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

TND525SS — ExPD(Excellent Power Device) Half-bridge Drive

Features

- 2-input 2-output half-bridge drive
- Low side output supervisory circuit is built in (Simultaneous ON preventing circuit)
- Allows simplified configuration of driver circuit
- Withstand voltage of 600V is assured
- High-speed switching
- Monolithic structure
- Fully compatible input to LSTTL/CMOS
- Output current: 170mA Source, 340mA Sink
- Halogen free compliance

Specifications

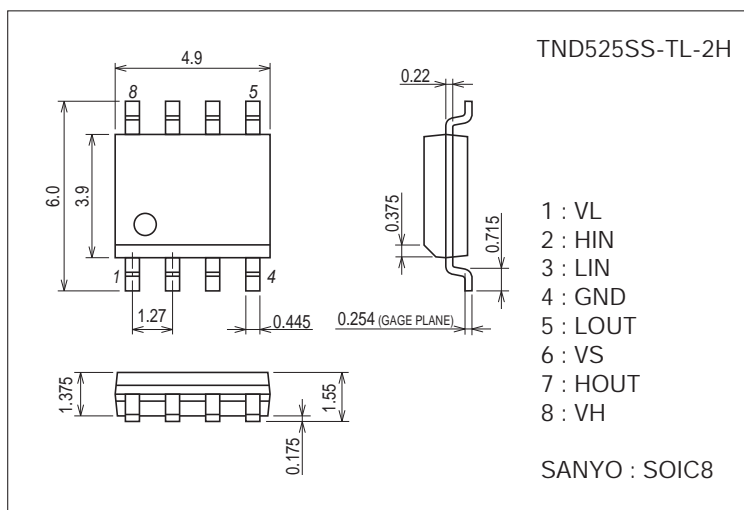
Absolute Maximum Ratings at Ta=25°C (All voltage parameters are absolute voltage referenced to GND)

Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Voltage	V _H		-0.3 to 625	V
High Side Floating Supply Offset Voltage	V _S		V _H -25 to V _H +0.3	V
High Side Output Voltage	V _{HOUT}		V _S -0.3 to V _H +0.3	V
Low Side Supply Voltage	V _L		-0.3 to 25	V
Low Side Output Voltage	V _{LOUT}		-0.3 to V _L +0.3	V
Logic Input Voltage (H _{IN} , L _{IN})	V _{IN}		-0.3 to V _L +0.3	V
The Maximum Allowable Offset Voltage Supply dv/dt	dv _S /dt		50	V/ns
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (1200mm ² ×0.8mm)	1.2	W
Junction Temperature	T _J		-55 to +150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

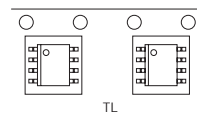
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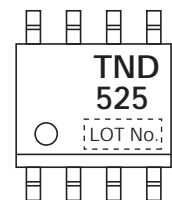
Product & Package Information

- Package : SIOC8
- JEITA, JEDEC : SC-87, SOT-96
- Minimum Packing Quantity : 2,500 pcs./reel

Packing Type: TL



Marking



TND525SS

Recommend Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Voltage	V _H		V _S +10 to V _S +20	V
High Side Floating Supply Offset Voltage	V _S	V _L =V _{HS} =15V	-5 to 600	V
High Side Output Voltage	V _{HOUT}		V _S to V _H	V
Low Side Supply Voltage	V _L		+10 to +20	V
Low Side Output Voltage	V _{LOUT}		0 to V _L	V
Logic Input Voltage (H _{IN} , L _{IN})	V _{IN}		0 to V _L	V
Ambient Temperature	Topr		-40 to +125	°C

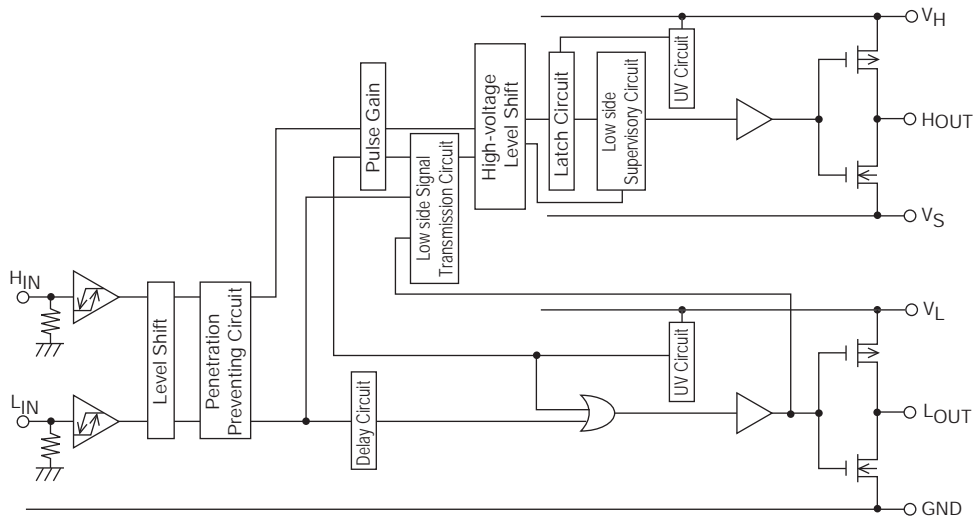
AC Characteristics at Ta=25°C (V_L=V_{HS}=15V, C_L=1000pF)

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t _{on}	V _S =0V	70	100	130	ns
Turn-OFF Delay Time	t _{off}	V _S =0V	60	90	120	ns
Turn-ON Rise Time	t _r			80	110	ns
Turn-OFF Fall Time	t _f			35	55	ns
Delay Matching, HS and LS Turn-ON	Mt _{on}	Ht _{on} - Lt _{on}		5	30	ns
Delay Matching, HS and LS Turn-OFF	Mt _{off}	Ht _{off} - Lt _{off}		5	30	ns

DC Characteristics at Ta=25°C (V_L=V_{HS}=15V)

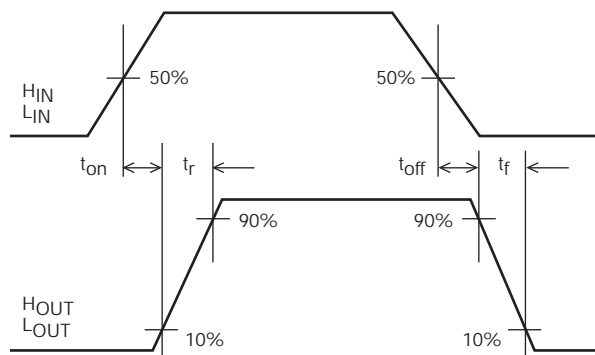
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Logic "1" Input Voltage	V _{IH}	V _L =10 to 20V	2.8			V
Logic "0" Input Voltage	V _{IL}	V _L =10 to 20V			0.8	V
High-level Output Voltage, V _{BIAS} -V _O	V _{OH}	V _{IN} =V _{IH} , I _O =0A			0.1	V
Low-level Output Voltage, V _O	V _{OL}	V _{IN} =V _{IL} , I _O =0A			0.1	V
Offset Supply Leakage Current	I _{LK}	V _H =V _S =600V			10	μA
Quiescent V _H Supply Current	I _{QH}	V _{IN} =0V		50	100	μA
		V _{IN} =V _L		60	100	μA
Quiescent V _L Supply Current	I _{QL}	V _{IN} =0V		130	230	μA
		V _{IN} =V _L		170	260	μA
Logic "1" Input Bias Current	I _{IN+}	V _{IN} =V _L		20	55	μA
Logic "0" Input Bias Current	I _{IN-}	V _{IN} =0V			1	μA
V _H Supply Undervoltage Positive Going Threshold	V _{HUV+}		7.6	8.9	9.9	V
V _H Supply Undervoltage Negative Going Threshold	V _{HUV-}		6.7	8.1	9.5	V
V _L Supply Undervoltage Positive Going Threshold	V _{LUV+}		7.6	8.9	9.9	V
V _L Supply Undervoltage Negative Going Threshold	V _{LUV-}		6.7	8.1	9.5	V
Output High Short Circuit Pulsed Current	I _{O+}	V _{OUT} =0V, PW≤10μs	170	200		mA
Output Low Short Circuit Pulsed Current	I _{O-}	V _{OUT} =15V, PW≤10μs	340	400		mA

Block Diagram



IT16886

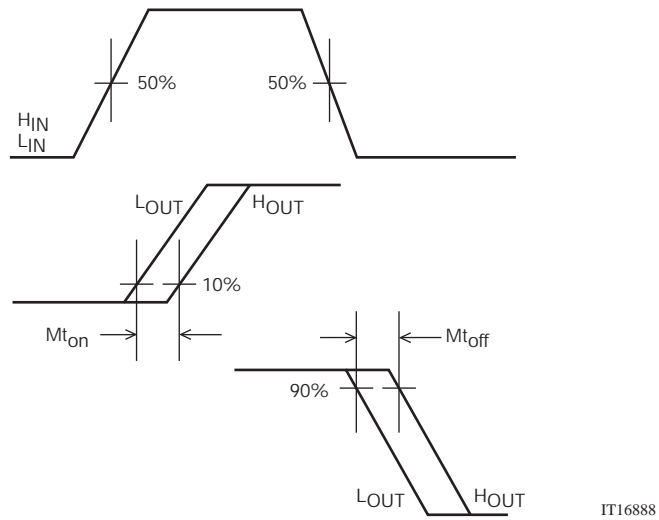
Switching Time Waveform Definition



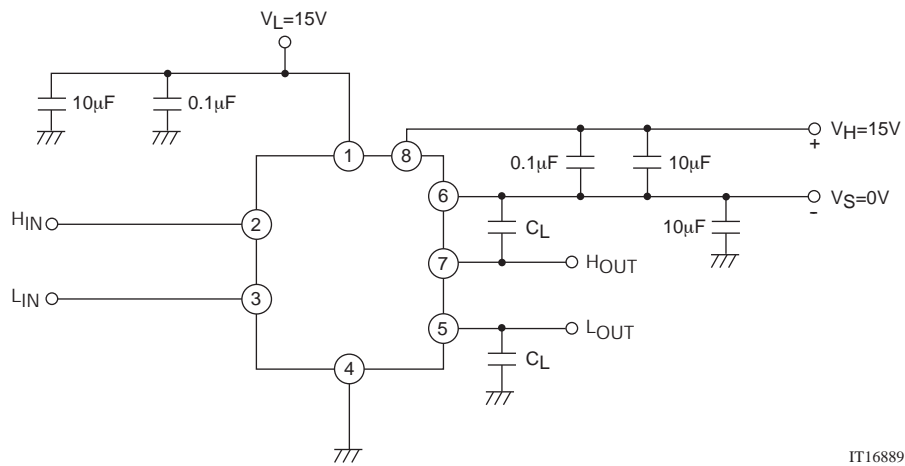
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TND525SS

Delay Matching Waveform Definition



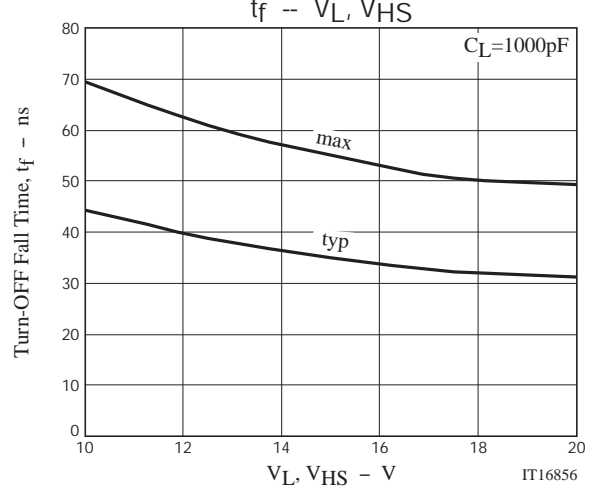
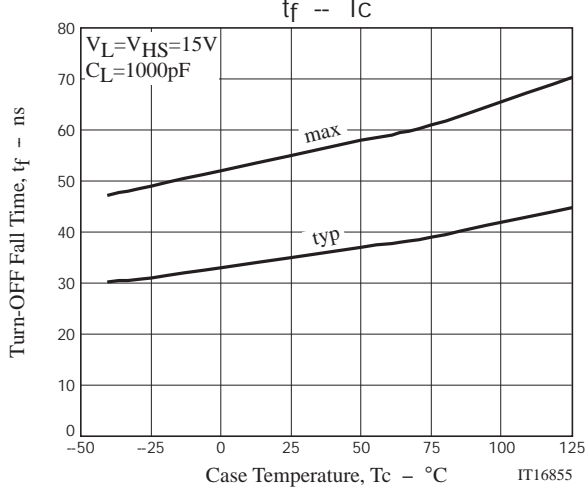
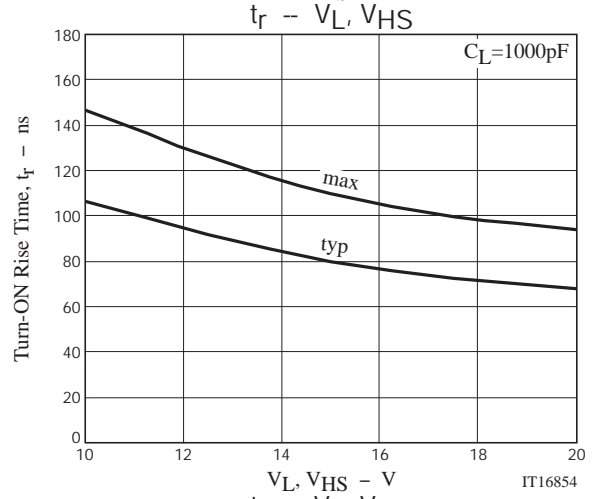
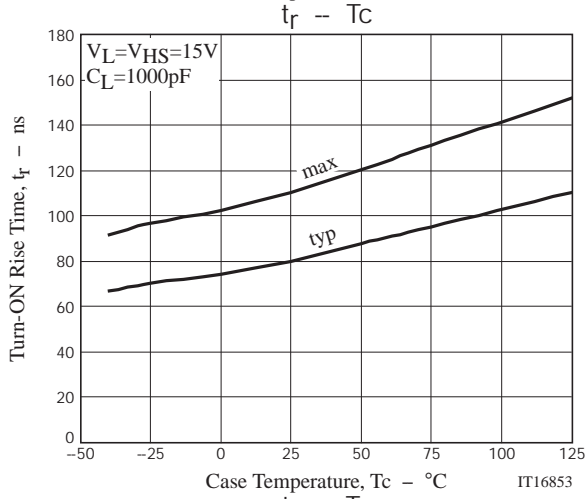
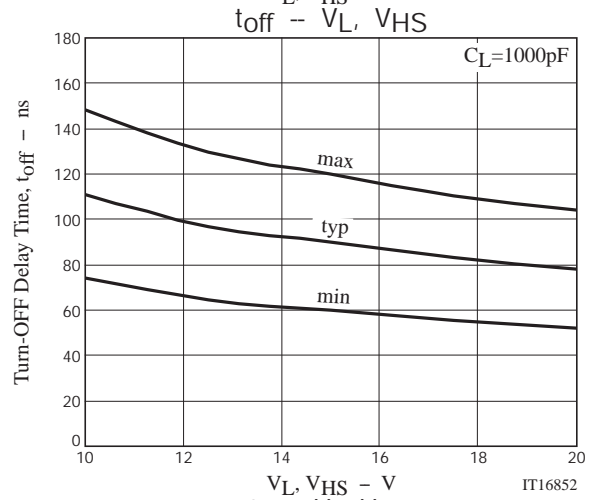
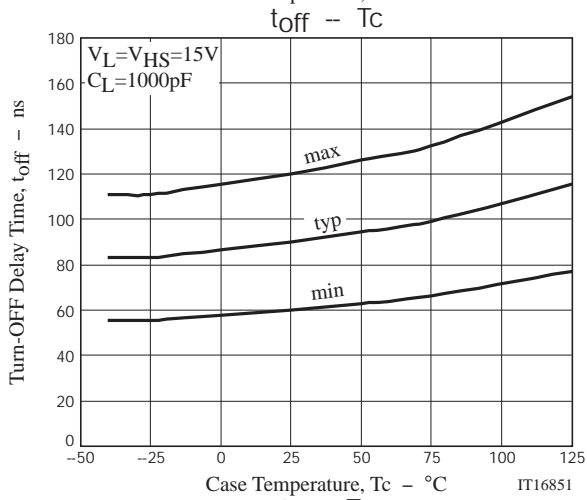
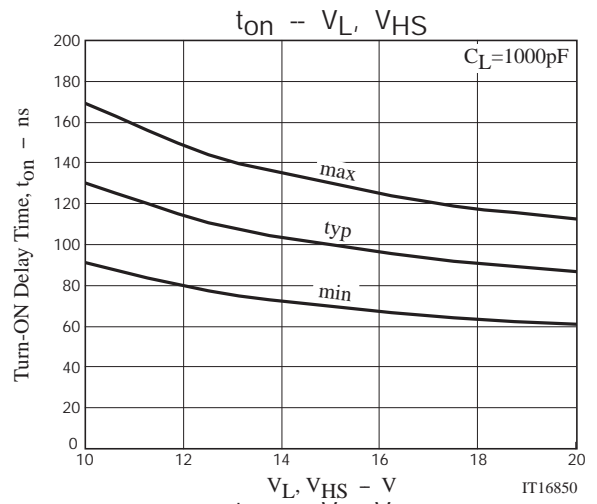
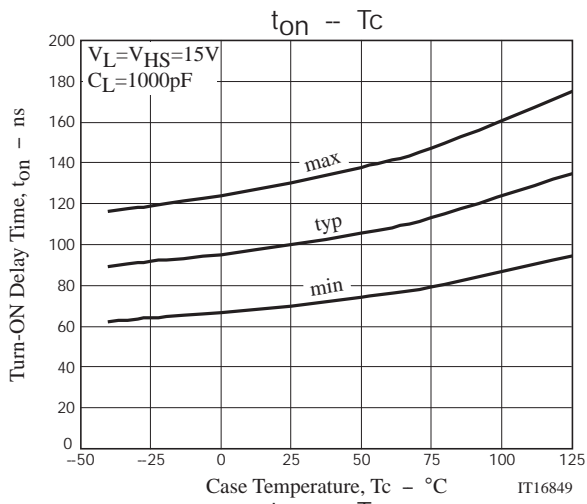
Switching Time Test Circuit



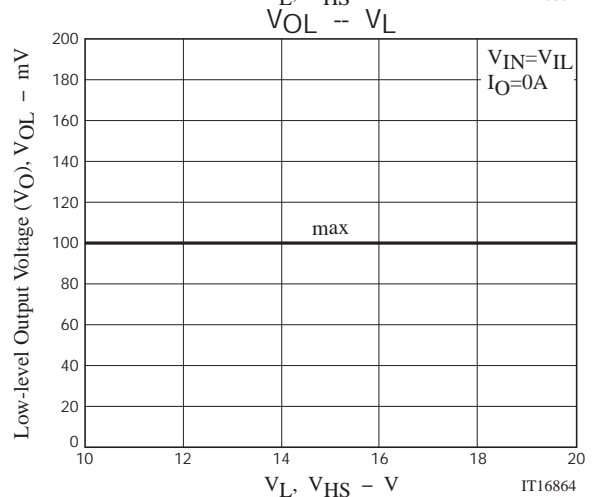
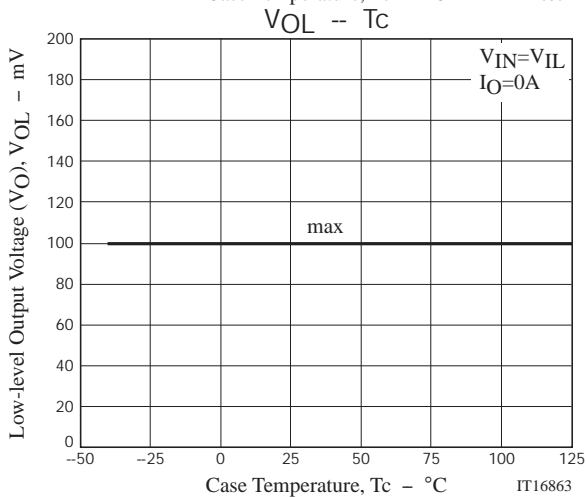
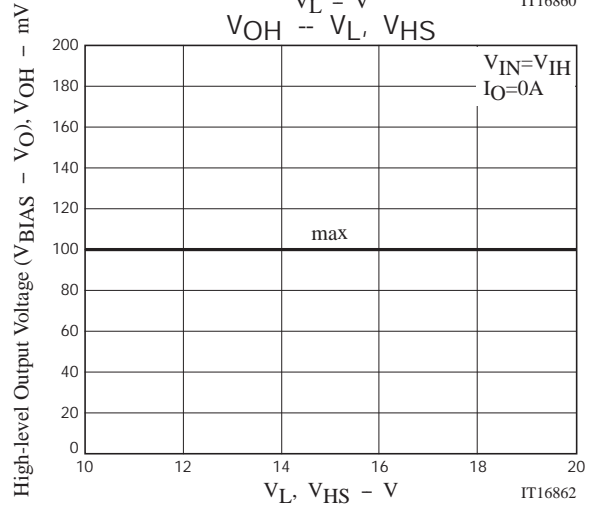
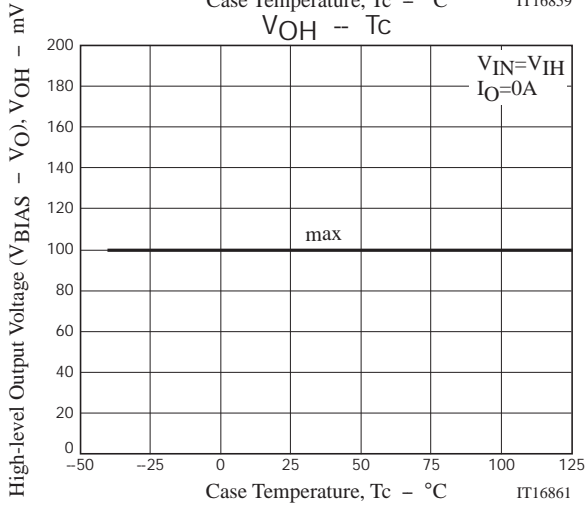
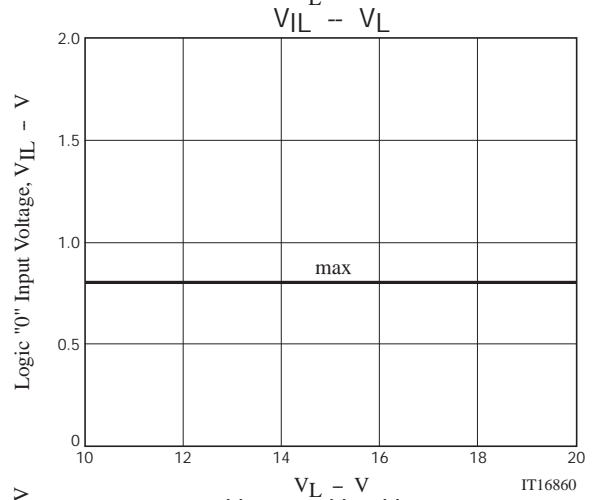
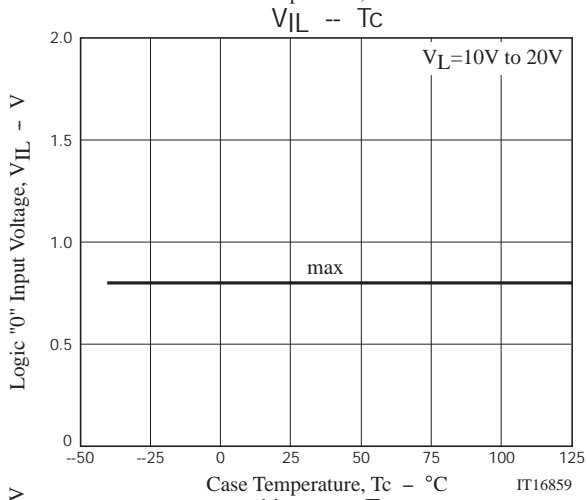
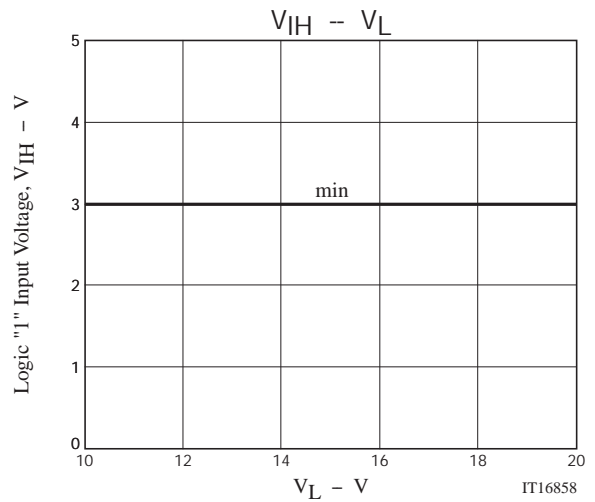
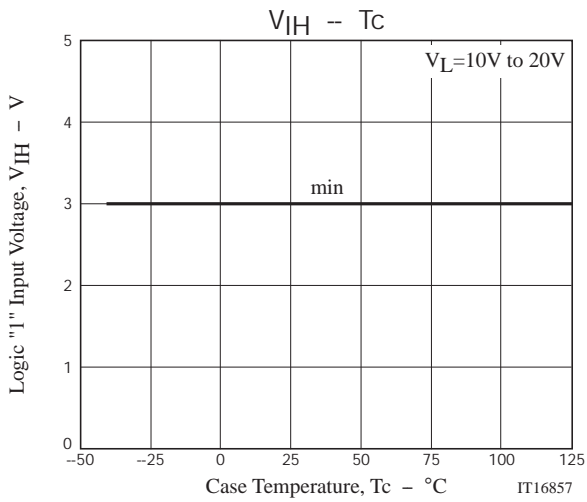
Ordering Information

Devices	Package	Shipping	memo
TND525SS-TL-2H	SOIC8	2,500pcs./reel	Pb Free and Halogen Free

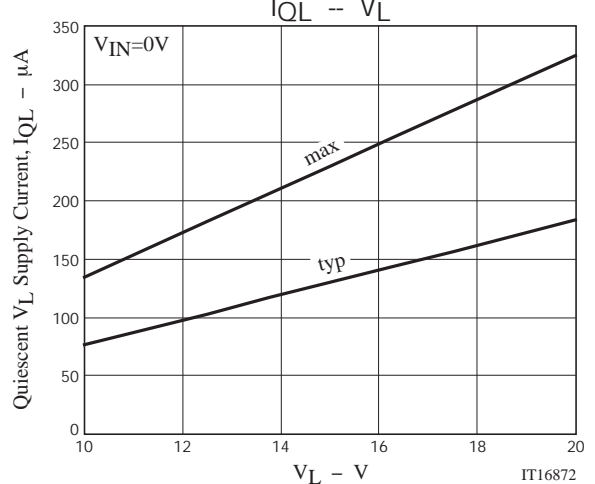
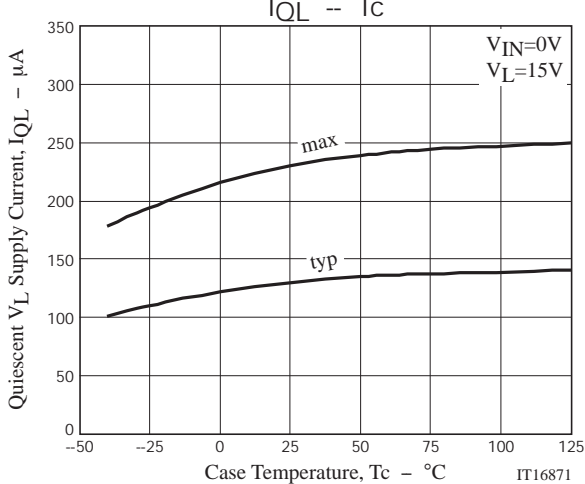
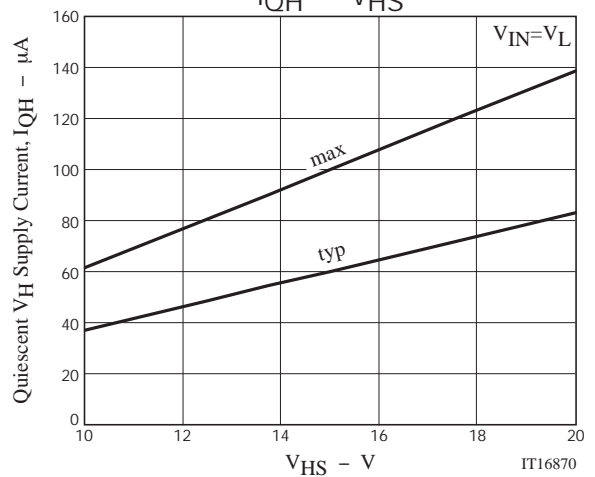
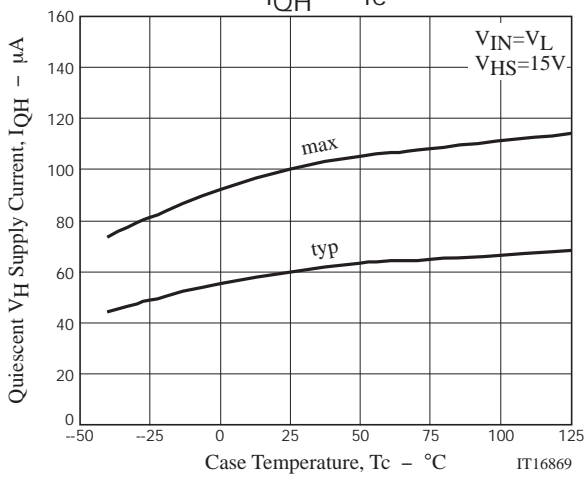
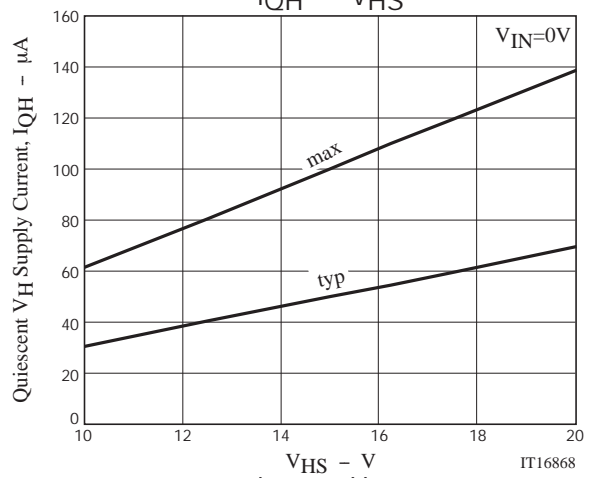
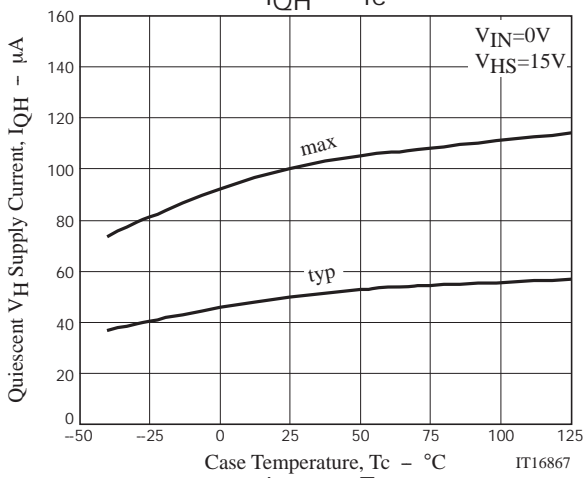
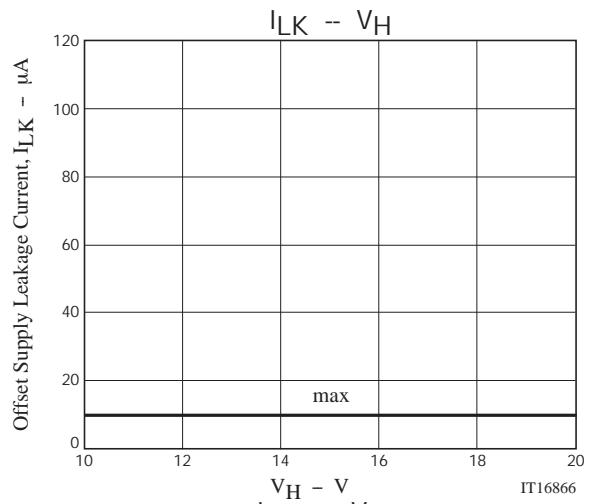
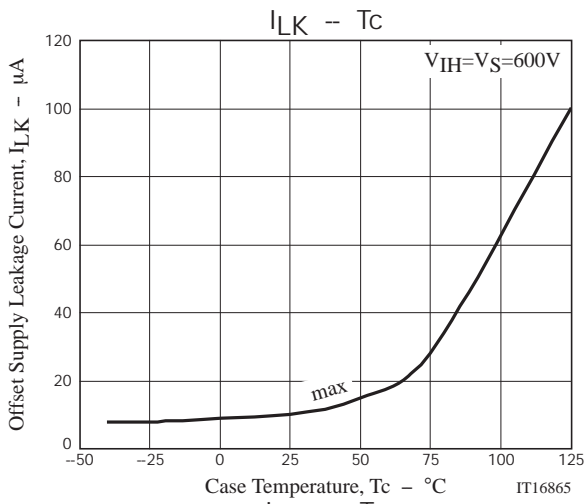
TND525SS



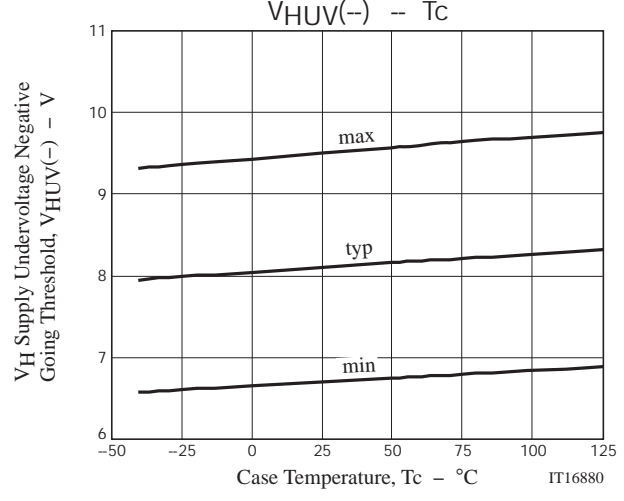
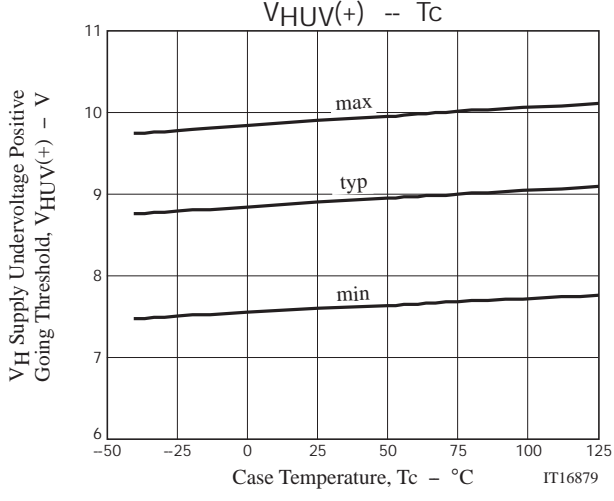
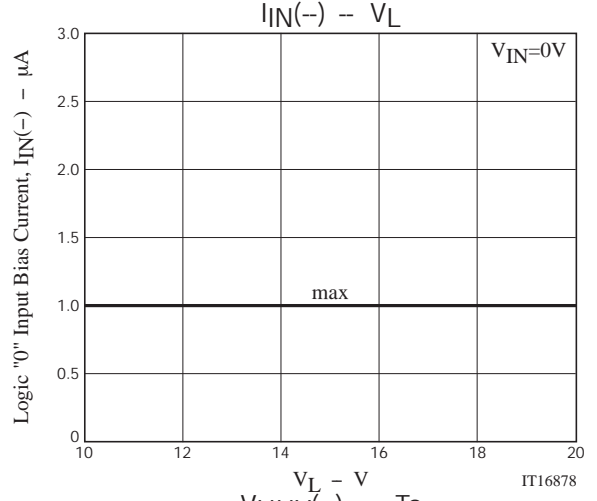
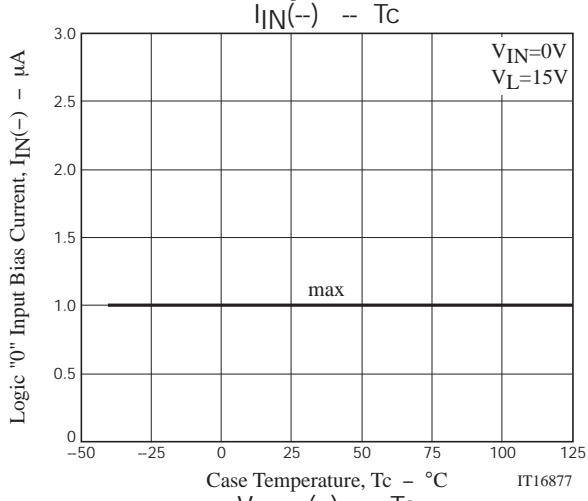
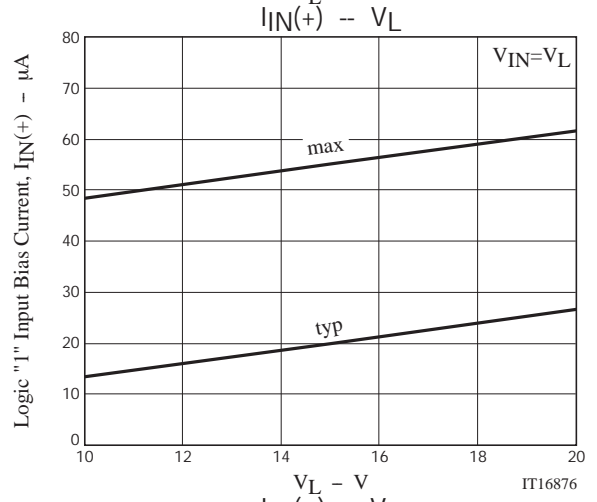
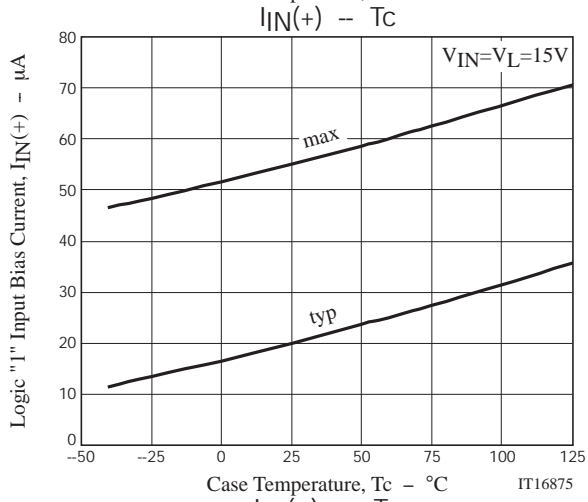
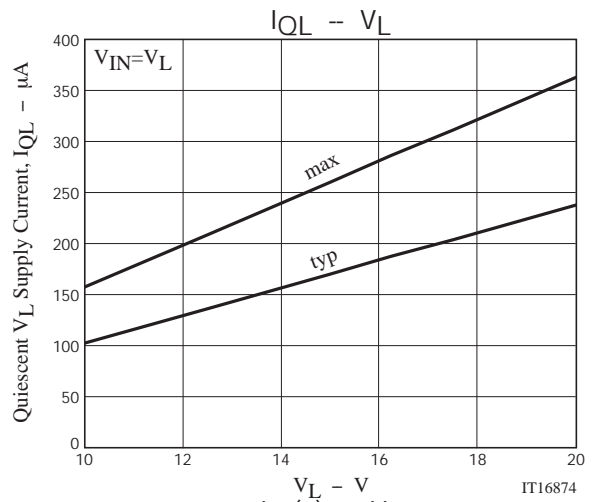
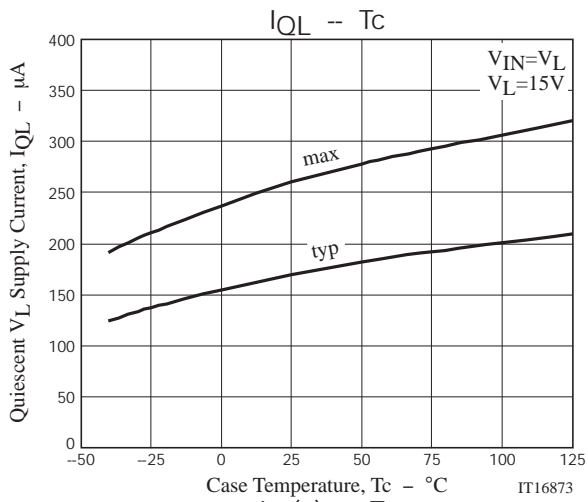
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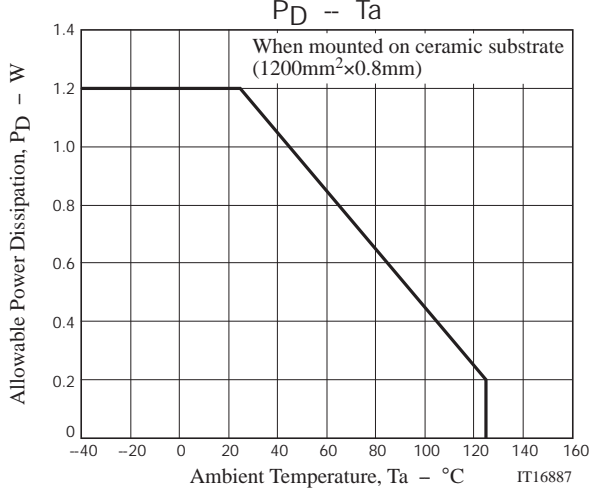
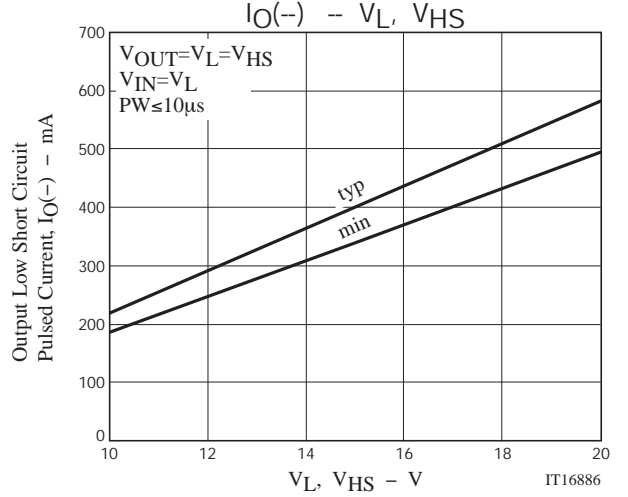
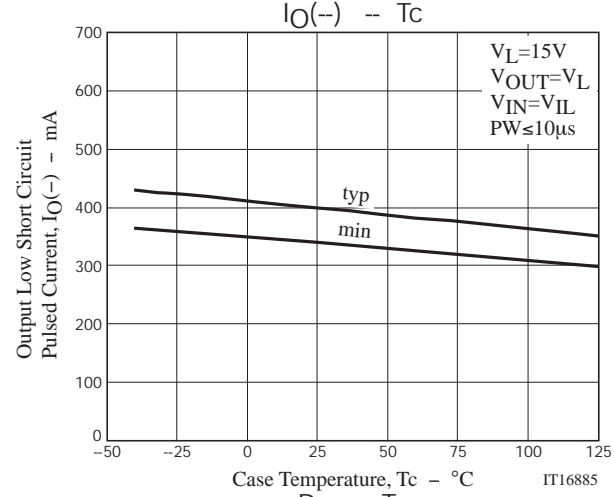
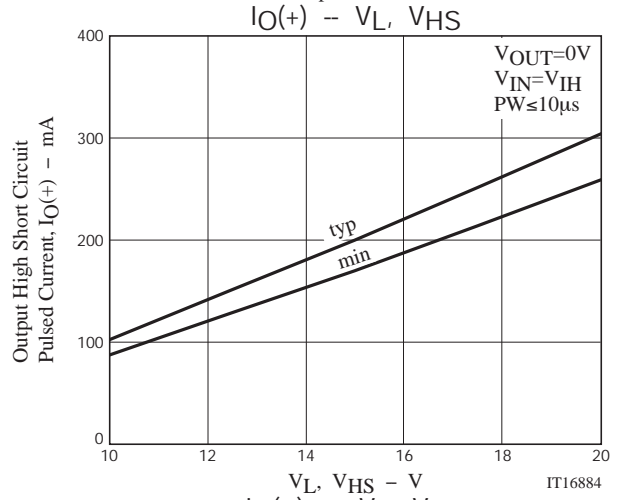
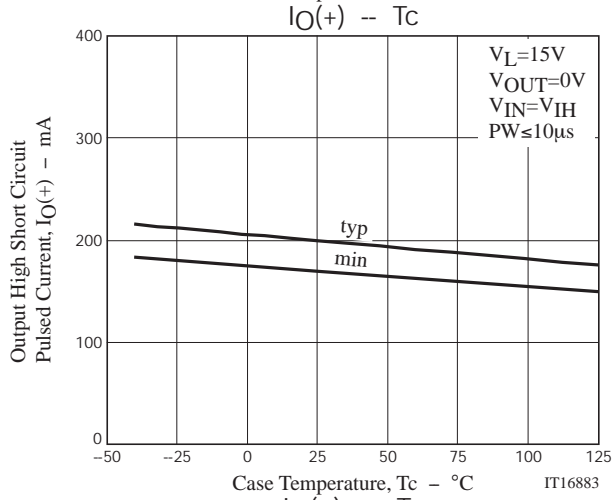
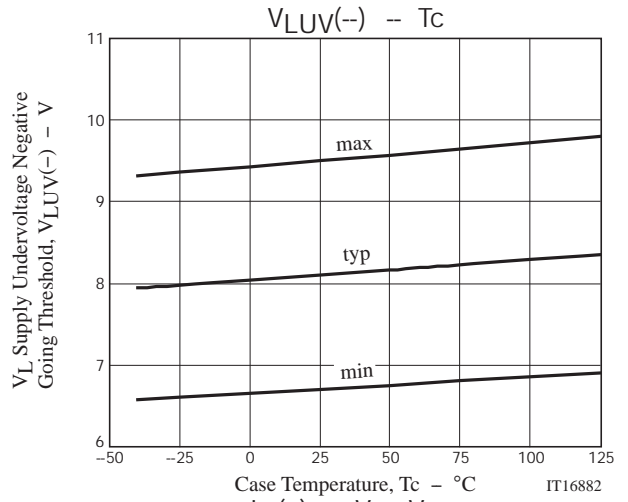
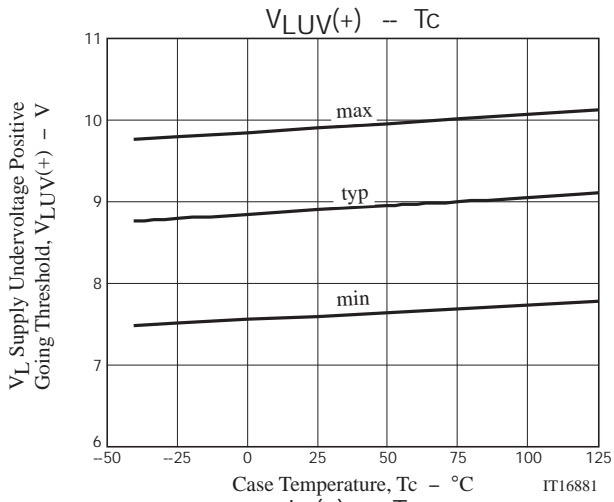
TND525SS



TND525SS



TND525SS



TND525SS

Taping Specification

TND525SS-TL-2H

1. Packing Format

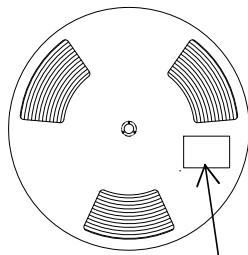
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX W206-112	Outer BOX W207-124
SOIC8	B202-101	2,500	12,500	25,000	5 reels contained Dimensions :mm(external) 340×95×340	2 inner boxes contained Dimensions :mm(external) 360×210×375

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 →

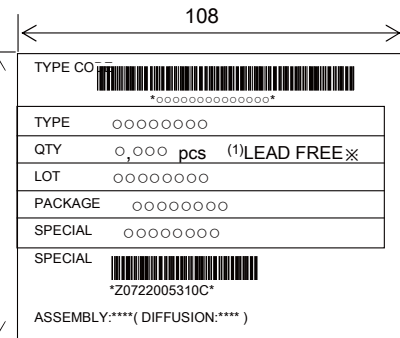
Reel label



NOTE(1)

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

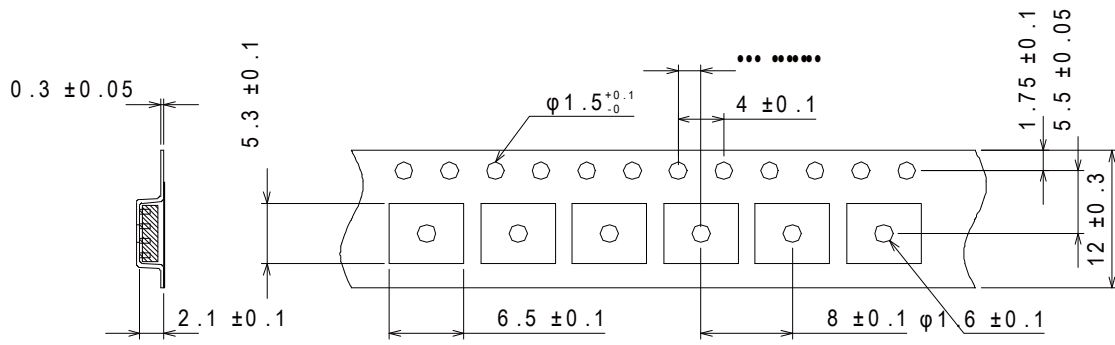
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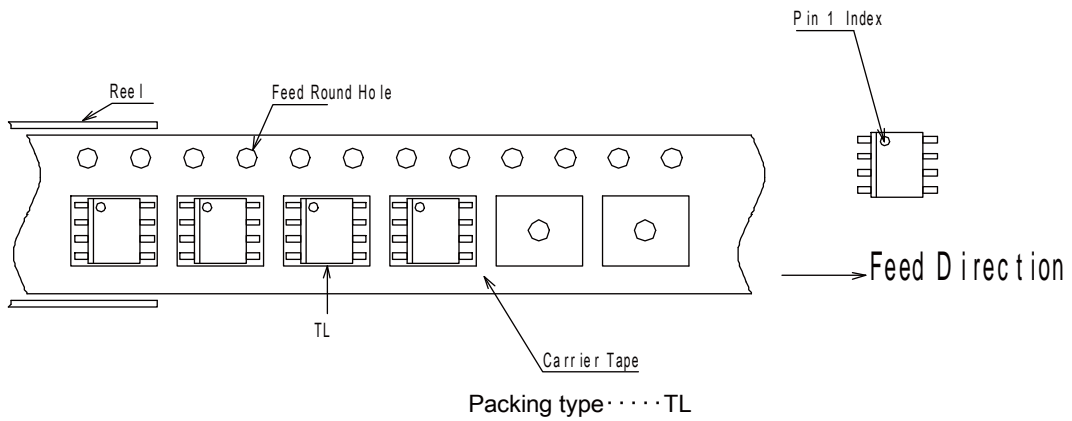
Label	JEITA Phase
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

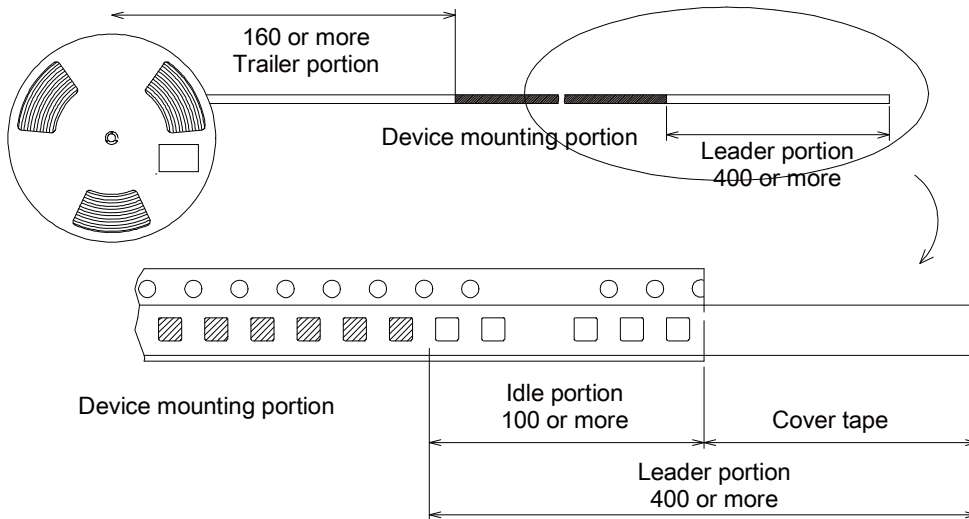
2-1. Carrier tape size (unit: mm)



2-2. Device placement direction

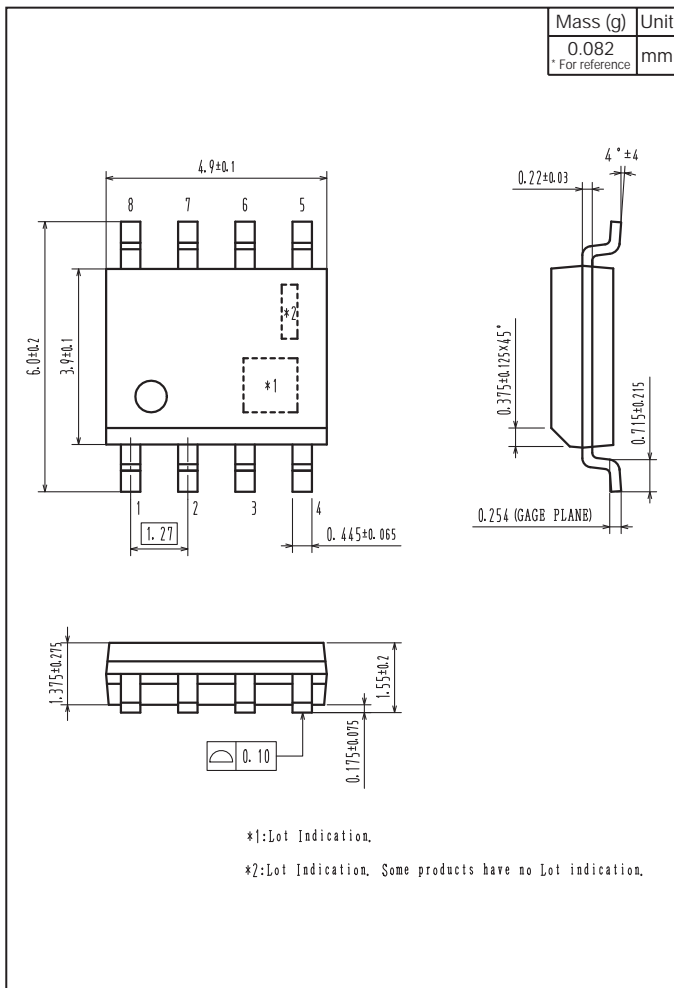


2-3. Leader portion and trailer portion (unit: mm)

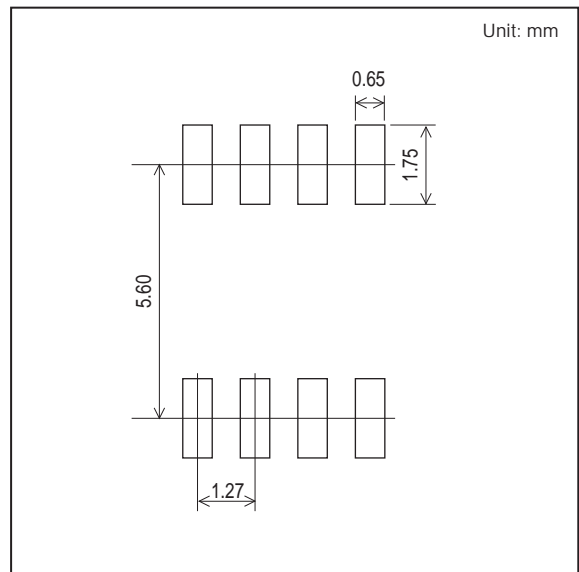


TND525SS

Outline Drawing TND525SS-TL-2H



Land Pattern Example



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