



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

ExPD (Excellent Power Device)

# TND316S — General Purpose Driver for PDP Sustain Pulse Drive, Motor Drive, Switching Power Supply, and DC / DC Converter Applications

## Features

- Inverter buffer.
- Monolithic structure (High voltage CMOS process adopted).
- Withstand voltage of 25V is assured.
- Wide range of operating voltage : 4.5V to 25V.
- Peak output current : 1A.
- Fast switching time (30ns typical at 1000pF load).
- 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.

## Specifications

### Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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	$T_J$		-55 to +150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

### Recommended Operating Conditions at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Operating Supply Voltage	$V_{DD}$		4.5 to 25	V
Operating Temperature	$T_{opr}$		-40 to +125	$^\circ\text{C}$

### Electrical Characteristics (AC Characteristics) at $T_a=25^\circ\text{C}$ , $V_{DD}=18\text{V}$ , $V_{IN}=5\text{V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-On Rise Time	$t_r$	$C_L=1000\text{pF}$		30	45	ns
Turn-Off Fall Time	$t_f$	$C_L=1000\text{pF}$		30	45	ns
Delay Time	$t_{D1}$	$C_L=1000\text{pF}$		30	45	ns
	$t_{D2}$	$C_L=1000\text{pF}$		45	60	ns

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# TND316S

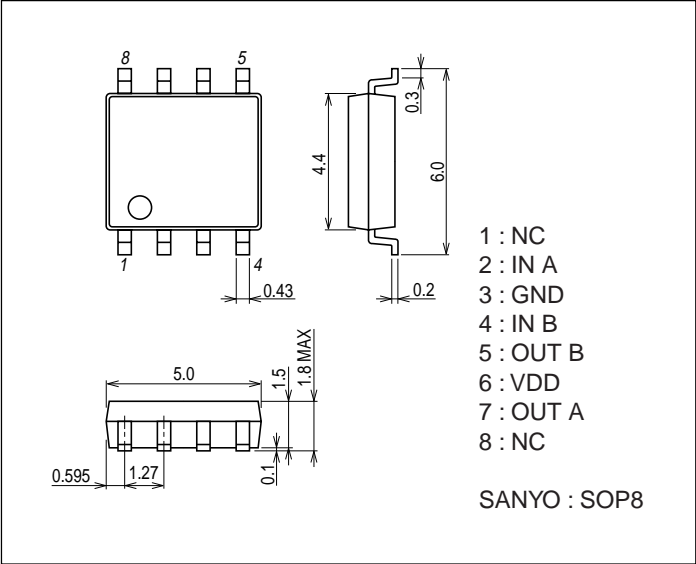
## Electrical Characteristics (DC Characteristics) at Ta=25°C, VDD=4.5 to 25V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Logic "1" Input Voltage	V <sub>IH</sub>		2.6			V
Logic "0" Input Voltage	V <sub>IL</sub>				0.8	V
Logic "1" Input Bias Current	I <sub>IN+</sub>	V <sub>IN</sub> =V <sub>DD</sub> =25V		40	100	μA
Logic "0" Input Bias Current	I <sub>IN-</sub>	V <sub>IN</sub> =0V or V <sub>DD</sub>	-1		1	μA
High Level Output Voltage	V <sub>OH</sub>	I <sub>O</sub> =0A	V <sub>DD</sub> -0.1			V
Low Level Output Voltage	V <sub>OL</sub>	I <sub>O</sub> =0A			0.1	V
V <sub>DD</sub> Supply Current	I <sub>supp</sub>	V <sub>DD</sub> =10V, V <sub>IN</sub> =3V, (both inputs)		1.0	4.5	mA
		V <sub>DD</sub> =10V, V <sub>IN</sub> =0V, (both inputs)			0.2	mA
Output High Short Circuit Pulse Current	I <sub>O+</sub>	V <sub>DD</sub> =18V, PW≤10μs, V <sub>OUT</sub> =0V		1.0		A
Output Low Short Circuit Pulse Current	I <sub>O-</sub>	V <sub>DD</sub> =18V, PW≤10μs, V <sub>OUT</sub> =18V		1.0		A
Output On Resistance	R <sub>OUT</sub>	V <sub>DD</sub> =18V, I <sub>load</sub> =10mA, V <sub>OUT</sub> ="H"		8	12	Ω
		V <sub>DD</sub> =18V, I <sub>load</sub> =10mA, V <sub>OUT</sub> ="L"		6	10	Ω

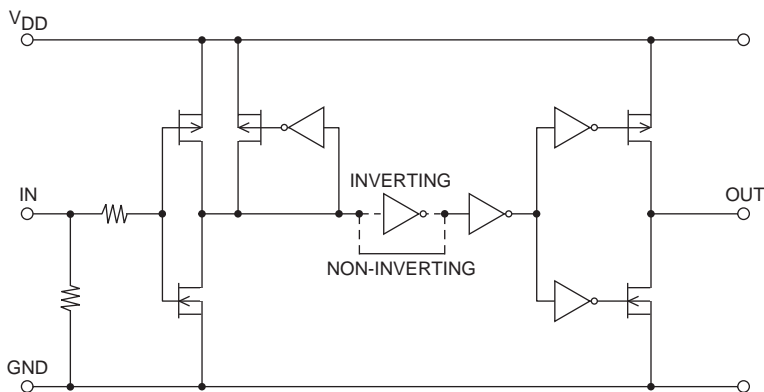
## Package Dimensions

unit : mm (typ)

7005-007

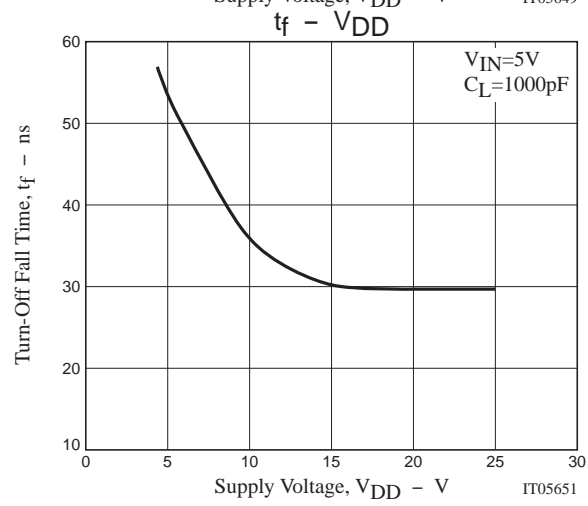
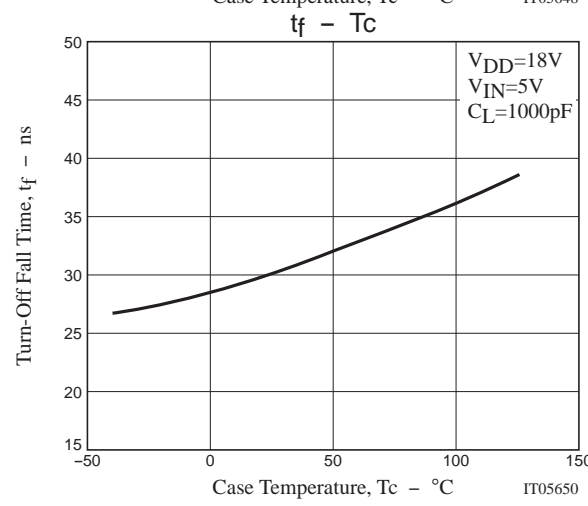
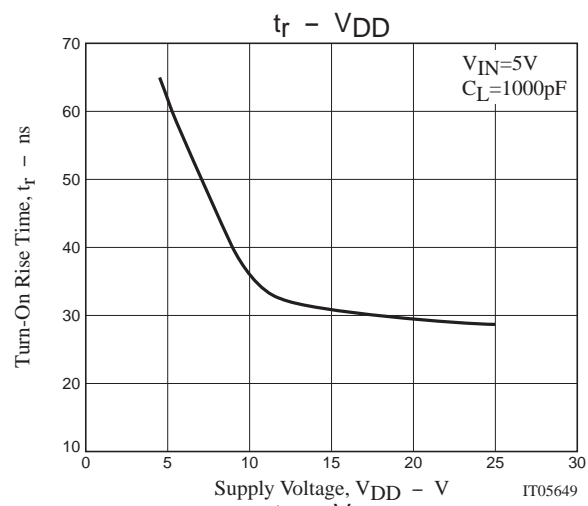
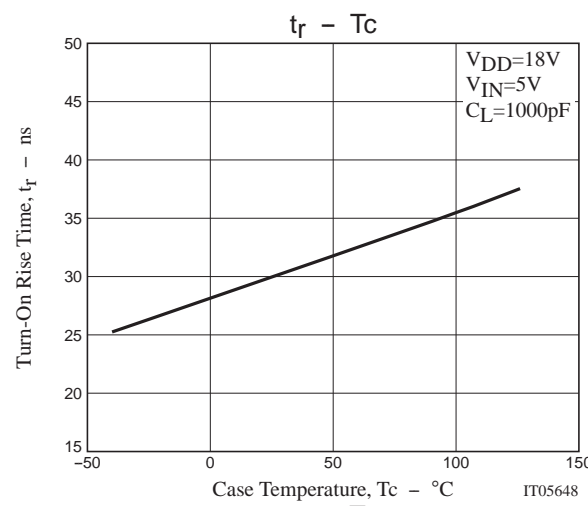
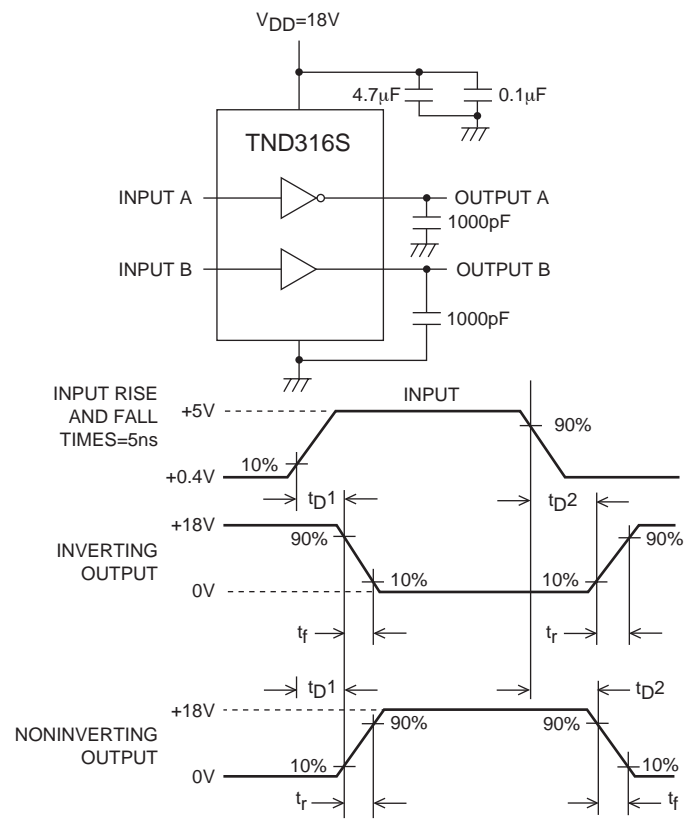


## Block Diagram

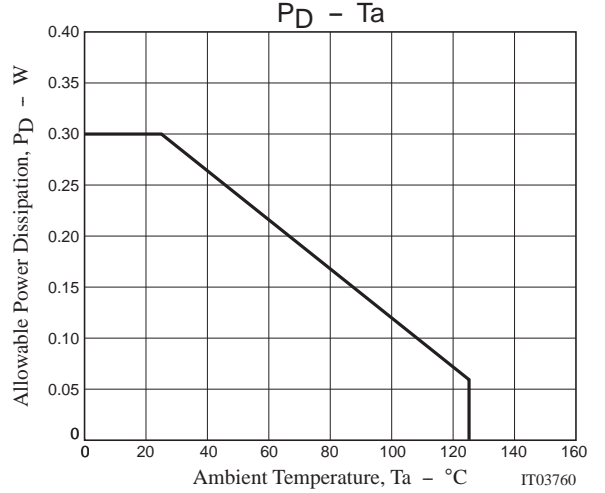
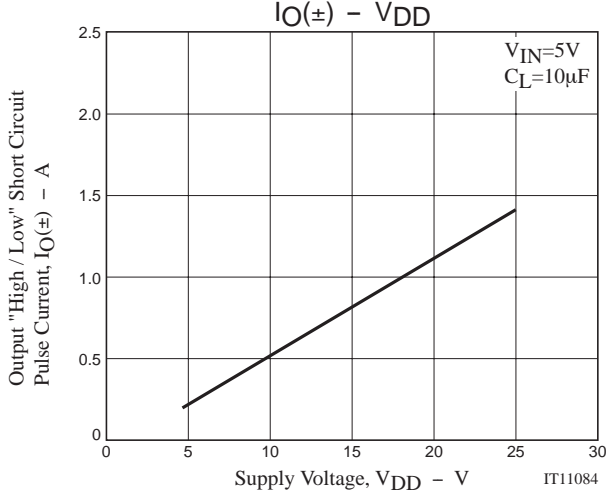
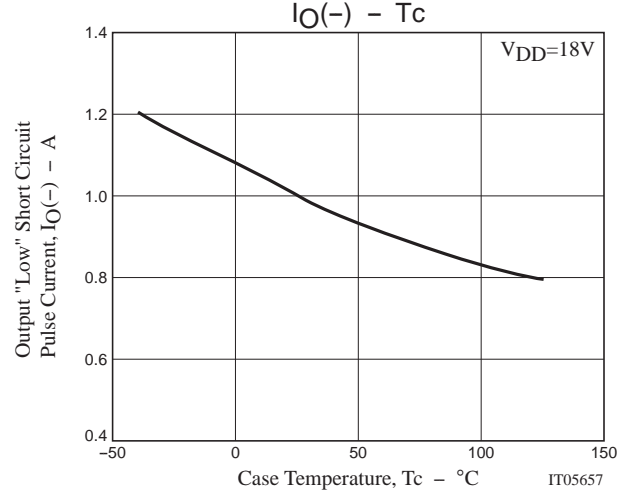
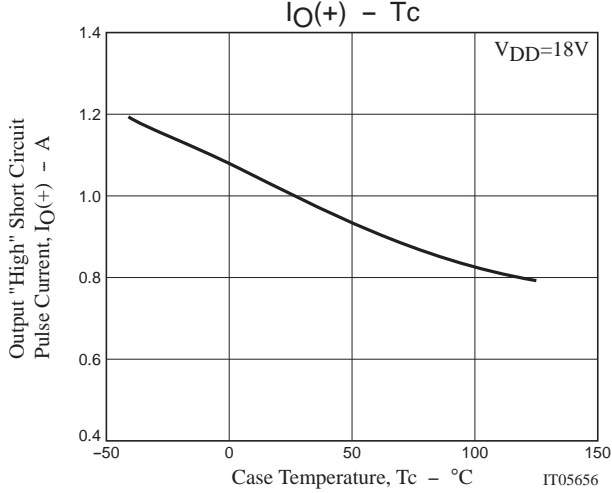
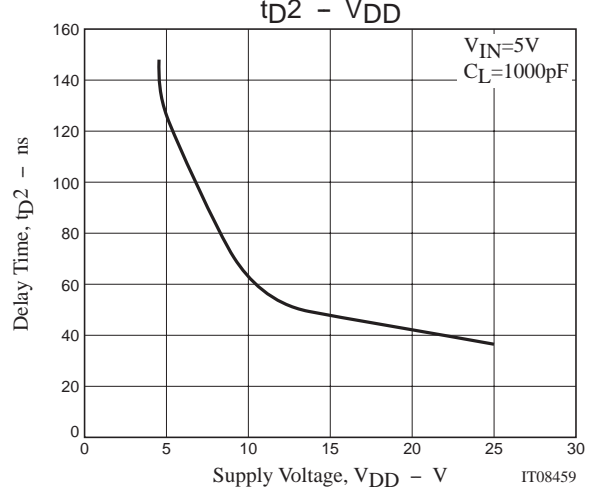
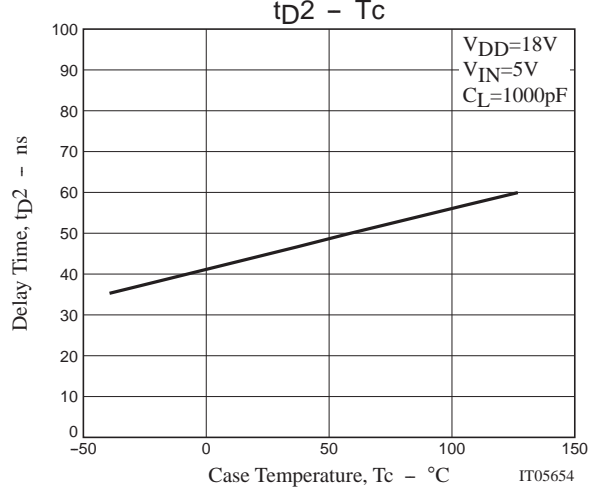
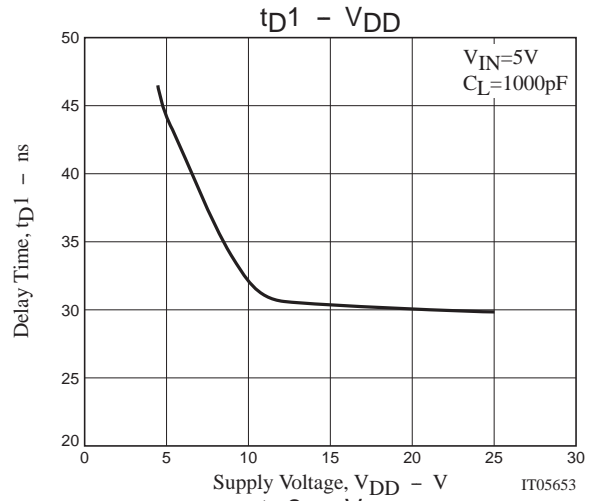
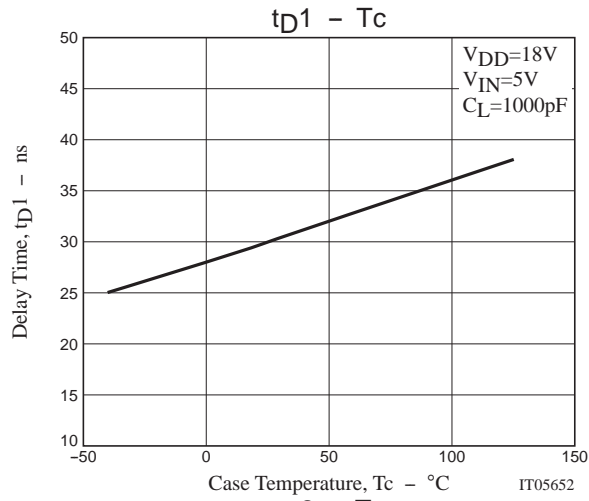


# TND316S

## Switching Time Test Circuit



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