



SANYO Semiconductors

DATA SHEET

TND304S

ExPD (Excellent Power Device)
 General Purpose Driver for PDP Sustain Pulse Drive, Motor Drive,
 Switching Power Supply, and DC / DC Converter Applications

Features

- Dual inverter.
- 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 (25ns typical at 1000pF load).
- Fully compatible input to TTL / CMOS. (V_{IH} =up to 2.6V, at V_{DD} =4.5 to 25V)

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}	$C_L=1000\text{pF}$		25	40	ns
	t_{D2}	$C_L=1000\text{pF}$		45	60	ns

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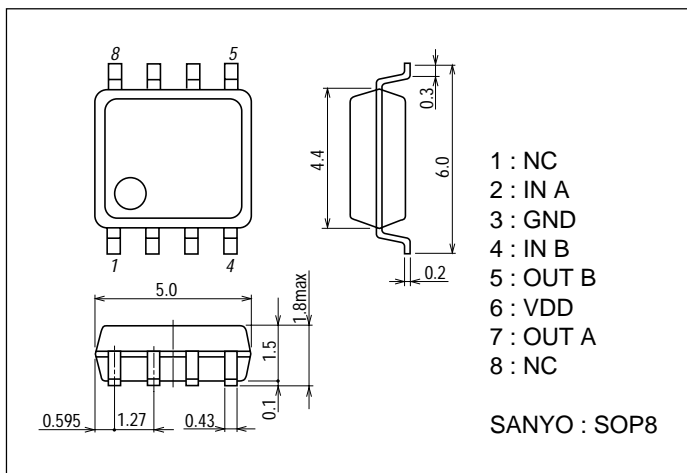
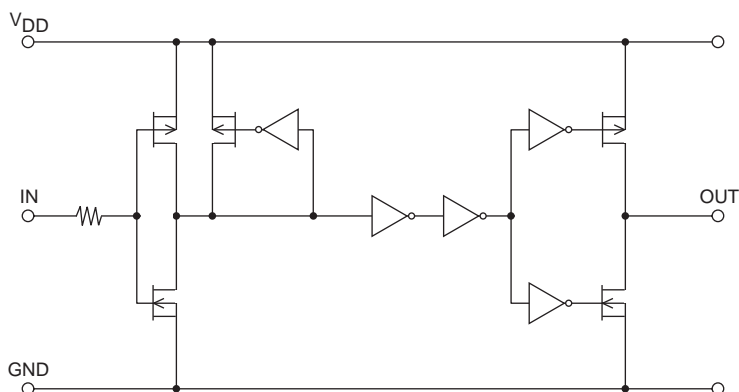
Electrical Characteristics (DC Characteristics) at $T_a=25^\circ\text{C}$, $V_{DD}=4.5$ to 25V

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
Input Bias Current	I_{IN}	$V_{IN}=0$ or V_{DD}	-1		1	μA
High Level Output Voltage	V_{OH}	$I_O=0$	$V_{DD}-0.1$			V
Low Level Output Voltage	V_{OL}	$I_O=0$			0.1	V
V_{DD} Supply Current	I_{supp}	$V_{DD}=10\text{V}$, $V_{IN}=3\text{V}$, (both inputs)		1.0	4.5	mA
		$V_{DD}=10\text{V}$, $V_{IN}=0$, (both inputs)			0.2	mA
Output High Short Circuit Pulse Current	I_{O+}	$V_{DD}=18\text{V}$, $PW \leq 10\mu\text{s}$, $V_{OUT}=0$		1.0		A
Output Low Short Circuit Pulse Current	I_{O-}	$V_{DD}=18\text{V}$, $PW \leq 10\mu\text{s}$, $V_{OUT}=18\text{V}$		1.0		A
Output On Resistance	R_{OUT}	$V_{DD}=18\text{V}$, $I_{load}=10\text{mA}$, $V_{OUT}=\text{"H"}$		8	12	Ω
		$V_{DD}=18\text{V}$, $I_{load}=10\text{mA}$, $V_{OUT}=\text{"L"}$		6	10	Ω

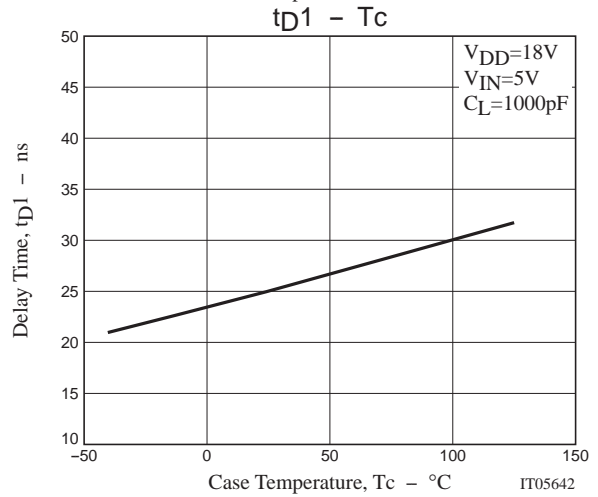
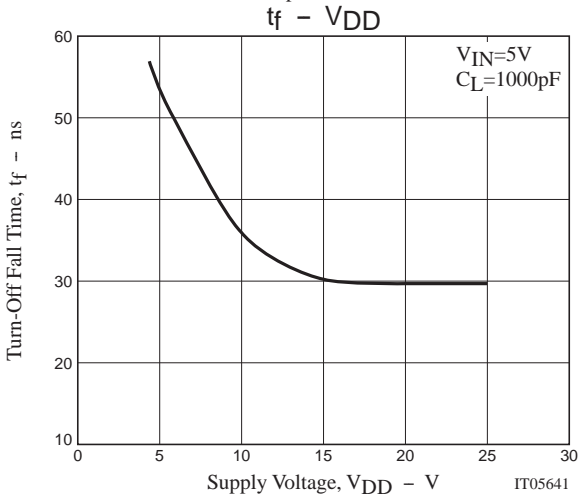
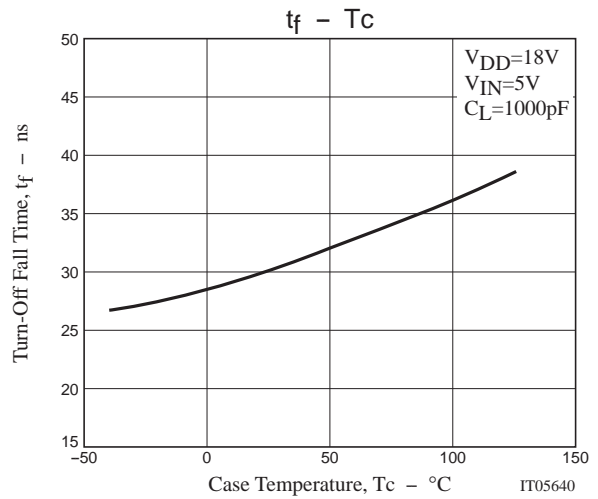
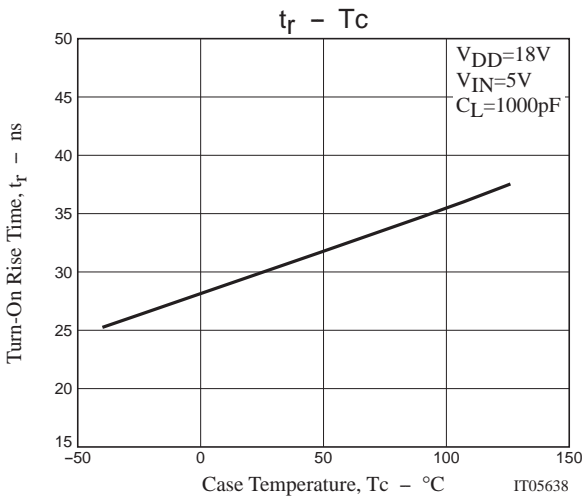
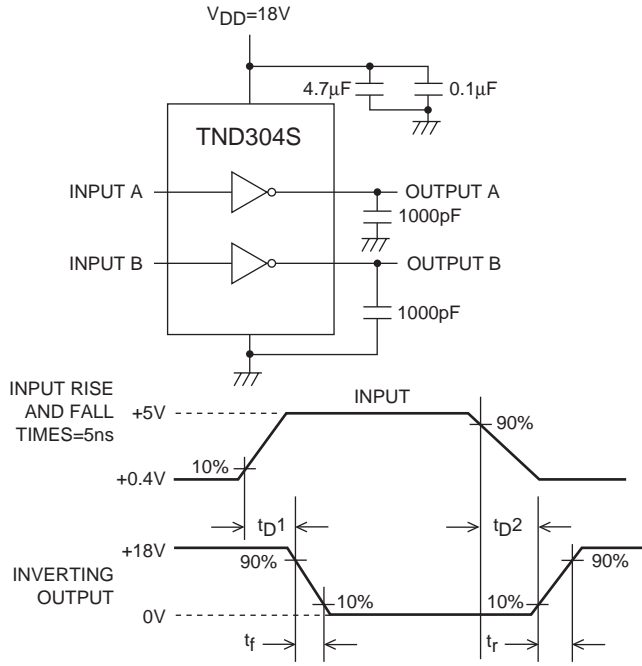
Package Dimensions

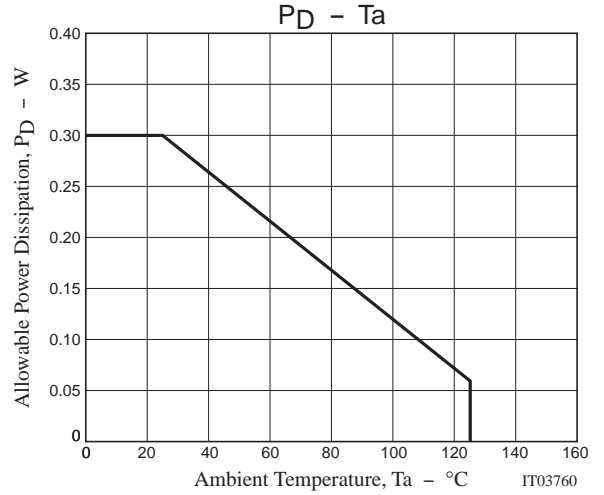
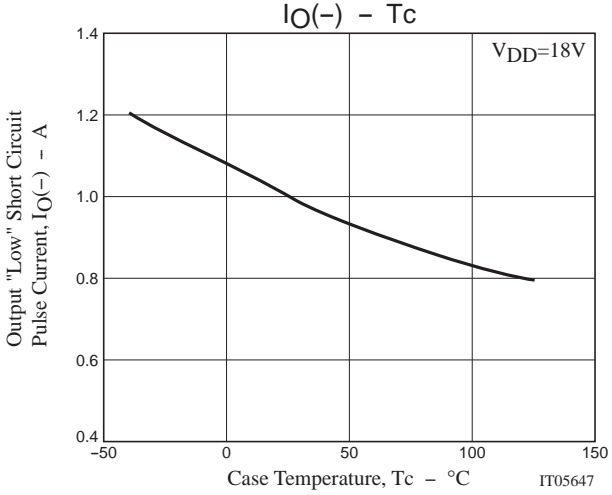
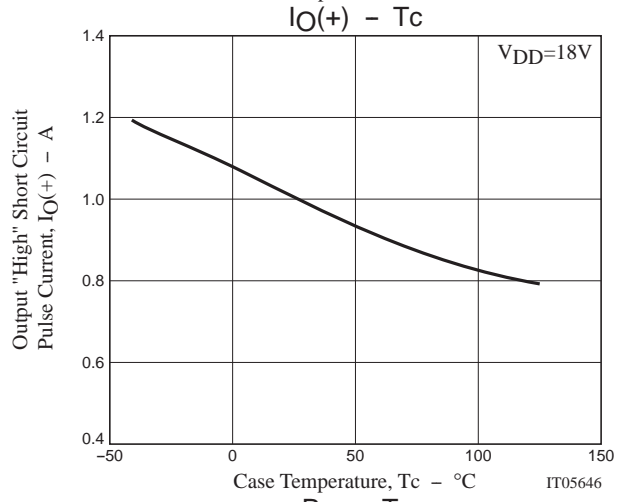
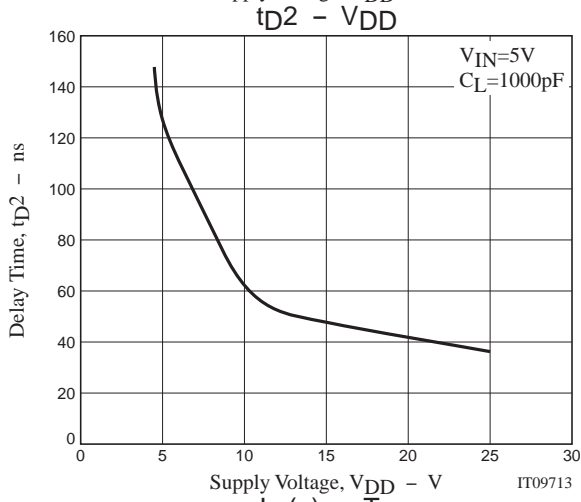
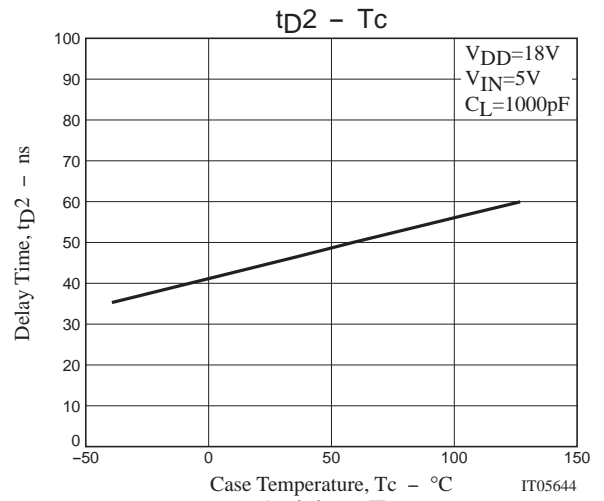
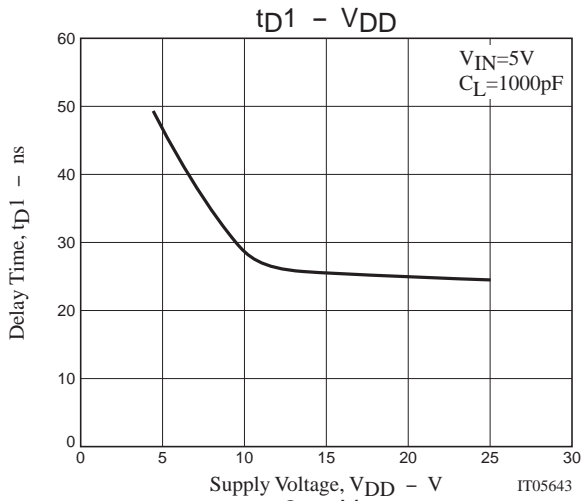
unit : mm

2199

**Block Diagram**

Switching Time Test Circuit





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