



SANYO Semiconductors
DATA SHEET

ExPD (Excellent Power Device)

TND508S — Ballast, General Purpose Driver for Applications Including PDP Sustain Pulse Drive, DC / AC Motor Drive, Induction Heating, Battery Charger, High Frequency Switching Power Supply, and Switching Amplifiers

Features

- Monolithic structure.
- Single input and two output.
- Allows simplified configuration of driver circuit.
- Withstand voltage of 600V is assured.
- Fully compatible input to TTL / CMOS (V_{IH} =not more than 3.0V, at V_L =10 to 20V).
- Built-in shutdown protection function.

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$ (All voltage parameters are absolute voltage referenced to GND)

Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Absolute Voltage	V_H		-0.3 to 625	V
High Side Floating Supply Offset Voltage	V_{HFG}		V_H-25 to $V_H+0.3$	V
High Side Output Voltage	V_{HOUT}		$V_{HFG}-0.3$ to $V_H+0.3$	V
Low Side Fixed 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	V_{IN}		-0.3 to $V_L+0.3$	V
Allowable Power Dissipation	PD		0.3	W
Junction Temperature	T_j		-55 to +150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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Recommended Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
High Side Floating Supply Absolute Voltage	V _H		V _{HFG} +10 to V _{HFG} +20	V
High Side Floating Supply Offset Voltage	V _{HFG}		0 to 600	V
High Side Output Voltage	V _{HOUT}		V _{HFG} to V _H	V
Low Side Fixed Supply Voltage	V _L		10 to 20	V
Low Side Output Voltage	V _{LOUT}		0 to V _L	V
Logic Input Voltage	V _{IN}		0 to V _L	V
Ambient Temperature	T _a		-40 to +125	°C

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	t _{on}	V _{HFG} =0V		1050		ns
Turn-OFF Delay Time	t _{off}	V _{HFG} =600V		250		ns
Turn-ON Rise Time	t _r	C _L =1000pF		120		ns
Turn-OFF Fall Time	t _f	C _L =1000pF		60		ns
Delay Matching	MT	t _{on} -t _{off}		30		ns
Dead Time	DT			800		ns

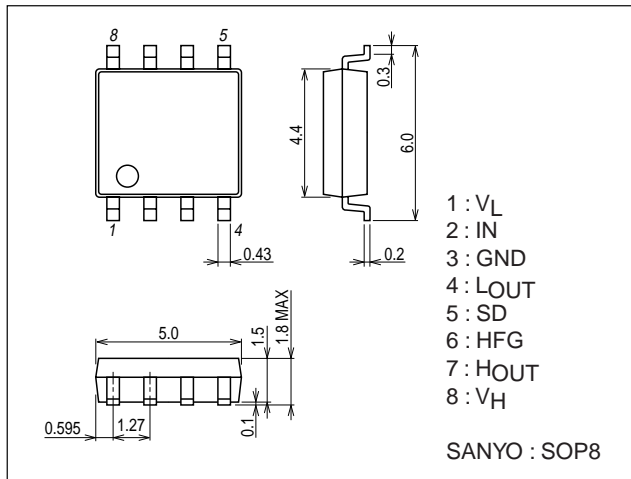
DC Characteristics at Ta=25°C (V_L=V_{HFG}=15V)

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Logic "1" Input Voltage	V _{IH}	V _L =10 to 20V	3.0			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}	I _O =0A			100	mV
Low-level Output Voltage(V _O)	V _{OL}	I _O =0A			100	mV
Offset Supply Leakage Current	I _{LK}	V _H =V _{HFG} =600V			100	μA
Quiescent V _H Supply Current	I _{QH}	V _{IN} =0V or V _L		50	100	μA
Quiescent V _L Supply Current	I _{QL}	V _{IN} =0V or V _L		170	250	μA
Logic "1" Input Bias Current	I _{IN+}	V _{IN} =15V		20	40	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	200	250		mA
Output Low Short Circuit Pulsed Current	I _{O-}	V _{OUT} =15V, PW≤10μs	420	500		mA

Package Dimensions

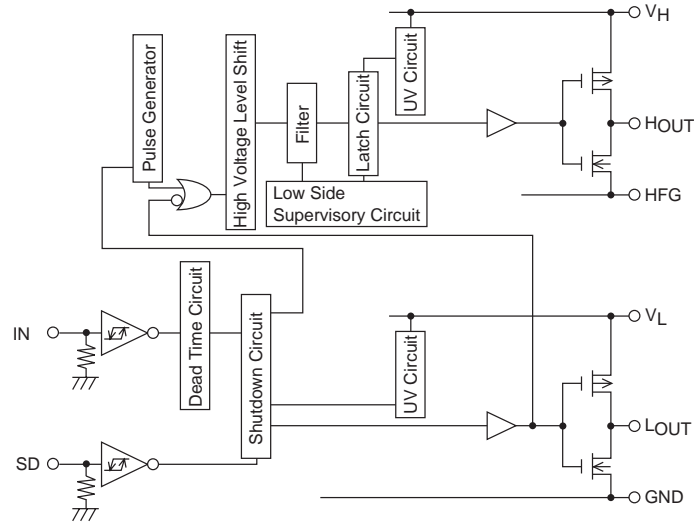
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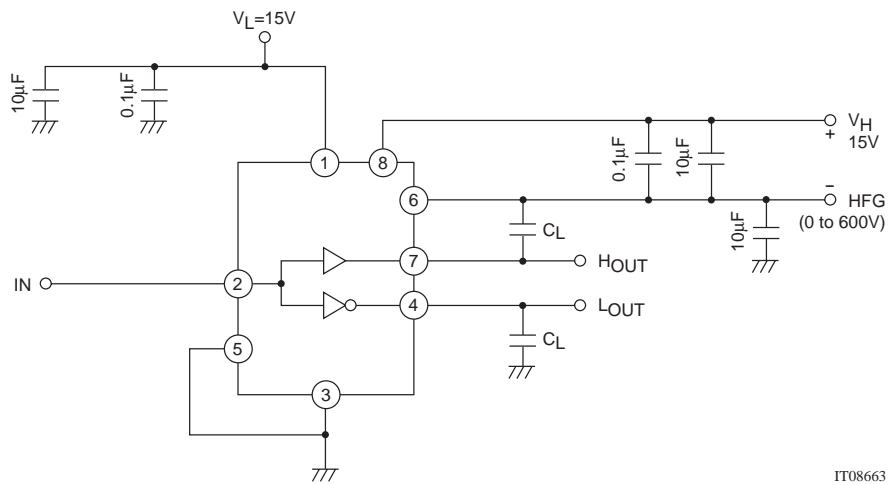


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Block Diagram

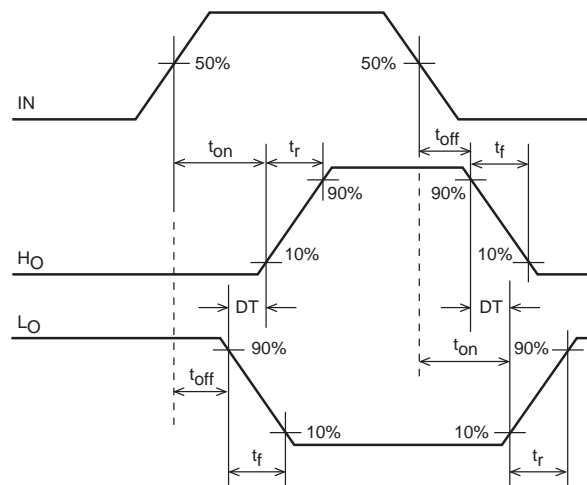


Switching Time Test Circuit



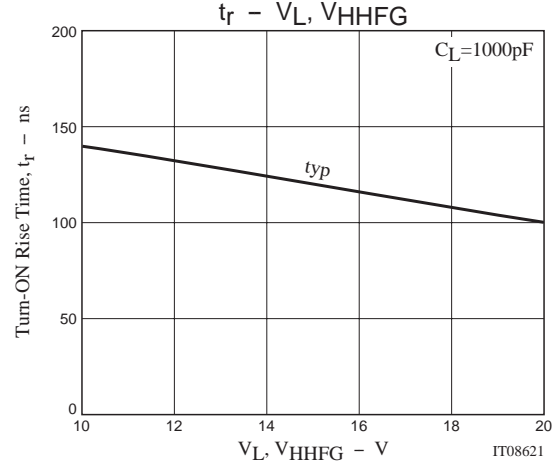
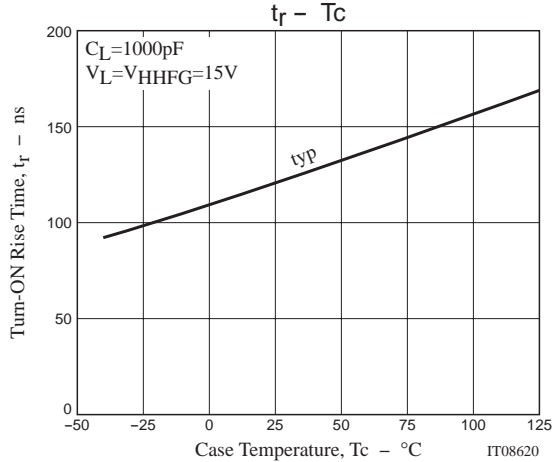
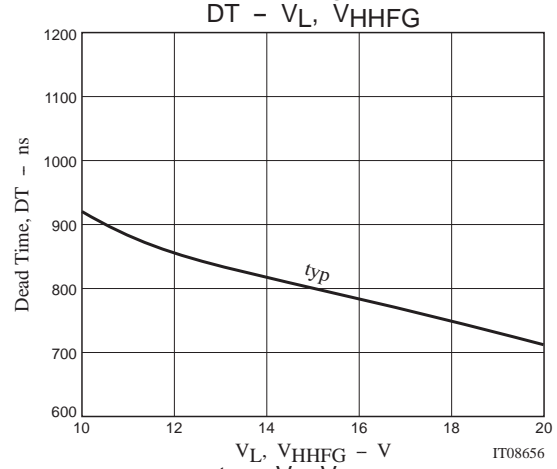
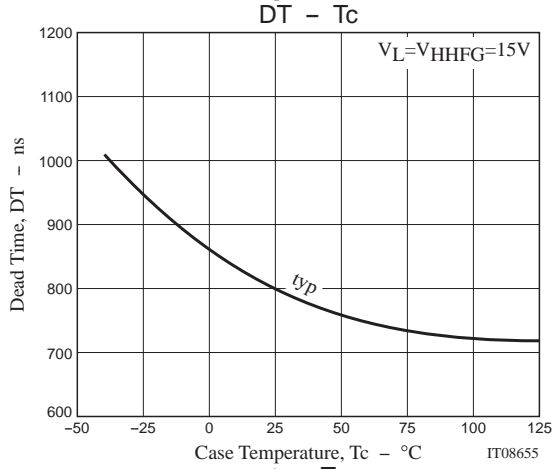
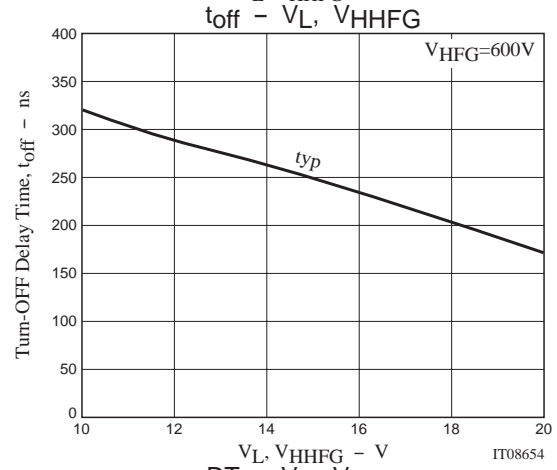
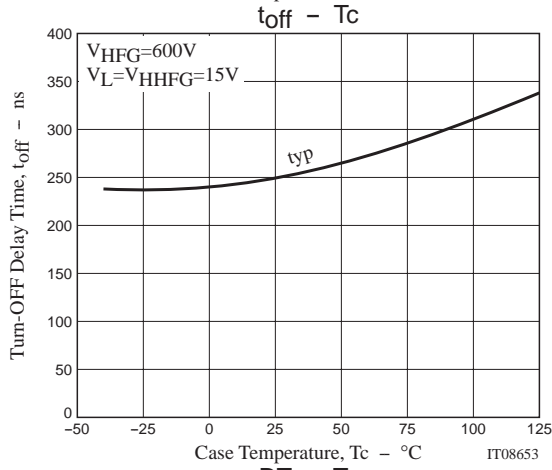
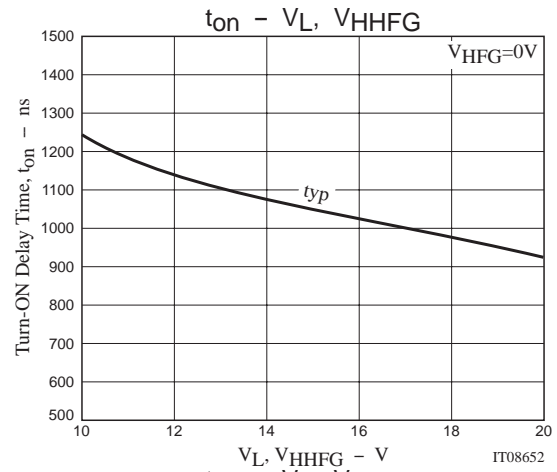
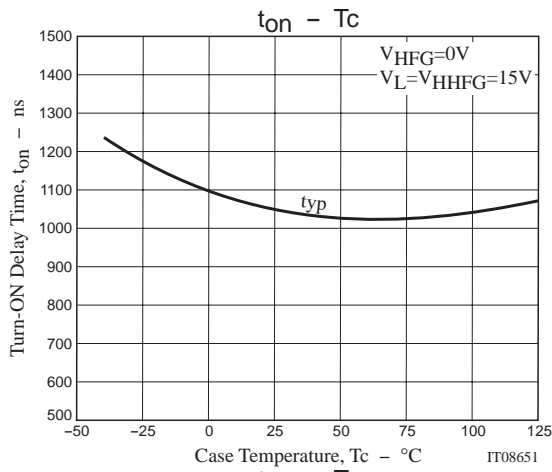
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Switching Time Waveform Definition

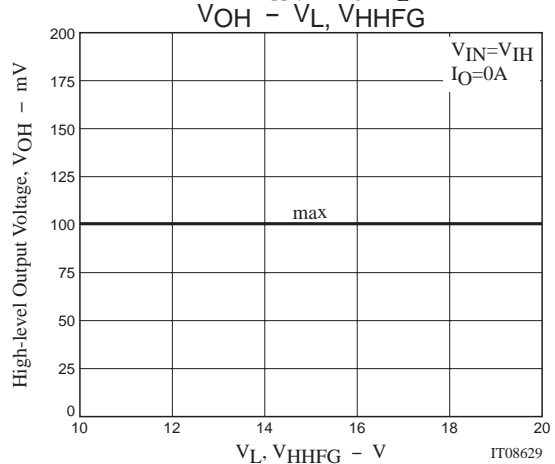
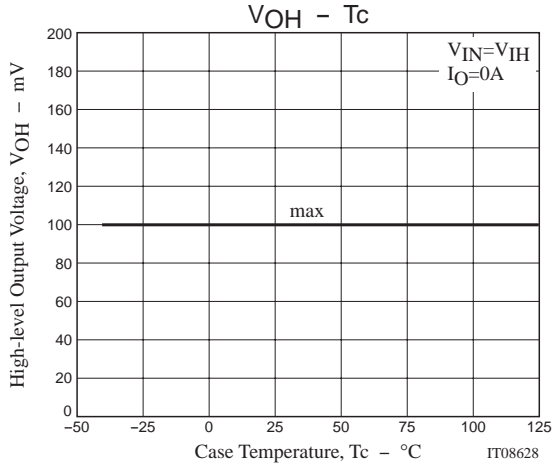
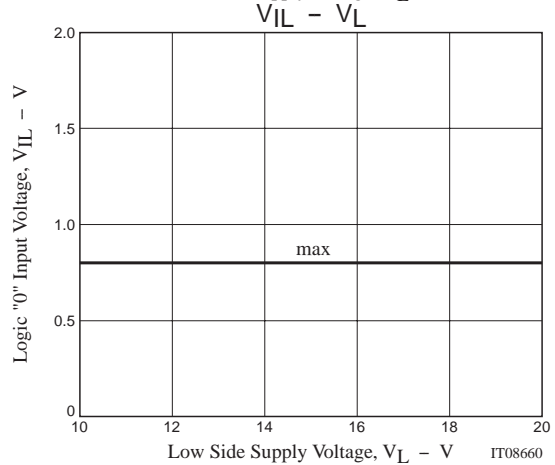
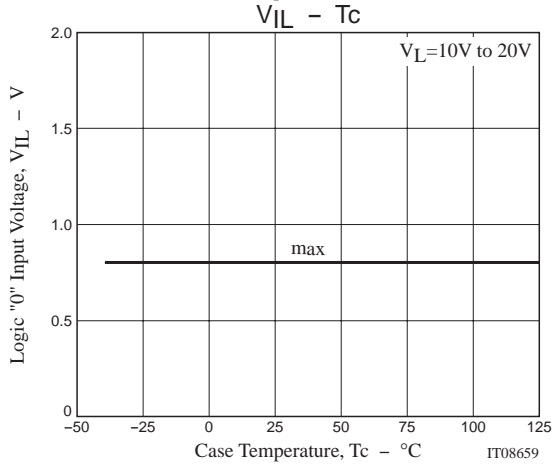
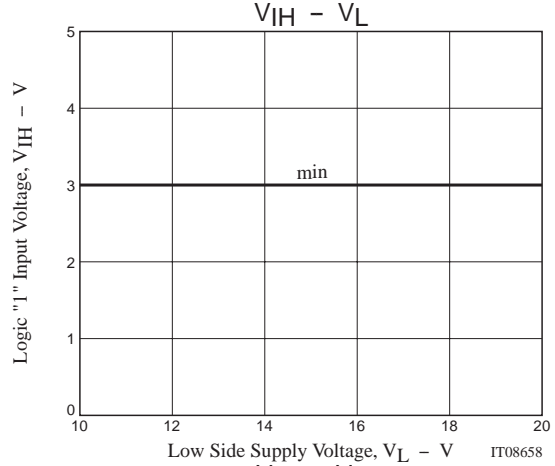
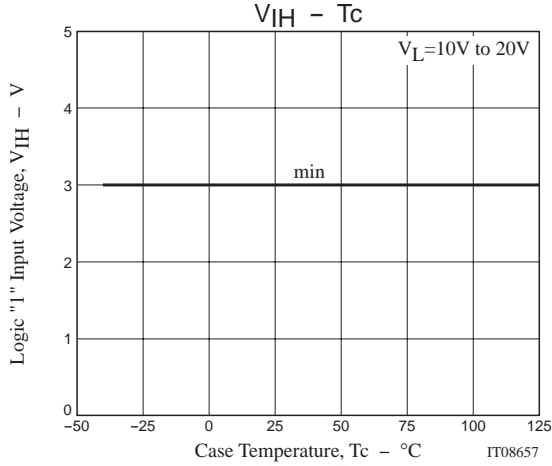
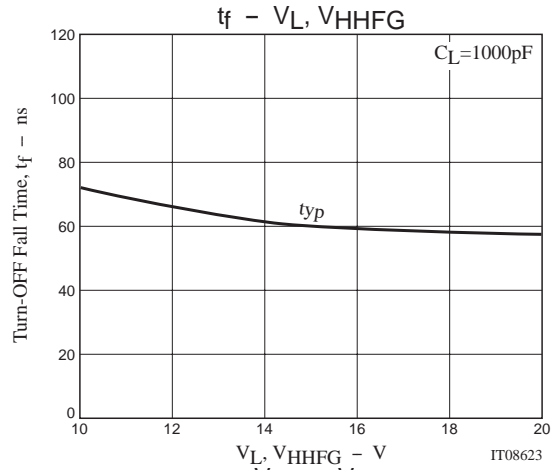
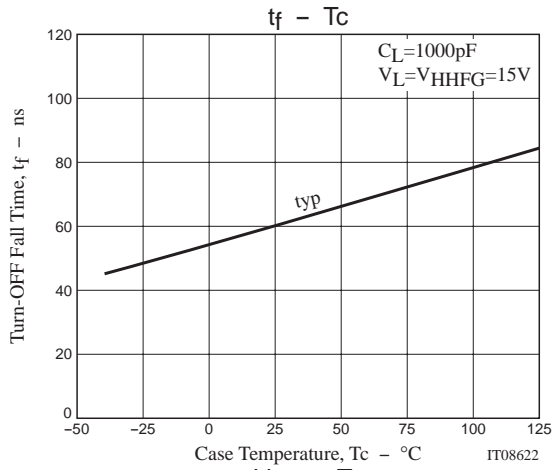


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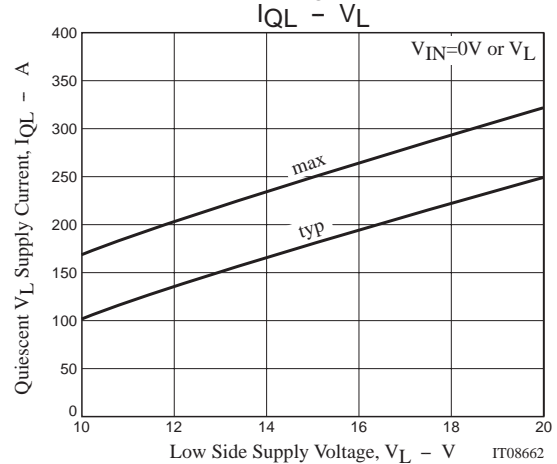
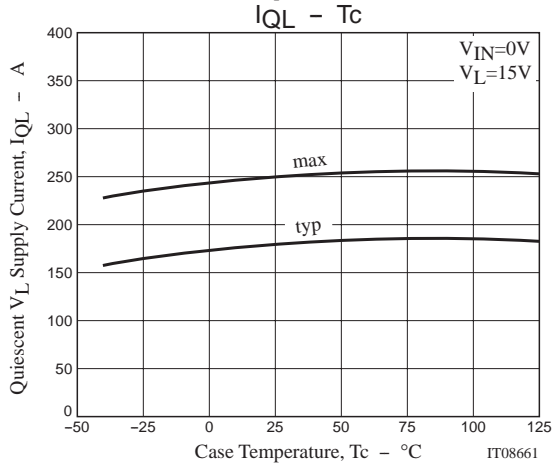
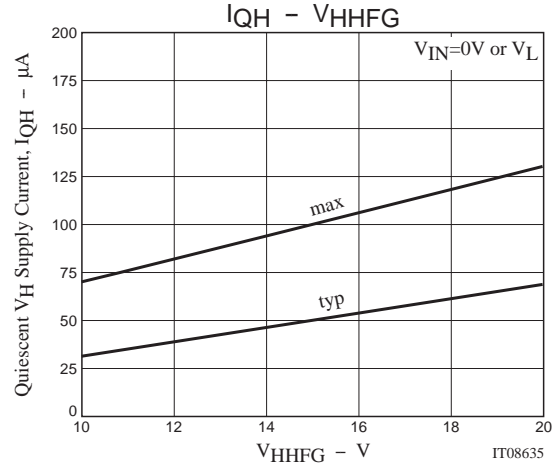
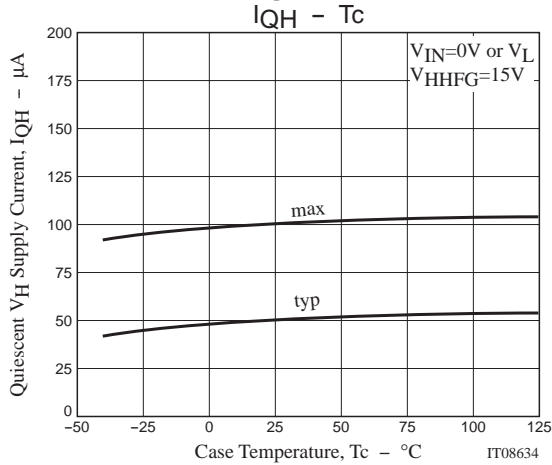
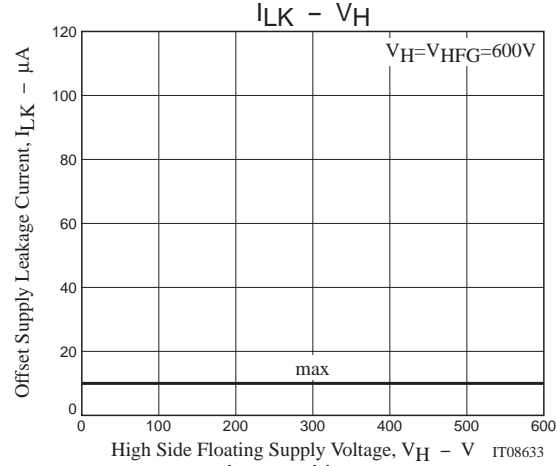
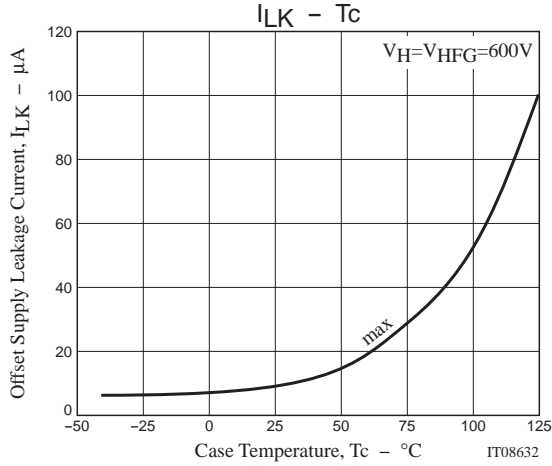
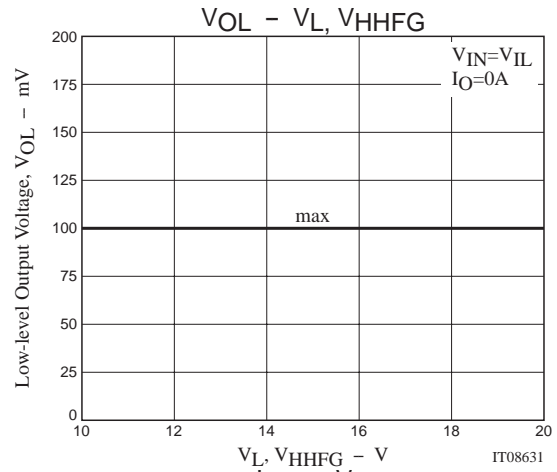
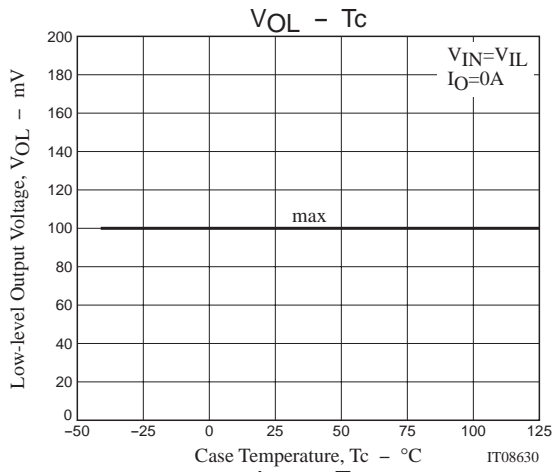
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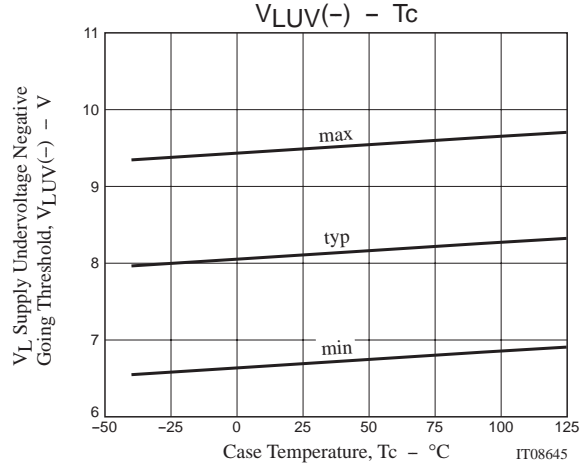
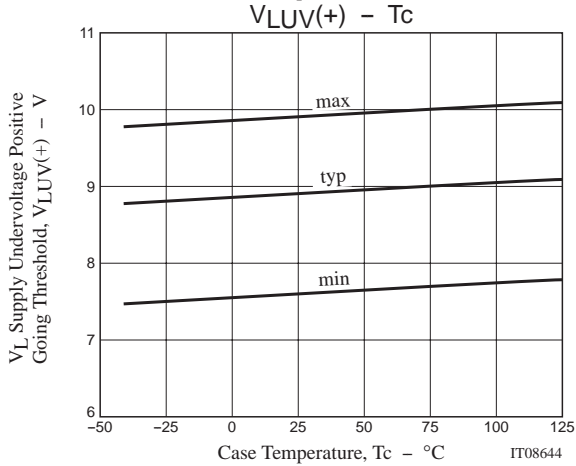
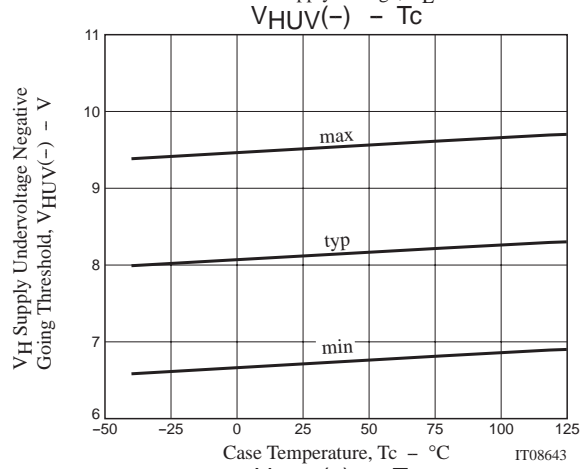
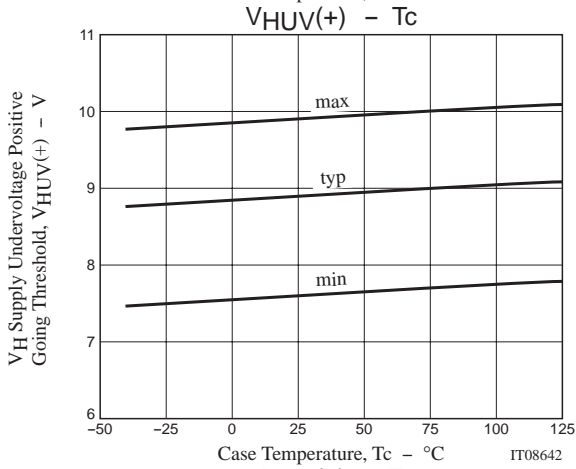
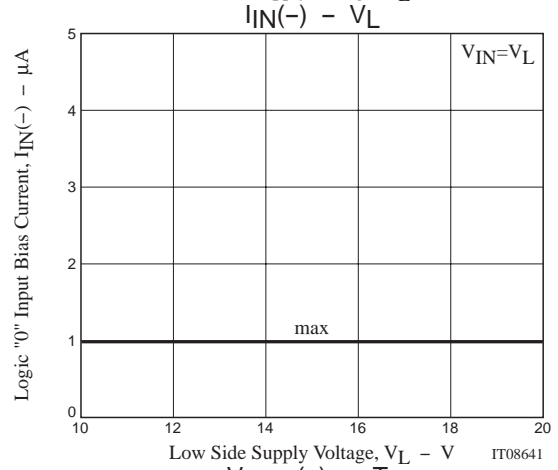
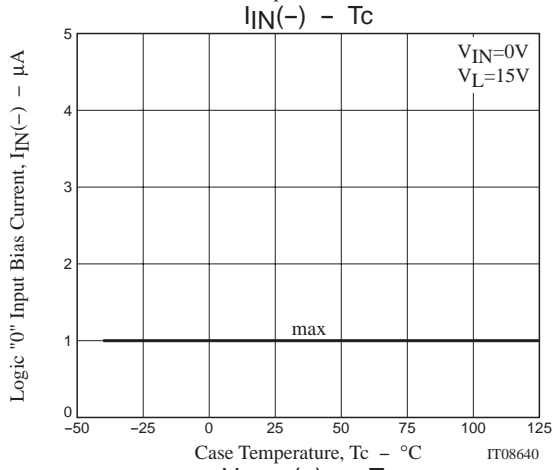
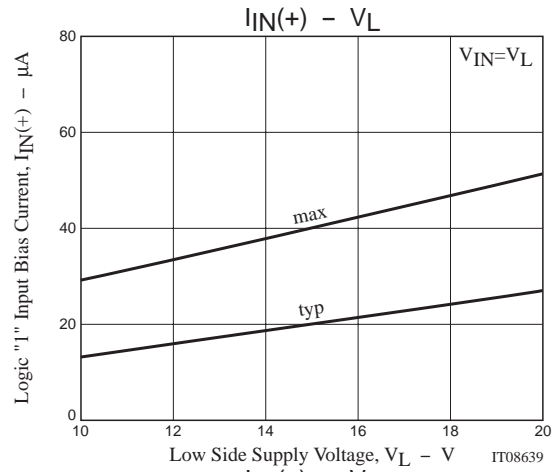
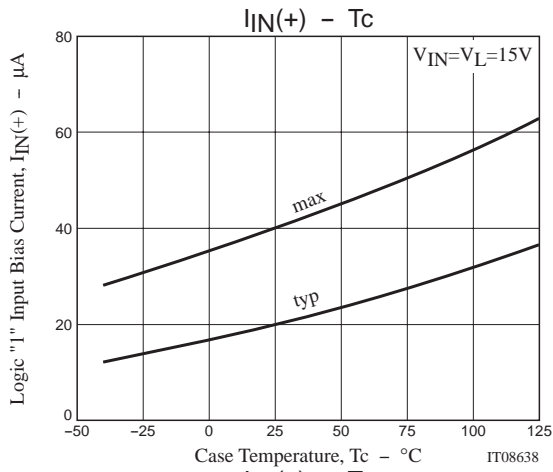
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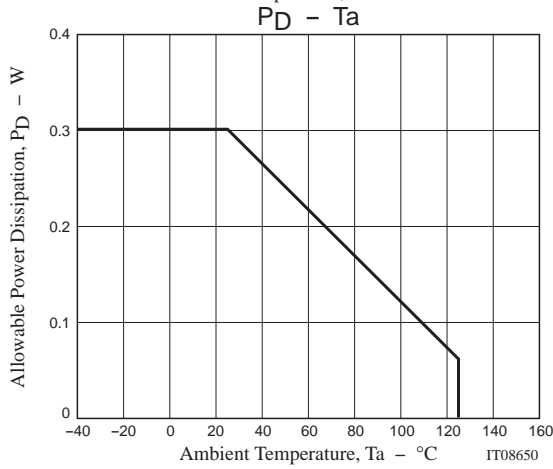
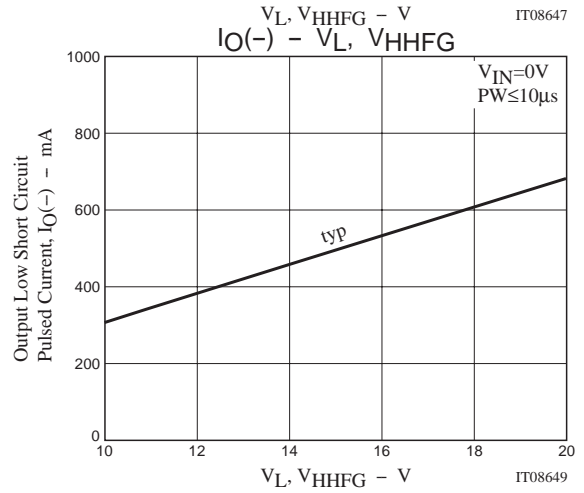
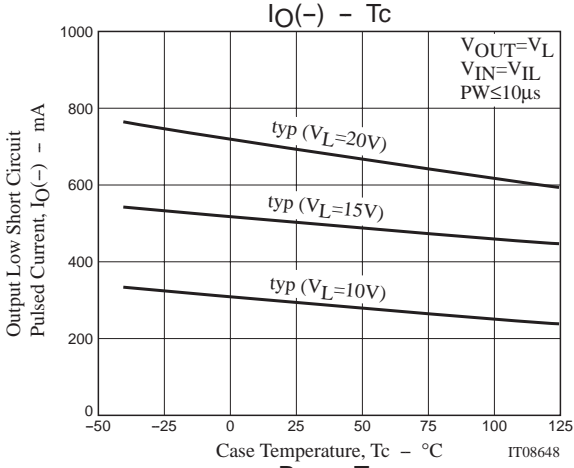
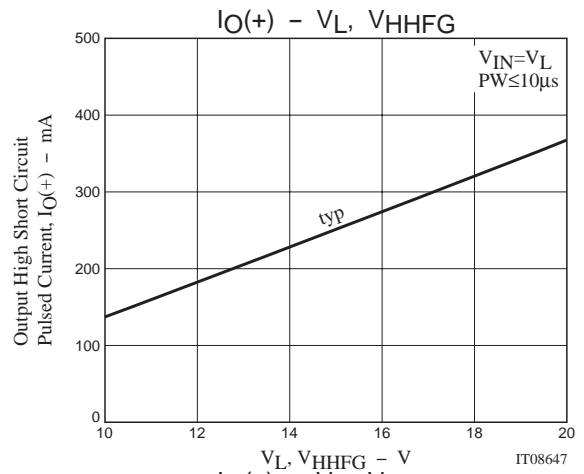
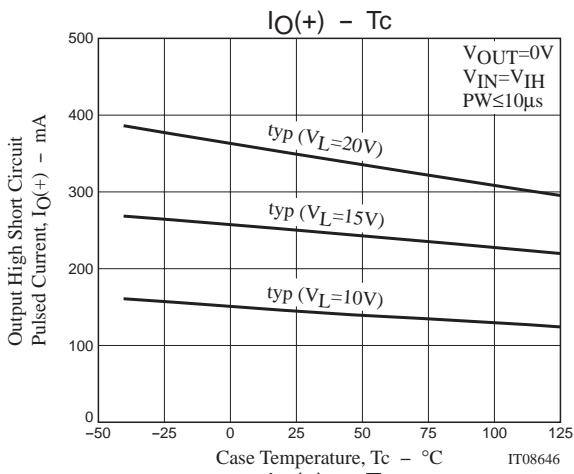
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