Glossary of
Standard Digital Isolator terms

Outline

This document describes the terms, used in data sheets of Standard Digital Isolator.

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1. Absolute Maximum Ratings

Term	Symbol	Description
Absolute Maximum Rating	—	Maximum value that must not be exceeded.
Power Supply Voltage	V_{DD}	Voltage applied to the power supply terminal.
Input Voltage	V_I	Voltage applied to the input terminal.
Output Voltage	V_O	Voltage output from the output terminal.
Output Current	I_O	Current output from the output terminal.
Storage Temperature	T_{stg}	Ambient temperature range in which the device can be stored without operation.
Operating Temperature	T_{opr}	Ambient temperature ranges in which the device can operate without loss of functionality.
Isolation Voltage	BV_S	Voltage effective value that can be applied between input and output for 1 minute without impairing the isolation function of the device.
Junction Temperature	T_j	Permissible temperature rating at the junction of each chip.

2. Electrical Characteristics

Term	Symbol	Description
UVLO Threshold voltage	VDD_{xUV+}	Power supply voltage at which UVLO is released.
	VDD_{xUV-}	Power supply voltage at which UVLO is activated.
	VDD_{xUVH}	The hysteresis width of the threshold voltage between VDD_{xUV+} and VDD_{xUV-}.
High-level Output Voltage	V_{OH}	Output voltage under specified high-level output current condition.
Low-level Output Voltage	V_{OL}	Output voltage under specified low-level output current conditions.
Output Impedance	Z_O	Resistance of the output buffer.
High-level Input Voltage	V_{IH}	Input voltage required for the output terminal to output V_{OH}.
Low-level Input Voltage	V_{IL}	Input voltage required for the output terminal to output V_{OL}.
Input Voltage Hysteresis	V_{HYS}	The hysteresis width of the threshold voltage between V_{IH} and V_{IL}.
Input Current	I_I	Leakage current flowing to the input terminal when voltage is applied to the input terminal.

3. Switching Characteristics

Term	Symbol	Description
Data Rate	t_{bps}	The number of bits that can be conveyed per second.
Pulse Width	PW	Minimum pulse width at which the device operates normally.
Propagation Delay Time(H→L)	t_{PHL}	The time it takes for the output signal to change from high-level to low-level after the input signal changes.
Propagation Delay Time(L→H)	t_{PLH}	The time it takes for the output signal to change from low-level to high-level after input signal changes.
Pulse Width Distortion	PWD	Absolute difference between t_{PHL} and t_{PLH} in the same channel.
Propagation Delay Skew	t_{PSK}	Dispersion in propagation delay times between the different devices.
Channel Matching	t_{skCD}	Difference in propagation delay time between channels in the same direction.
	t_{skOD}	Difference in propagation delay time between channels in the opposite direction.
Rise Time	t_r	The time it takes for the output voltage to rise from 10% to 90% of the high-level voltage.
Fall Time	t_f	The time it takes for the output voltage to fall from 90% to 10% of the high-level voltage.
Enable 3-state output enable time	t_{pZL}	The time it takes for the output signal to change from Z (high-impedance) to low-level after the control input signal changes.
	t_{pZH}	The time it takes for the output signal to change from Z to high-level after the control input signal changes.
Enable 3-state output disable time	t_{pLZ}	The time it takes for the output signal to change from low-level to the Z state after the control input signal changes.
	t_{pHZ}	The time it takes for the output signal to change from high-level to the Z state after the control input signal changes.
Disable Output Enable Time	t_{p_EN}	The time it takes for the output signal to change to the enable state after the control input signal changes.
Disable Output Disable Time	t_{p_DIS}	The time required for the output signal to change to the disable state after the control input signal changes.
Common Mode Transient Immunity	CMTI	Maximum rate of increase in I / O common mode voltage which can maintain the specified output level.

4. Supply Current Characteristics

Term	Symbol	Description
Circuit Current	$I_{DD(Q)}$	Circuit current flowing into the power supply terminal when the input signal does not change.
	I_{DD}	Circuit current flowing into the power supply terminal when the input signal changes at the specified frequency.

Changelog

Version	Date	Content of change
Rev. 1.0	18th Jan. 2022	First edition

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