3V High Speed Single LVDS Driver

DESCRIPTION

The DG90LV011 High Speed driver is optimized for data rate in excess of 400 Mbps (200 MHz). Device works under current mode. It conforms to TIA/EIA standard. It is designed and manufactured for industrial temperature (- 40 °C ~ 85 °C) applications.

FEATURES

- 3.3 V Power Supply
- +/- 350 mV Differential Signal
- > 400 Mbps (200 MHz)
- Low Power
- Differential Skew - 100 ps
- Propagation Delay - 1.2 ns
- TIA/EIA-644-A conformant
- Small TSOP-5 Package
- ESD > 8 KV (HBM)
- Latch-Up Current > 300 mA (JESD78)

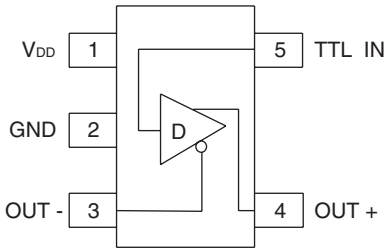
APPLICATIONS

- Routers/Hubs
- Switches
- Set Top boxes
- Game Controllers

FUNCTIONAL BLOCK DIAGRAM AND PIN CONFIGURATION

DG90LV011DV

TSOP-5



ORDERING INFORMATION		
Temp Range	**Package**	**Part Number**
- 40 to 85 °C	TSOP–5	DG90LV011DV-T1-E3

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted			
Parameter		**Limit**	**Unit**
Reference to GND	V_{DD}	- 0.3 to + 4	V
	V_{IN}	- 0.3 to + 3.6	
	V_{OUT}	- 0.3 to + 3.9	
Output short circuit current		24	mA
Storage Temperature (D Suffix)		- 65 to 150	°C
Power Dissipation (Packages)[a]	6-Pin TSOP-5[b]	570	mW

Notes

a. All leads welded or soldered to PC Board.

b. Derate 7.1 mW/°C above 70 °C.

SPECIFICATIONS

Parameter	Symbol	Test Condition Otherwise Unless Specified V_{DD} = 3.0 V to 3.6 V	Temp[a]	Limits - 40 °C to 85 °C Min[b]	Typ[c]	Max[b]	Unit
DC Characteristics							
Output Differential Voltage	$\|V_{OD}\|$	R_L = 100 Ω	Full	250		450	mV
VOD Magnitude Delta	ΔV_{OD}				1	35	
Offset Voltage	V_{OS}	R_L = 100 Ω	Full	1.125	1.200	1.375	V
Offset Magnitude Delta	ΔV_{OS}			0	1.4	25	mV
Power-Off Leakage	I_{OFF}	V_{OUT} = GND or 3.6 V, V_{DD} = 0 V	Full		± 1	± 10	µA
Output Short Circuit Current	I_{OS}	V_{OUT+} and V_{OUT-} = 0 V		- 24	- 7		mA
Differential Output Short Circuit Current	I_{OSD}	$V_{OUT(DIFF)}$ = O V		- 12	- 6.5		mA
Input High Voltage	V_{IH}		Full	2.0		V_{DD}	V
Input Low Voltage	V_{IL}			GND		0.8	
Input High Current	I_{IH}	V_{IN} = 2.4 V			± 1	10	µA
Input Low Current	I_{IL}	V_{IN} = 0.5 V			± 1	10	
Input Capacitance	C_{IN}		Room		8		pF
Input Clamp Voltage	V_{CLAMP}	I_{CLAMP} = - 18 mA	Full	- 1.5	- 0.9		V
Dynamic Characteristics							
Differential Propagation Delay (L to H)[d]	t_{PLHD}	R_L = 100 Ω , C_L = 15 pF	Full	0.3	1.3	1.7	ns
Differential Propagation Delay (H to L)[d]	t_{PHLD}			0.3	1.2	1.7	
Differential Pulse Skew $\|t_{PHLD} - t_{PLHD}\|$[d]	t_{SKD1}			0	0.1	0.7	
Differential Part to Part Skew[d,e]	t_{SKD3}			0		1.0	
Differential Part to Part Skew[d,f]	t_{SKD4}			0		1.2	
Transition Time - (L to H)[d]	t_{TLH}			0.2	0.7	1.0	
Transition Time - (H to L)[d]	t_{THL}			0.2	0.7	1.0	
Maximum Operating Frequency[d]	f_{MAX}			200			MHz
Power Supply							
Power Supply Range	V_{DD}		Full	3.0	3.3	3.6	V
Power Supply Current	I_{DD}	R_L = open, V_{IN} = 0 V or V_{DD}			7.3	9	mA
		R_L = 100 Ω , V_{IN} = 0 V or V_{DD}			7.4	10	

Notes
a. Room = 25 °C, Full = as determined by the operating suffix.
b. The algebraic convention whereby the most negative value is a minimum and most positive a maximum, is used in this data sheet.
c. Typical values are based on V_{DD} = + 3.3 V and T_A = + 25 °C. Values are for design aid only and are not guaranteed nor subject to production testing.
d. Guarantee by design or characterization, not subjected to production test.
e. t_{SKD3}, Differential Part-to-Part Skew, is defined as the difference between the minimum and maximum specified differential propagation delays. This specification applies to devices at the same V_{DD} and with 5 °C of each other within the operatin temperature range.
f. t_{SKD4}, Part-to-Part Skew, is the differential Channel-to-Channel skew of any event between devices. This specification applies to devices over recommended operating temperature and voltage ranges, and across process distribution. t_{SKD4} is defined as $\|$Max - Min$\|$ differential propagation delay.

TEST CIRCUITS

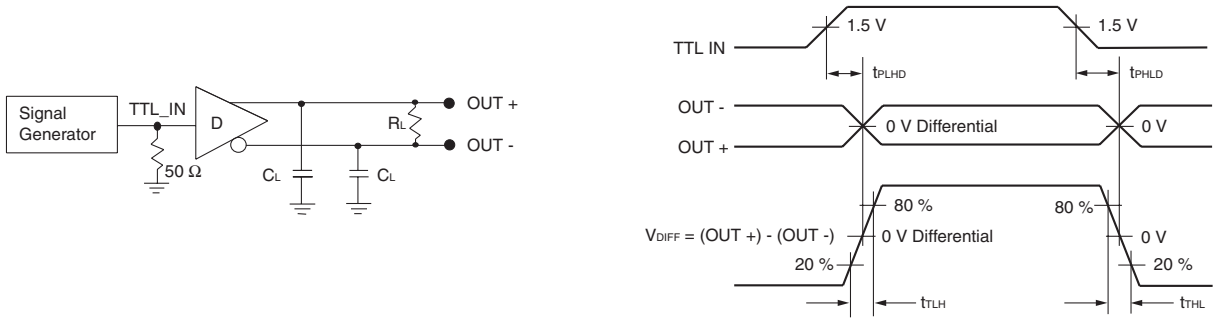


Figure 1. Driver Differential Propogation Delay / Transition Time

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