

Libraries

Name	Process	Form Factor
RGO_GF28_18V25_SLP_UC_LVDS	SLP	staggered
RGO_GF28_18V25_HPP_UC_LVDS	HPP	staggered

Summary

The LVDS library provides an LVDS driver, receiver, and temperature stable voltage reference capable of supporting 16 drivers operating at data rates up to 2.4 Gbps. The pad set includes a full complement of power, spacer, and adapter cells to assemble a complete pad ring by abutment. An included rail splitter allows isolated LVDS domains to be placed in the same pad ring with other power domains while maintaining continuous VDD/VSS in the pad ring for robust ESD protection.

- 1.0 GHz LVDS Driver
- 1.2 GHz LVDS Receiver
- LVDS Voltage Reference

LVDS Specification Compliant:

- TIA/EIA-644-A - Electrical Characteristics of Low Voltage Differential Signaling (LVDS) Interface Circuits
- IEEE Std 1596.3-1996

ESD Protection:

- JEDEC compliant
 - 2KV ESD Human Body Model (HBM)
 - 200 V ESD Machine Model (MM)
 - 500 V ESD Charge Device Model (CDM)

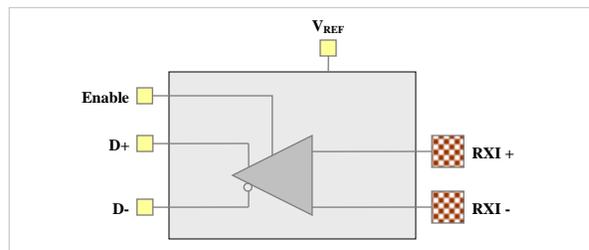
Absolute maximum ratings

Symbol	Description	Value	Units
V _{VDD}	Core supply voltage range	-0.5 to 1.2	V
V _{DVDD}	I/O supply voltage range	-0.5 to 2.95	V
V _{PAD}	Voltage range at PAD	-0.5 to (V _{DVDD} + 0.5)	V
T _J	Junction operating temperature range	-55 to 150	°C

Recommended operating conditions

Symbol	Description	Min	Nom	Max	Units
V _{VDD}	Core supply voltage	SLP	0.90	1.0	1.10
			0.99	1.1	1.155
		HPP	0.765	0.85	0.935
			0.81	0.9	0.945
V _{DVDD}	I/O supply voltage	1.62	1.80	1.98	V
V _{VREF}	Reference voltage		1.2		V
T _J	Junction temperature	-40	25	125	°C
V _{PAD}	Voltage at PAD	-0.3V		V _{DVDD} +0.3V	V

LDP_IN_800_25V_DN: 1.2GHz LVDS Input



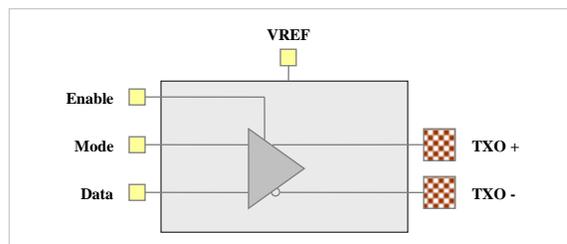
LVDS Receiver Features:

- Input receive sensitivity of 75mV peak differential (without hysteresis)
- Common mode range from 0V to 2.4V (limited by Power Supply)
- Duty Cycle Distortion (DCD) less than 50ps
- Power consumption: 1.8 mW typical / 5 mW maximum

AC Characteristics

Parameter	Typ	Max	Units	Conditions
Propagation Delay	0.5	0.8	ns	The slew rate for propagation delays, duty cycle distortion and maximum operating frequency is 1V/ns
Maximum Operating Frequency	1.2		GHz	All noise, jitter, and t _{dc} measured at 1GHz
Maximum Data Rate	2.4		Gb/s	

LSP_OU_800_18V_T: 1GHz LVDS Output



subLVDS Driver Features:

- Operates up to 1.0GHz (2.0 Gbps) with external 1pF load
- Common mode output range: 1.22V +/-50mV
- Differential Skew between TXO_P and TXO_N: 50ps
- High and low current drive modes to support 50Ω and 100Ω differential terminations
- Power consumption at 1GHz: 11.4 mW typical / 15 mW maximum

AC Characteristics

Symbol	Description	Condition	Min	Typ	Max	Units
t _{PHL}	Differential high to low propagation delay	R _L = 100 Ω C _L = 1 pF	480	710		ps
t _{PLH}	Differential low to high propagation delay	R _L = 100 Ω C _L = 1 pF	480	710		ps
t _{rise}	V _{OD} differential rise time	20% to 80%	120	250		ps
t _{fall}	V _{OD} differential fall time	20% to 80%	120	250		ps

GF28: LVDS Pad Set



Cell summary

Name	Description
LDP_IN_800_25V_DN	1.2 GHz LVDS input cell
LDP_OU_800_18V_T	1 GHz LVDS output cell
LDP_RE_000_18V	VREF pad
PVP_VD_RCD_10V	Core power pad with VREF
PVP_VS_RCD_10V	Power pad for VSS with VREF bus
PVP_VD_PDO_18V	Driver power pad with POC control
PVP_VD_RDO_18V	Driver power pad
PVP_VS_RDO_18V	I/O ground supply with VREF bus
SVP_SP_001_18V	0.1 μm spacer
SVP_SP_001_18V	1 μm spacer
SVP_SP_005_18V	5 μm spacer
SVP_SP_010_18V	10 μm spacer
SPP_RS_005_18V	DVDD, DVSS, POC, BIAS and VREF rail splitter
SPC_SPC_AD_UN	Core limited library adapter pad

Physical sizes

Pad name	Width	Height ^[*]	Units
LDP_RE_000_18V	40	134	μm
LDP_IN_800_25V_DN	40	117	μm
LDP_OU_800_18V_T	50	129	μm
PVP_VD_RCD_10V	20	117	μm
PVP_VS_RCD_10V	20	117	μm
PVP_VD_PDO_18V	20	117	μm
PVP_VD_RDO_18V	20	117	μm
PVP_VS_RDO_18V	20	117	μm
SVP_SP_000_18V	0.1	117	μm
SVP_SP_001_18V	1	117	μm
SVP_SP_005_18V	5	117	μm
SVP_SP_010_18V	10	117	μm
SPP_RS_005_18V	5	117	μm
SPP_SPC_AD_UN	20	117	μm

[*] Includes CUP bond opening.

Characterization Corners

Nom VDD	Model	VDD	DVDD=1.8V	Temperature
1.1 (SLP)	FF	+5%	+10%	-40°C
	FF	+5%	+10%	125°C
	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
1.0 (SLP)	SS	-10%	-10%	125°C
	FF	+10%	+10%	-40°C
	FF	+10%	+10%	125°C
	TT	nominal	nominal	25°C
0.9 (HPP)	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
	FF	+5%	+10%	-40°C
	FF	+5%	+10%	125°C
0.85 (HPP)	TT	nominal	nominal	25°C
	SS	-10%	-10%	-40°C
	SS	-10%	-10%	125°C
	FF	+10%	+10%	-40°C

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