



SILANNA SEMICONDUCTOR

SpaceWire Link Isolation



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Product Marketing

Nineteenth SpaceWire Working Group Meeting

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Topics

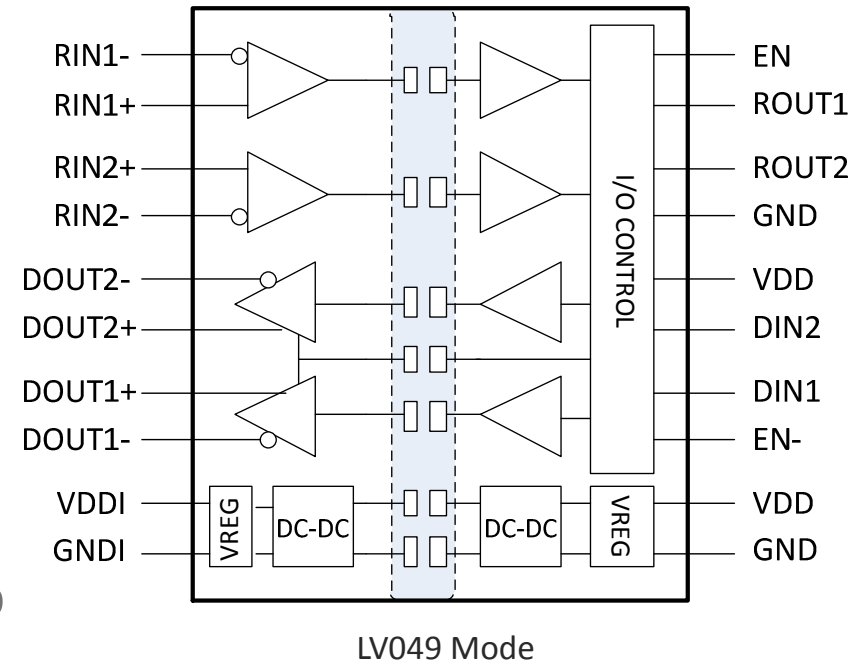
- Update: SpW Link Isolation Product Development
 - Target Features
 - Commercial-grade / Space-grade
 - Proposed Packaging & Pinouts
 - Continuing Activities
 - Evaluation Module



SpaceWire Link Isolator

Target Features

- 4 high speed (400 Mbps) channels
- Cable-side: LVDS
- Module-side: LVTTL or LVDS
 - LVTTL: LV049 Mode
 - LVDS: Repeater Mode
- LVDS failsafe per SpW standard
- Cold sparing for redundant backup
- Isolation voltage: 1 kVrms
- Working voltage: 100 V (common mode voltage)
- Integrated DC-to-DC isolator to power cable-side from module-side
- Cable-side data lines align well w/ SpW cable connection

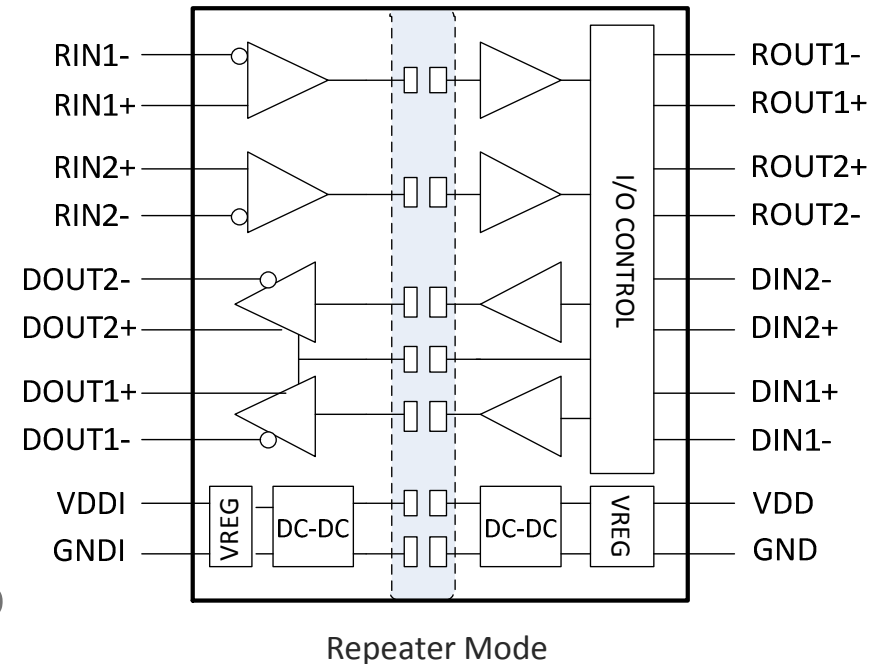




SpaceWire Link Isolator

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- Module-side: LVTTTL or LVDS
 - LVTTTL: LV049 Mode
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SpaceWire Link Isolator

Commercial-grade

- 20-pin TSSOP (LV049: 16-pin TSSOP)
- LV049 Mode is functionally & signal-pin compatible w/ standard dual LVDS transceiver devices (ie. TI/NSC DS90LV049 series)
- Electrical Ground Support Equipment (EGSE)
- SpW Test & Development Systems
- Ground-based Applications w/ SpW Networks

SpW Cable Signal	Isolated LVDS Side	SpW Link Isolator				LV049 Mode	Repeater Mode
n/a	VDDI	1	LV049		20	VDD	VDD
DIN-	RIN1-	2	1	16	19	EN	ROUT1-
DIN+	RIN1+	3	2	15	18	ROUT1	ROUT1+
SIN+	RIN2+	4	3	14	17	ROUT2	ROUT2+
SIN-	RIN2-	5	4	13	16	GND	ROUT2-
SOUT-	DOUT2-	6	5	12	15	VDD	DIN2-
SOUT+	DOUT2+	7	6	11	14	DIN2	DIN2+
DOUT+	DOUT1+	8	7	10	13	DIN1	DIN1+
DOUT-	DOUT1-	9	8	9	12	EN-	DIN1-
GND	GNDI	10			11	GND	GND

Proposed Pin Assignments

Space-grade

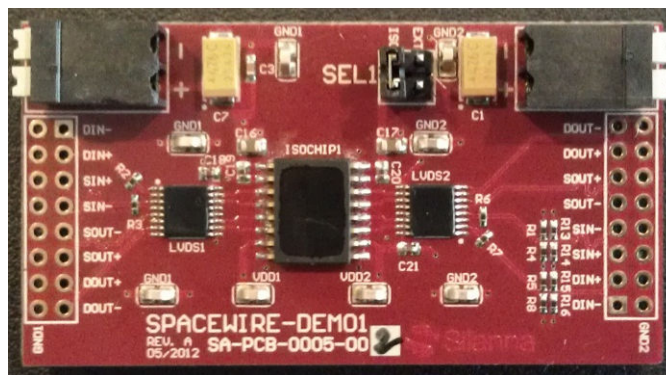
- Satellite Applications
- 20-pin Ceramic Flat Pack (EU-LVDS: 16-pin CFP)
- Target Radiation Tolerance > 100 krad(Si) TID



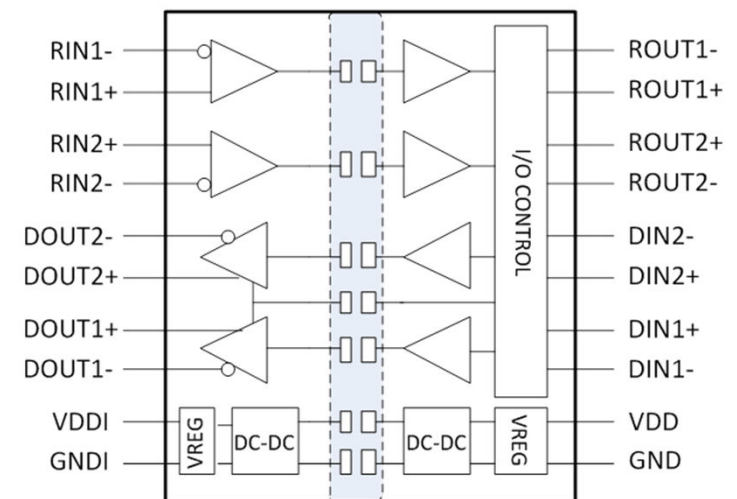
SpaceWire Link Isolator

Continuing Activities

- Establish Target Features & Capabilities
- High Voltage Testing on 20-pin CFP
- Radiation Testing on Isolator Core (100 krad, 300 krad?)
- Develop I/O & DC-DC Modules
- SpW & non-SpW Market Assessment
- Expand Evaluation Module Program w/ SpW WG Partners



SpW Link Isolator Evaluation Module



Repeater Mode