

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	12/16/14	
	B1	ECN#15-0011	2/9/15	
	C1	ECN#20-0142	8/24/20	

**DESCRIPTION:**

PMI MODEL NUMBER PTRAN-CC-100M18G-70-MAH IS A TRANSCEIVER MODULE COVERING THE FREQUENCY RANGE OF 100 MHz TO 18 GHz. THIS IS PART OF A FULL TRANSCEIVER SUBSYSTEM THAT FITS INTO A 3U OPEN VPX FORM FACTOR UTILIZING THE HIGH SPEED VITA 67 RF CONNECTOR. THIS UNIT UP-CONVERTS A 100 MHz TO 4 GHz TRANSMIT SIGNAL TO THE 2 TO 18 GHz RANGE. IT ALSO DOWN-CONVERTS A 100 MHz TO 18 GHz RECEIVED SIGNAL TO THE 100 MHz TO 4 GHz INTERMEDIATE FREQUENCY RANGE FOR ANALOG TO DIGITAL CONVERSION. THE UNIT IS MADE TO ATTACH TO AN FPGA CONTROLLER CARD.

**SPECIFICATIONS:**

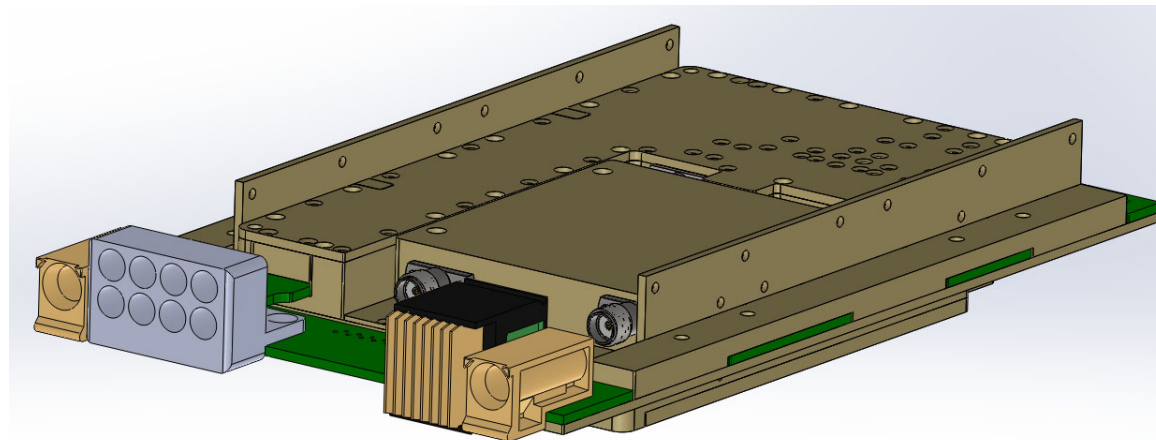
- **INPUTS:** J2, J4A, J4B, J9, J10
- J2 INPUT: RF RECEIVE INPUT  
FREQUENCY: 100 MHz TO 18 GHz  
POWER LEVEL: -62 dBm TO +8 dBm TYPICAL  
CONNECTOR: SMA (F)
- J4A INPUT: IF1 INPUT  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: -8 dBm TYPICAL  
CONNECTOR: SMPM (F)
- J4B INPUT: IF2 INPUT  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: -8 dBm TYPICAL  
CONNECTOR: SMPM (F)
- J9 INPUT: LO1 INPUT  
FREQUENCY: 4 GHz TO 20 GHz  
POWER LEVEL: +10 dBm MIN, +20 dBm MAX  
CONNECTOR: SMPM (F)
- J10 INPUT: LO2 INPUT  
FREQUENCY: 4 GHz TO 20 GHz  
POWER LEVEL: +10 dBm MIN, +20 dBm MAX  
CONNECTOR: SMPM (F)
- **OUTPUTS:** J3A, J3B, J5, J7, J8, J11, J12
- J3A OUTPUT: IF1 OUTPUT  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: -5 dBm MAX FOR LIMITED SDLVA CHANNEL  
CONNECTOR: SMPM (F)
- J3B OUTPUT: IF2 OUTPUT  
FREQUENCY: 100 MHz TO 4 GHz  
POWER LEVEL: -5 dBm MAX FOR LIMITED SDLVA CHANNEL  
CONNECTOR: SMPM (F)
- J5 OUTPUT: RF TRANSMIT OUTPUT  
FREQUENCY: 100 MHz TO 18 GHz  
POWER LEVEL: -20 dBm TO -15 dBm TYPICAL  
CONNECTOR: SMPM (F)
- J7 OUTPUT: RF TRANSMIT OUTPUT  
FREQUENCY: 100 MHz TO 18 GHz  
POWER LEVEL: -20 dBm TO -15 dBm TYPICAL  
CONNECTOR: SMPM (F)
- J8 OUTPUT: RF TRANSMIT SAMPLE  
FREQUENCY: 100 MHz TO 18 GHz  
POWER LEVEL: -40 dBm TO -30 dBm TYPICAL  
CONNECTOR: SMPM (F)
- J11 OUTPUT: LOG PROPORTIONAL DETECTED VIDEO OUTPUT (V1)
- J12 OUTPUT: THRESHOLD DETECTED VIDEO OUTPUT (V0)
- POWER SUPPLY: PROVIDED BY OPEN VPX BACKPLANE THROUGH P0 CONNECTOR RATED FOR THE BELOW VOLTAGES  
+12V: 2 A  
+5V: 1.5 A  
+3.3V: 0.5 A  
-12V: 1 A
- SIZE: 6.30" x 3.94" x 1.07"
- DIGITAL CONTROL: TTL THROUGH CN2, CN3, CN4 ('0': 0 - 0.8 VOLTS), '1' 2 - 5 VOLTS)
- FINISH: GOLD PLATED

**CONTROLS:**

- CONTROL LOGIC: TTL ('0': 0 - 0.8 VOLTS), '1' 2 - 5 VOLTS)
- TTL 3: LINEAR OR LIMITED SDLVA RF OUTPUT CHANNEL  
0 LIMITED RF OUTPUT CHANNEL  
1 LINEAR RF OUTPUT CHANNEL
- TTL 4: RECEIVE THRU CHANNEL OR DOWN-CONVERTED CHANNEL  
0 THRU CHANNEL  
1 DOWN-CONVERTED CHANNEL
- TTL 5: IF1 OR IF2 OUTPUT SELECT  
0 IF1 OUTPUT CHANNEL  
1 IF2 OUTPUT CHANNEL
- TTL 6: IF1 OR IF2 INPUT SELECT  
0 IF1 INPUT CHANNEL  
1 IF2 INPUT CHANNEL
- TTL 7: TRANSMIT THRU CHANNEL OR UP-CONVERTED CHANNEL  
0 THRU CHANNEL  
1 UP-CONVERTED CHANNEL
- TTL 9: 5 BIT ATTENUATION CONTROL (1 dB STEPS)  
00000 0 dB ATTENUATION  
11111 31 dB ATTENUATION
- TTL 10: LO SELECT  
00 M1-LO1 M2-LO1  
01 M1-LO1 M2-LO2  
10 M1-LO2 M2-LO1  
11 M1-LO2 M2-LO2
- TTL 11: SDLVA THRESHOLD ADJUST  
000000 LOWEST THRESHOLD LEVEL  
111111 HIGHEST THRESHOLD LEVEL
- TTL 12: SDLVA CTL A (ENABLE)  
0 INTERNAL COMPARATOR TRIGGERED SPST  
1 EXTERNAL TRIGGER ENABLE (SW CTL B)
- TTL 13: SDLVA CTL B (TRIGGER)  
0 LIMITED RF CH SPST SWITCH ON (INSERTION LOSS)  
1 LIMITED RF CH SPST SWITCH OFF (ISOLATION)

**SDLVA:**

- V0 (VIDEO COMPARATOR SIGNAL AMPLITUDE): LVTTTL
- VIDEO COMPARATOR DELAY: 50 ns TYP.
- VIDEO COMPARATOR THRESHOLD LEVEL: ADJUSTABLE WITH ANALOG VOLTAGE  
-60 dBm ±3.0 dB MAX.
- V1 (LOG VIDEO SIGNAL AMPLITUDE): 1 VOLT MAX.
- LOG SLOPE: 10 mV/dB INTO A 50-OHM LOAD (±1 mV) MAX.
- LOG RANGE: -65 TO +5 dBm MIN.
- LOG LINEARITY: ±1.75 dB (-40°C TO +85°C) MAX.
- PULSE RANGE: 100 ns TO 250 us
- RISE TIME: 35 ns MAX.
- SETTling TIME TO ±1dB: 50 ns TYP.
- RECOVERY TIME: 350 ns MAX.
- CW IMMUNITY RANGE: TSS TO -45 dBm (1 dB DEGRADATION)
- PULSE CONSIDERED "CW": 1 ms TYP.
- REJECTION TIME: 1 ms TYP.
- DROOP: 1 dB MAX.
- SPST ISOLATION: 70 dB TYP.
- SPST SWITCH SPEED: 20 ns TYP.
- SW CTL A (ENABLE): TTL 0: INTERNAL COMPARATOR TRIGGERED SPST  
TTL 1: EXTERNAL TRIGGER ENABLE (SW CTL B)
- SW CTL B (TRIGGER): TTL 0: LIMITED RF CH SPST SWITCH ON (INSERTION LOSS)  
TTL 1: LIMITED RF CH SPST SWITCH OFF (ISOLATION)



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**PLANAR MONOLITHICS INDUSTRIES, INC.**

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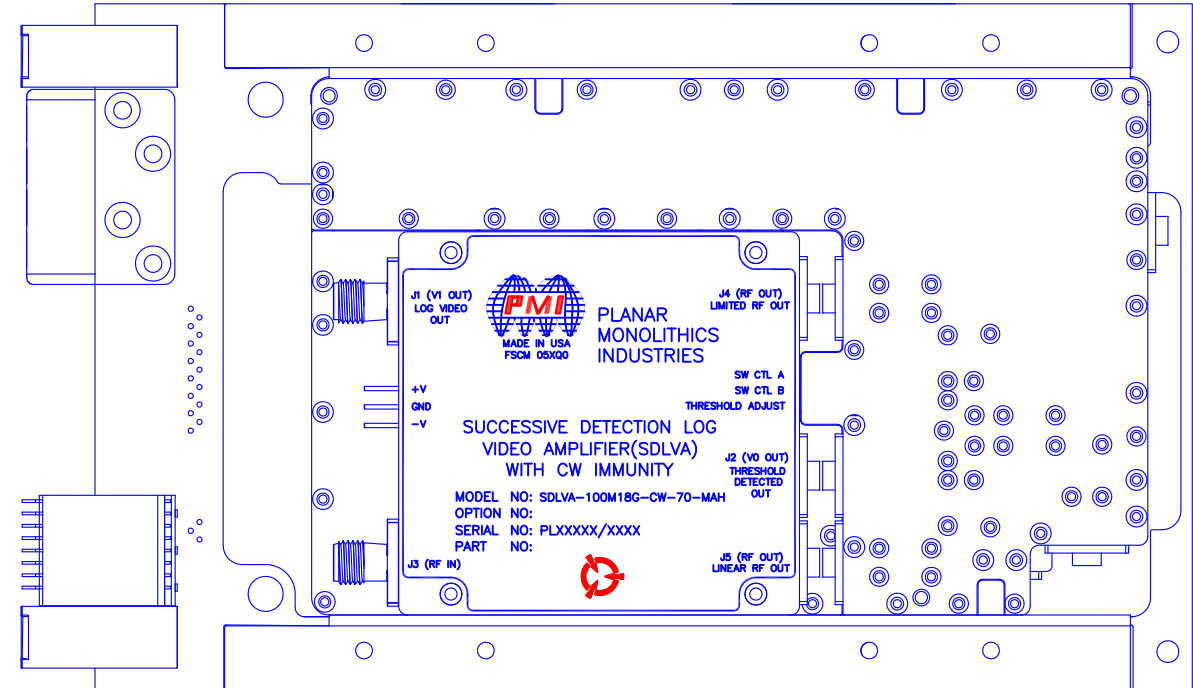
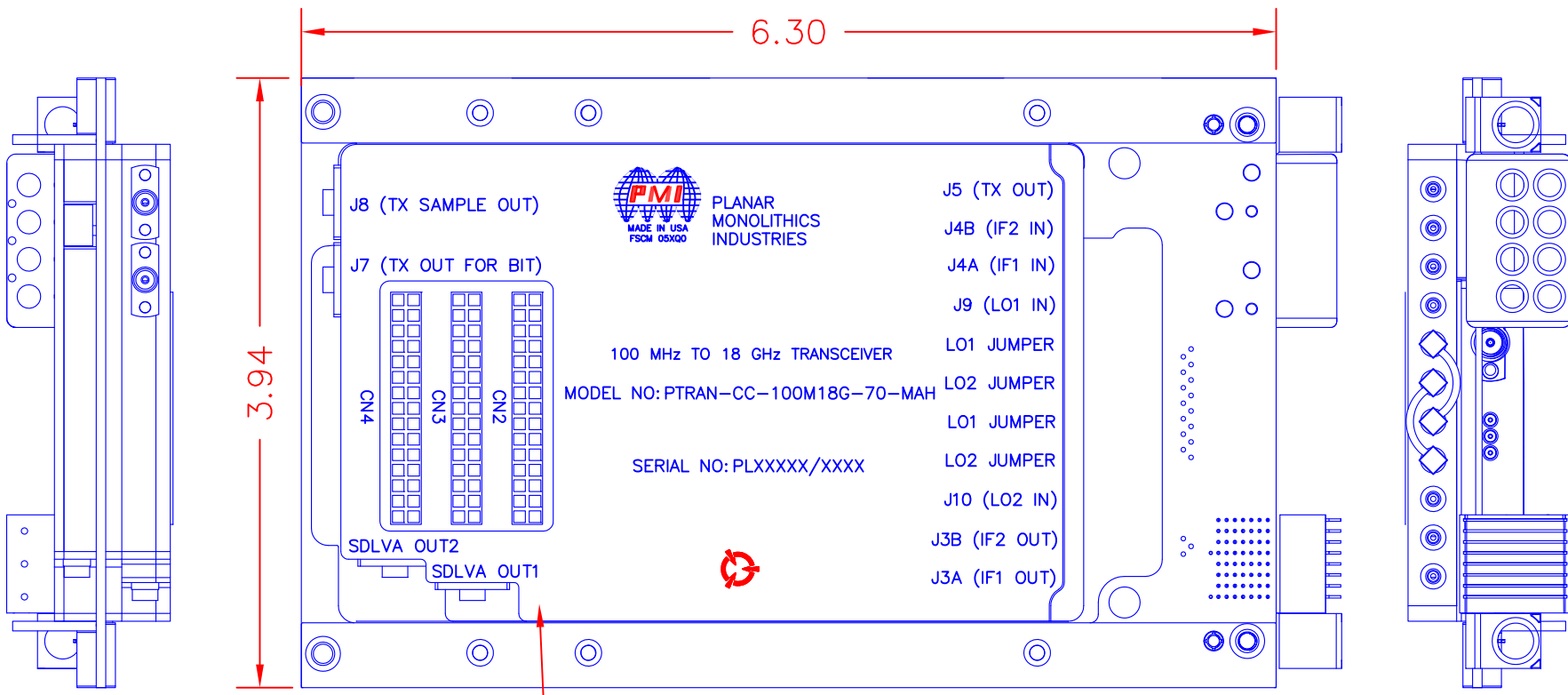
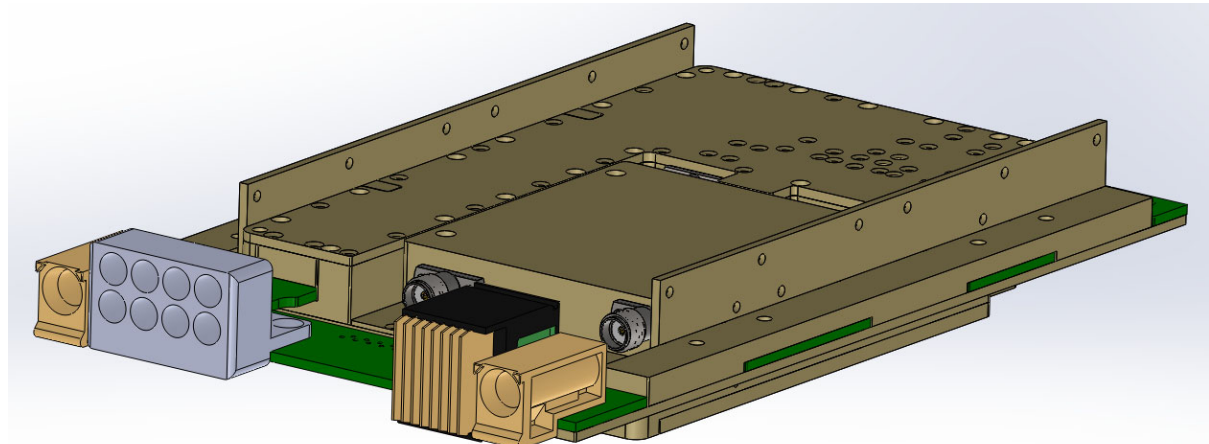
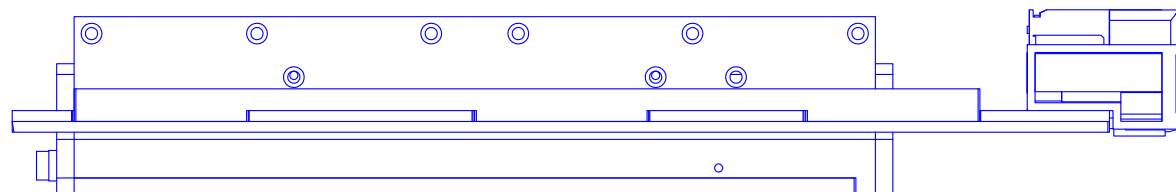
APPROVALS		DATE	TITLE		
DRAWN <i>DPD</i>		12/16/14	PRODUCT FEATURE PTRAN-CC-100M18G-70-MAH		
CHECKED			SIZE	FSCM NO.	DWG NO.
ISSUED			B	05XQ0	27024301
			SCALE	N:S	SHEET 1 OF 4
			REV.	C1	

ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
X.XX ±0.020  
X.XXX ±0.010

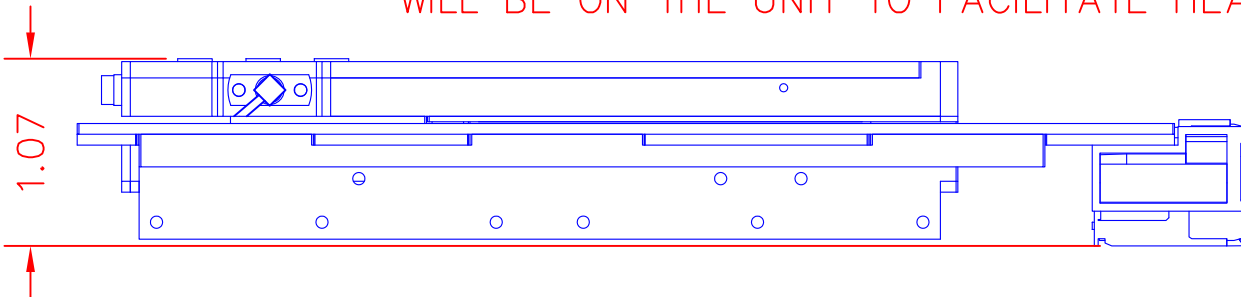
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

# MECHANICAL OUTLINE:

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LABELS SHOWN FOR CLARITY, NO LABELS WILL BE ON THE UNIT TO FACILITATE HEAT TRANSFER



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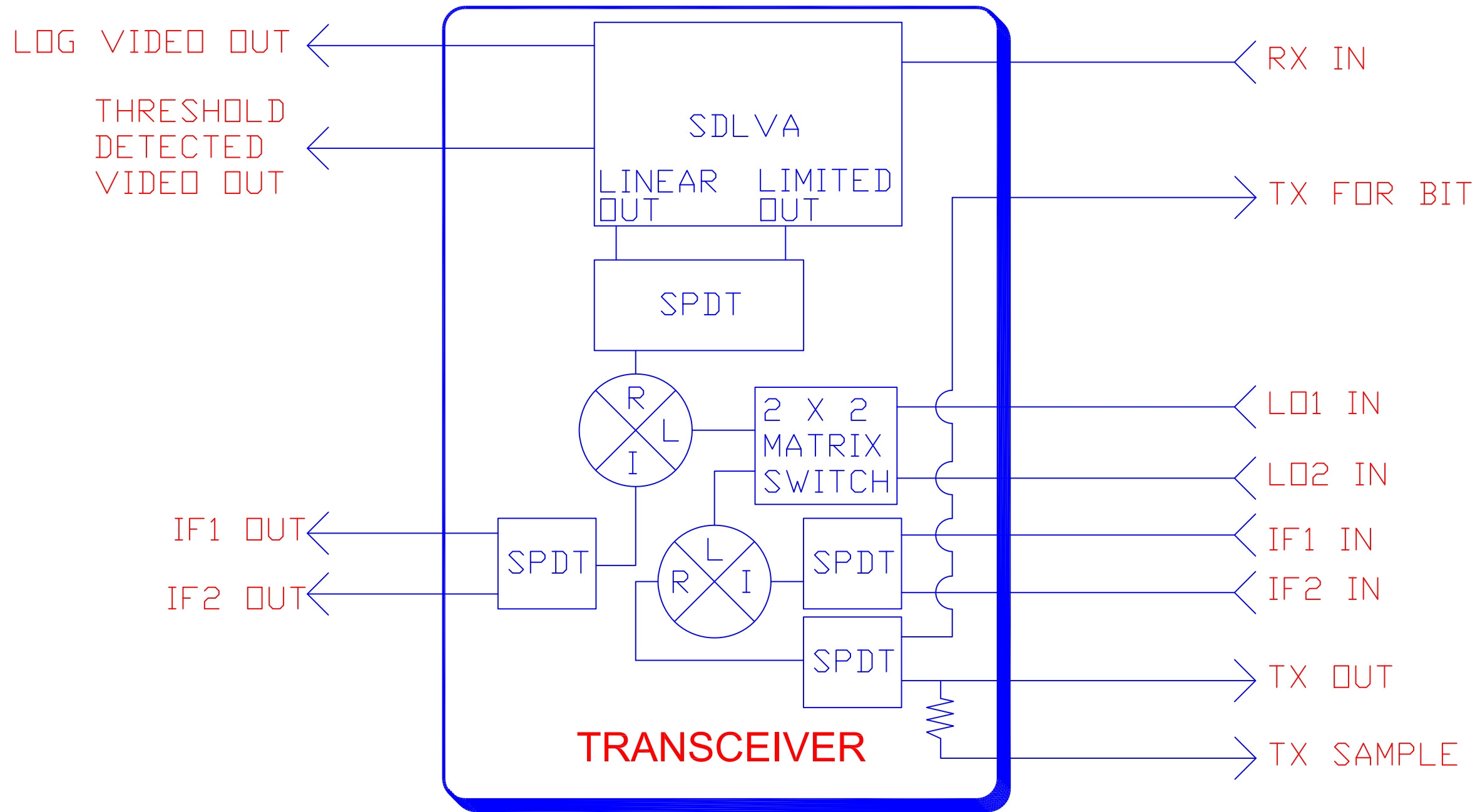
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**SIMPLIFIED BLOCK DIAGRAM:**

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# INTERCONNECT TABLE:

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	A1	ORIGINAL RELEASE	12/16/14	
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FMC PIN	CN 2				FMC PIN
-	GND	1	2	GND	-
H5	N/C	3	4	N/C	H4
H8	TTL1	5	6	TTL2A (LSB)	H7
H11	TTL2B	7	8	TTL2C (MSB)	H10
H14	TTL3	9	10	TTL4	H13
H17	TTL5	11	12	TTL6	H16
H20	TTL7	13	14	TTL8A (LSB)	H19
H23	TTL8B	15	16	TTL8C (MSB)	H22
H26	TTL9A (LSB)	17	18	TTL9B	H25
H29	TTL9C	19	20	TTL9D	H28
H32	TTL9E (MSB)	21	22	TTL 10A (LSB)	H31
H35	TTL10B (MSB)	23	24	N/C	H34
H38	N/C	25	26	N/C	H37
-	GND	27	28	GND	-
-	N/C	29	30	N/C	-

FMC PIN	CN 3				FMC PIN
-	GND	1	2	GND	-
G3	N/C	3	4	N/C	G2
G7	TTL11A (LSB)	5	6	TTL11B	G6
G10	TTL11C	7	8	TTL11D	G9
G13	TTL11E	9	10	TTL11F (MSB)	G12
G16	TTL12	11	12	TTL13	G15
G19	SDLVA V0	13	14	N/C	G18
G22	N/C	15	16	N/C	G21
G25	N/C	17	18	N/C	G24
G28	N/C	19	20	N/C	G27
G31	N/C	21	22	N/C	G30
G34	N/C	23	24	N/C	G33
G37	N/C	25	26	N/C	G36
-	GND	27	28	GND	-
-	N/C	29	30	N/C	-

FMC PIN	CN 4				FMC PIN
-	GND	1	2	GND	-
D9	N/C	3	4	N/C	D8
D12	N/C	5	6	N/C	D11
C11	N/C	7	8	N/C	C10
D15	N/C	9	10	N/C	D14
C15	N/C	11	12	N/C	C14
D18	N/C	13	14	N/C	D17
C19	N/C	15	16	N/C	C18
D21	N/C	17	18	N/C	D20
C23	N/C	19	20	N/C	C22
D24	N/C	21	22	N/C	D23
D27	N/C	23	24	N/C	D26
C27	N/C	25	26	N/C	C26
-	GND	27	28	GND	-
-	N/C	29	30	N/C	-

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