



Typical Characteristics on PDVAT-0518-60-8-96

PMI MODEL NUMBER PDVAT-0518-60-8-96 IS A 0.5 TO 18 GHZ VARIABLE ATTENUATOR/MODULATOR WITH 8 BIT BINARY TTL CONTROL OR OPTIONAL ANALOG VOLTAGE CONTROL.



January 31, 2014

Designed by: PMI Engineering

Tested By: Kevin Mansfield



Typical Characteristics on PDVAT-0518-60-8-96

DESCRIPTION
 PMI MODEL PDVAT-0518-60-8-96 IS A 0.5 TO 18 GHz VARIABLE ATTENUATOR/MODULATOR WITH 8 BIT BINARY TTL CONTROL OR OPTIONAL ANALOG VOLTAGE CONTROL.

SPECIFICATIONS

- FREQUENCY RANGE: 0.5 TO 18GHz
 - INSERTION LOSS: 10 dB = ± 0.9 dB
 @ 20 dB = ± 1.5 dB
 @ 40 dB = ± 3.0 dB
 @ 60 dB = ± 5.0 dB
 - ATTENUATION FLATNESS: 0-30 dB = ± 1.0 dB
 30-50 dB = ± 1.3 dB
 50-60 dB = ± 1.5 dB
 GUARANTEED
 - ATTENUATION ACCURACY: ± 2.5dB -10 to 85°C Typ
 ± 3.5dB -40 to 95°C Typ
 - MONOTONICITY: ± 2.5dB -10 to 85°C Typ
 ± 3.5dB -40 to 95°C Typ
 - TEMPERATURE VARIATION: 1.5 micro sec MAXIMUM
 - SWITCHING TIME: 150 kHz Typ (6dB with ±3 dB sinewave)
 75 kHz Typ (30dB with ±30 dB sinewave)
 - SMALL SIGNAL BANDWIDTH: 150 kHz Typ (30dB with ±30 dB sinewave)
 - LARGE SIGNAL BANDWIDTH: 75 kHz Typ (30dB with ±30 dB sinewave)
 - RETURN LOSS: -12 dB Typ -8.5 dB MAX
 - POWER RATING: +20 dBm (see note 1)
 8 BIT TTL
 - DIGITAL CONTROL: 0.25 dB MINIMUM ATTENUATION STEP
 - ANALOG CONTROL option: 0-6V ANALOG VOLTAGE, 10dB/VOLT
 - POWER SUPPLY: +12V TO +15V @ 150 mA MAXIMUM
 - CONNECTORS: FIELD REPLACEABLE SMA (FEMALE)
 15 PIN MICRO-D FEMALE MATING CONNECTOR (MALE) FURNISHED
 - RF INPUT/OUTPUT: POWER AND CONTROLS:
 - SIZE: 2.00" x 1.80" x 0.50"
- NOTE 1: REDUCED POWER PERFORMANCE AT LOW FREQUENCIES

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

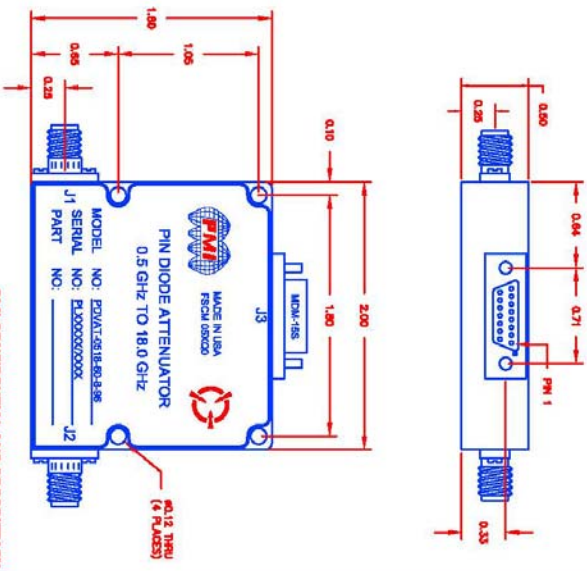
ENVIRONMENTAL RATINGS

- TEMPERATURE: -40°C TO + 85°C (OPERATING)
 -65°C TO +125°C (STORAGE)
 - HUMIDITY: MIL-STD-202F, METHOD 1059 COND. B
 - SHOCK: MIL-STD-202F, METHOD 2139 COND. B
 - VIBRATION: MIL-STD-202F, METHOD 204D COND. B
 - ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
 - TEMPERATURE CYCLES: MIL-STD-202F, METHOD 107D COND. A
- NOTE: SPECIFICATIONS ARE NOT CRITICAL UNLESS SPECIFICALLY NOTED. THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

PIN NO.	J3 PIN FUNCTIONS
1	2dB
2	1dB
3	0.5dB
4	0.25dB (LSB)
5	GND
6	Not Used
7	Not Used
8	GND
9	Not Used
10	Not Used
11	+VDC
12	32dB (MSB)
13	16dB
14	8dB
15	4dB

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	02/01/98	

MECHANICAL OUTLINE



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 FREDERICK, MARYLAND 21704 USA
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 WEBSITE: www.pmi-ind.com
 E-MAIL: sales@pmi-ind.com
 ISO 9001 CERTIFIED

PMI CONFIDENTIAL AND PROPRIETARY

APPROVALS	DATE	TITLE
	02/01/98	PRODUCT FEATURE
ORDERED	SIZE FROM NO.	QTY
	A 05X00	27021711
ISSUED	REV.	1
	QTY	1 OF 1



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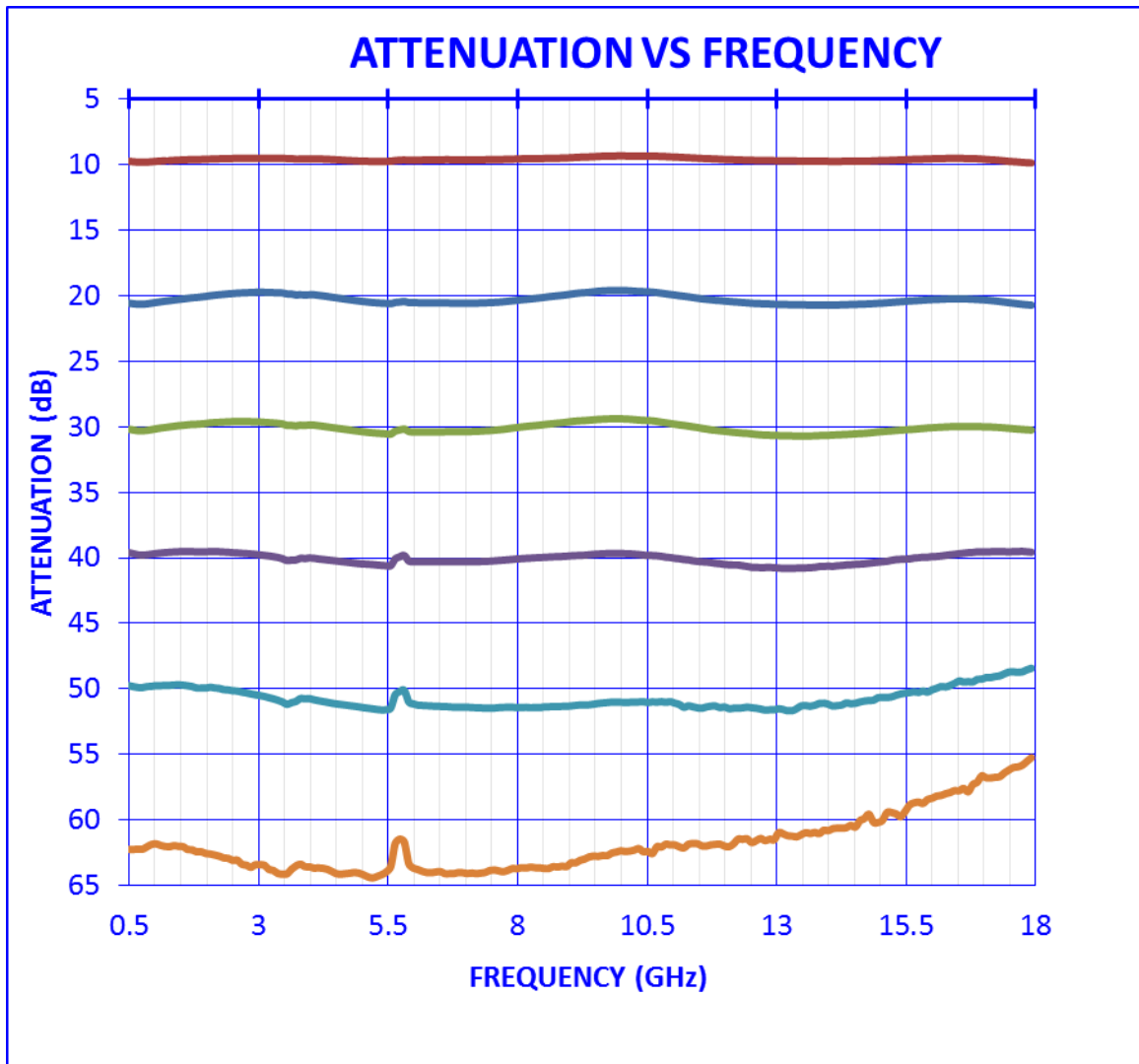
TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	0.5 GHz – 18 GHz	0.5 GHz – 18 GHz	
2	Insertion Loss:	4.0 dB Max.	3.82 dB	
3	Return Loss:	-12 db Typ -8.5 dB Max.	12.69 dB	
4	Flatness @ 10dB:	± 0.9 dB	±0.26 dB	
5	Flatness @ 20dB:	± 1.5 dB	±0.56 dB	
6	Flatness @ 40dB:	± 3.0 dB	±0.65 dB	
7	Flatness @ 60dB:	± 5.0 dB	±4.58 dB	
8	Accuracy of Attenuation 0 to 30 dB:	± 1.0 dB	±0.51 dB	
	Accuracy of Attenuation 30 to 50 dB:			
9	Accuracy of Attenuation 30 to 50 dB:	± 1.3 dB	±0.23 dB	
	Accuracy of Attenuation 50 to 60 dB:			
10	Accuracy of Attenuation 50 to 60 dB:	± 1.5 dB	±0.23 dB	
	Accuracy of Attenuation 50 to 60 dB:			
11	Switching Speed:	1.5 us MAX	On Time: < 150 ns Off Time: < 450 ns	
12	DC Supply:	+12 to 15VDC @ 150 mA Max	+12 to 15VDC @ 144 mA Max	

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB	Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB	dB	dB	dB	±dB
0.25	0.25	0.00	0.10	5.00	5.22	-0.22	0.23
0.50	0.49	0.01	0.13	10.00	9.59	0.41	0.26
1.00	1.00	0.00	0.16	15.00	15.18	-0.18	0.43
2.00	2.35	-0.35	0.16	20.00	20.16	-0.16	0.56
4.00	4.37	-0.37	0.20	25.00	25.06	-0.06	0.64
8.00	7.88	0.12	0.28	30.00	30.05	-0.05	0.67
16.00	16.11	-0.11	0.47	35.00	35.12	-0.12	0.63
32.00	32.07	-0.07	0.66	40.00	40.15	-0.15	0.65
				45.00	45.10	-0.10	1.02
				50.00	50.05	-0.05	1.63
				55.00	55.06	-0.06	2.68
				60.00	59.84	0.16	4.58



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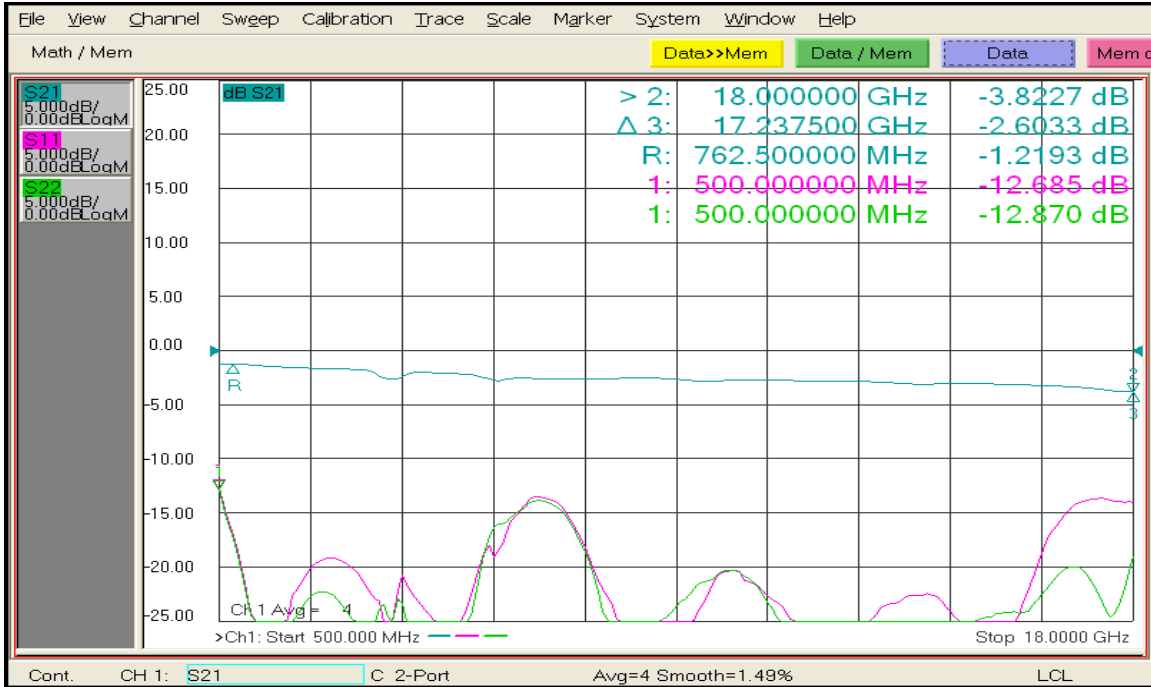
Attenuation vs. Frequency Plot



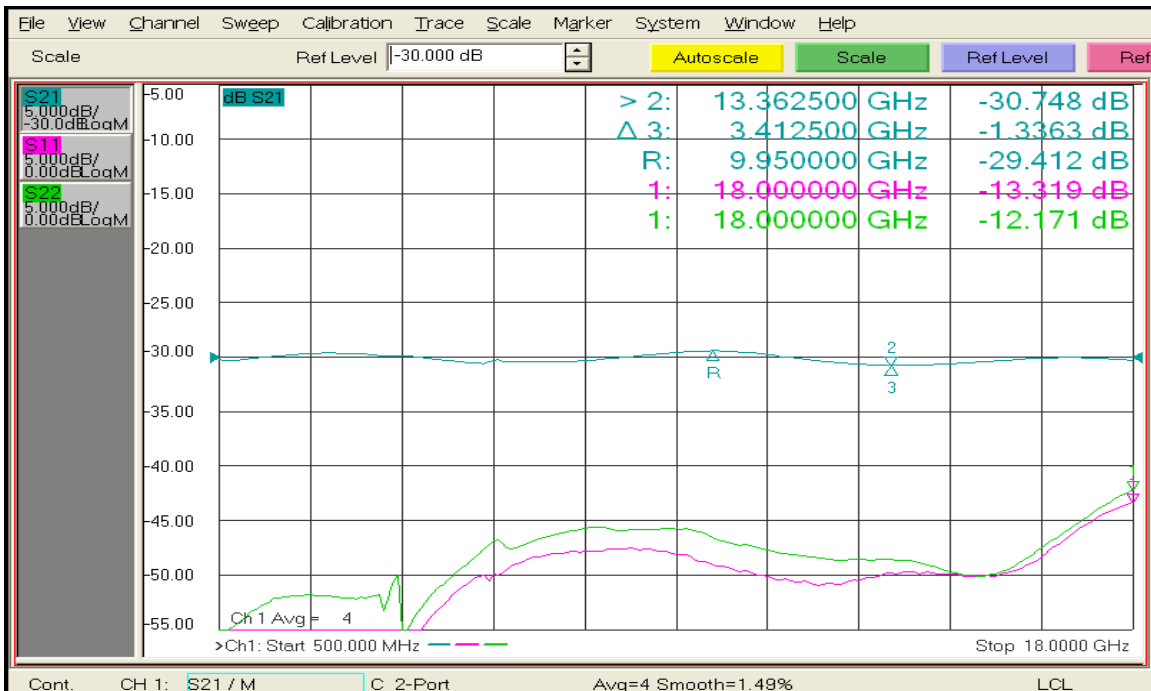


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Insertion Loss & Return Loss



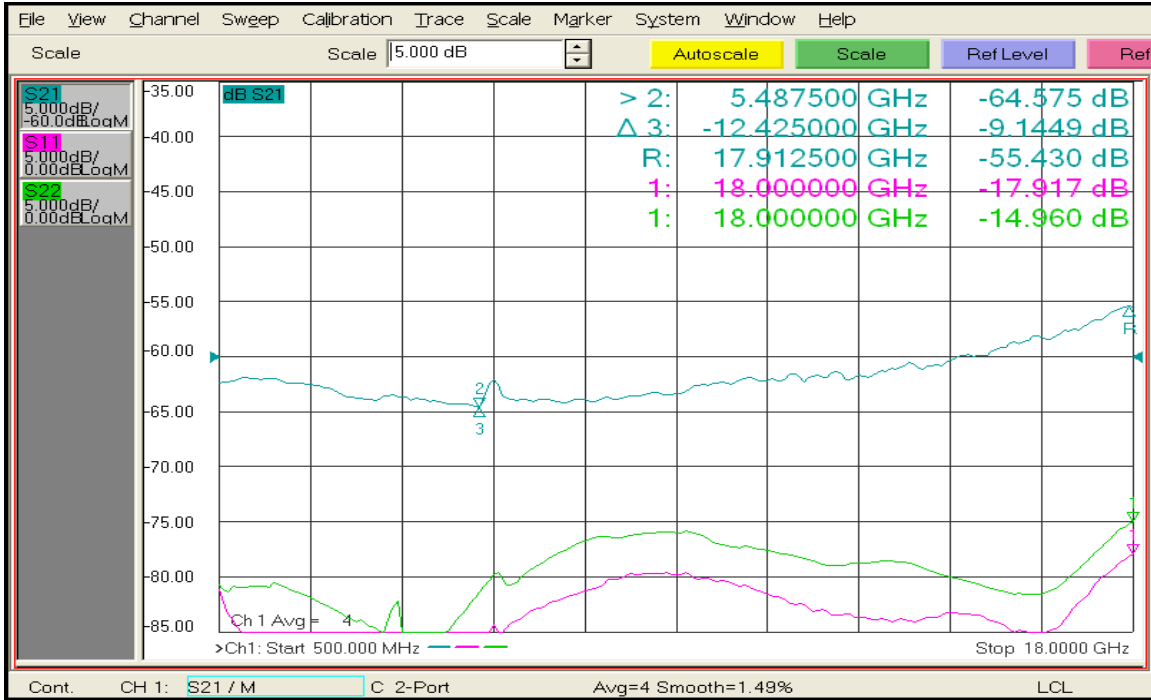
-30dB Attenuation





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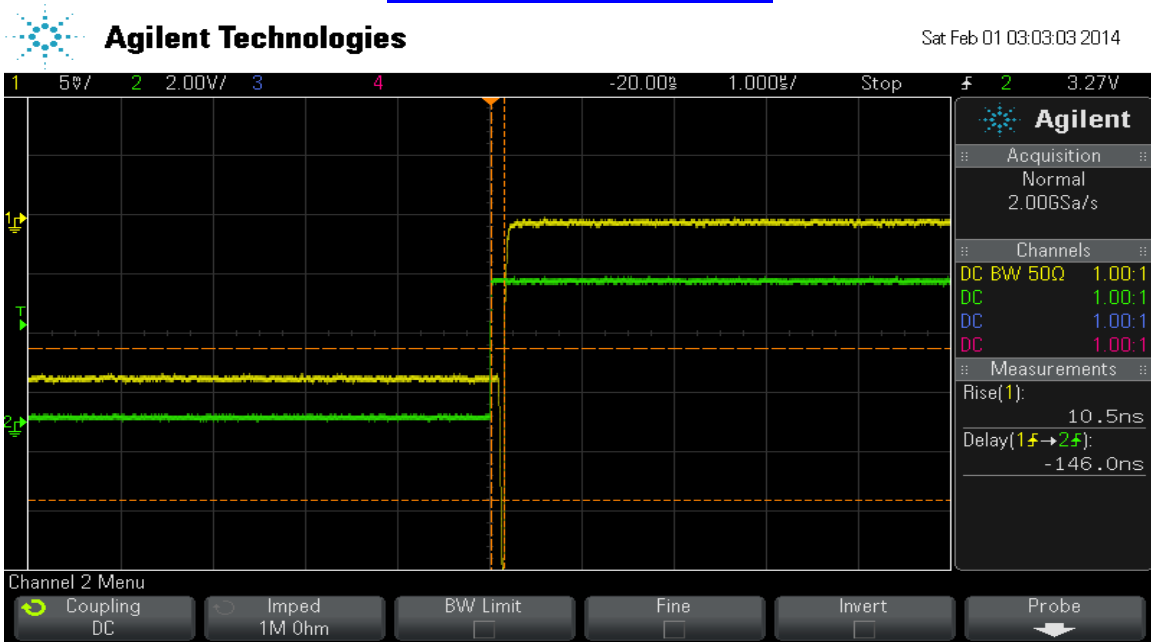
-60dB Attenuation



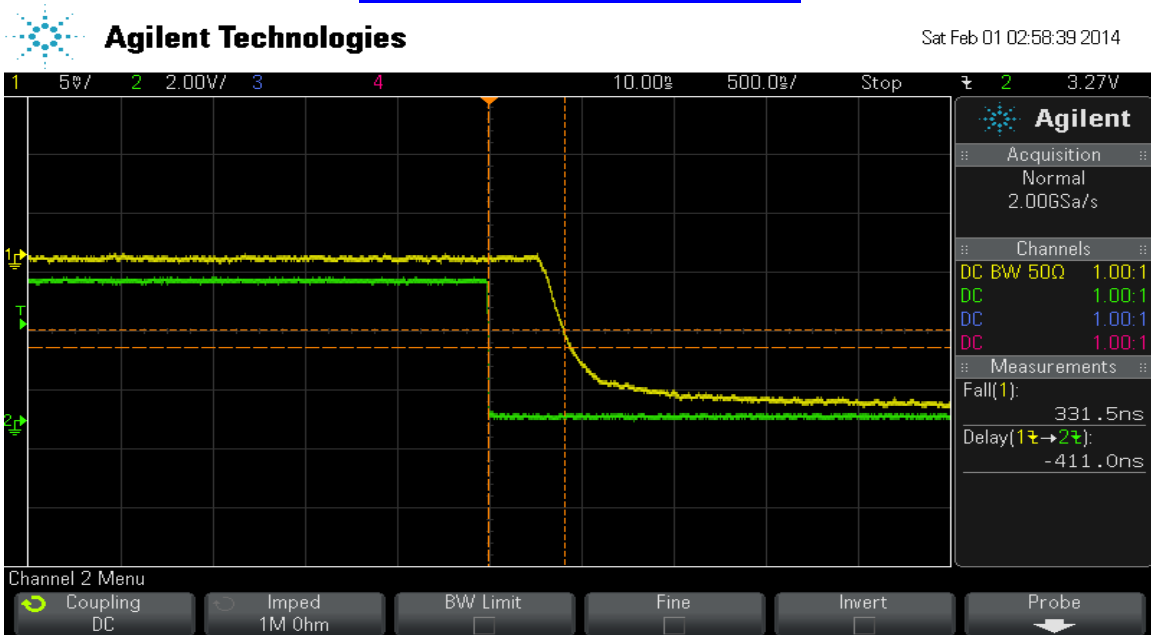


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Switching Speed ON Delay – 1us per Div.



OFF Delay – 500ns per Div.



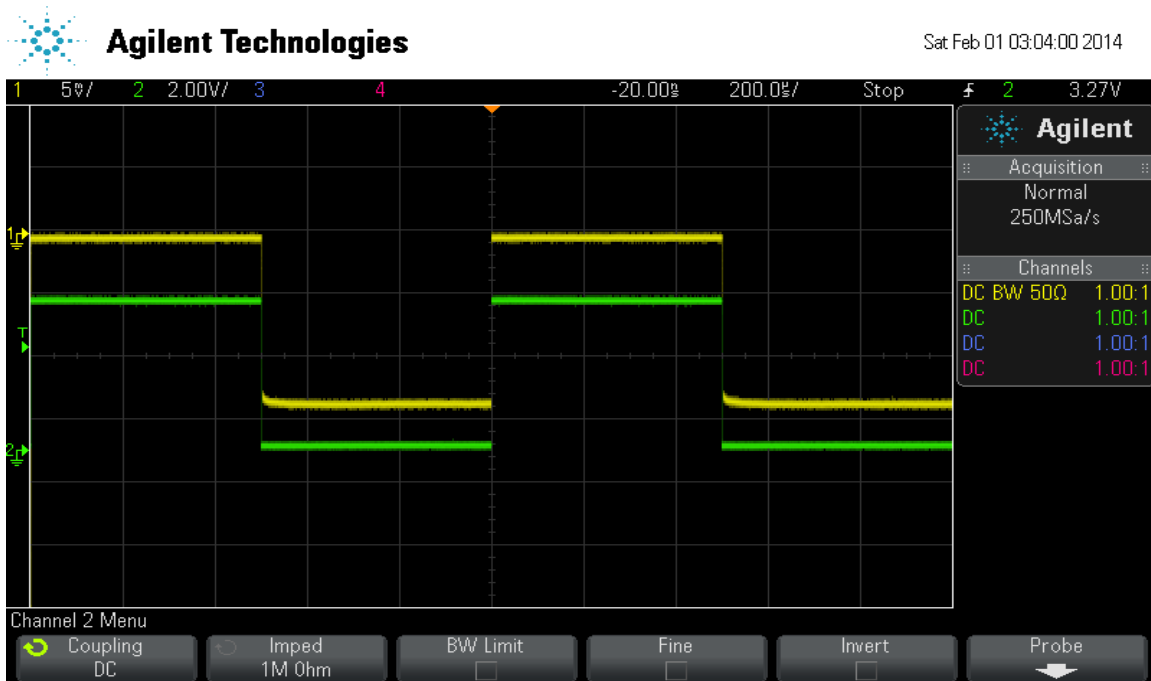
Channel 1 (Yellow): RF Signal (Tunnel Diode Negative Output)

Channel 2 (Green): TTL Input from Signal Generator



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Full Pulse – 200us per Div.



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Channel 2 (Green): TTL Input from Signal Generator