Typical Characteristics For DTA-26R5G40G-30-CD-1

PMI MODEL NUMBER DTA-26R5G40G-30-CD-1 IS A 10 BIT PROGRAMMABLE 30 dB PIN DIODE ATTENUATOR WITH STEP RESOLUTION AS LOW AS 0.03 dB OVER THE FREQUENCY RANGE OF 26.5 GHz TO 40 GHz.

May 21, 2014
Designed by: Paul Kuhn
Drafted by: Simon Kuhn
Tested By: Kevin Mansfield /Paul Kuhn
Reported by: Kevin Mansfield

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Typical Characteristics For DTA-26R5G40G-30-CD-1

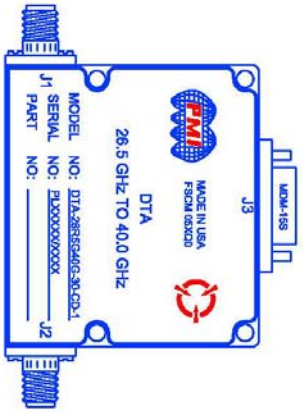
DESCRIPTION:

PMI MODEL NUMBER DTA-26R5G40G-30-CD-1 IS A 10 BIT PROGRAMMABLE 30 dB PIN DIODE ATTENUATOR WITH STEP RESOLUTION AS LOW AS 0.03 dB OVER THE FREQUENCY RANGE OF 26.5 GHz TO 40 GHz.

SPECIFICATIONS:

- FREQUENCY: . . . . . 26.5 GHz TO 40 GHz
- INSERTION LOSS: . . . . . 6.0 dB TYP
- ATTENUATION RANGE: . . . . . 30 dB TYP
- ACCURACY OF ATTENUATION: . . . ±2.0 dB TYP
- VSWR: . . . . . 2.5:1 MAX
- INPUT POWER: . . . . . +24 dBm CW MAX
- INPUT 1dB COMPRESSION POINT: . . +10dBm TYP
- ATTENUATION CONTROL . . . . . 10-BIT DIGITAL TTL
- LSB 0.03dB
- DC SUPPLY . . . . . +12VDC or +15VDC
- SIZE . . . . . 2.00" (L) X 1.80" (W) X 0.50" (H)
- PWR/CTL CONNECTORS . . . . . 15 PIN Micro-D-Female (MATING CONNECTOR SUPPLIED)
- RF CONNECTORS. . . . . 2.92 mm - Female
- FINISH . . . . . PAINTED GRAY
- LOGIC INPUT
  LOGIC "0" (BIT OFF) ..... -0.3 to +0.8V
  LOGIC "1" (BIT ON) ..... +2.0 to +5.0V

PIN NO:	J3 PIN FUNCTIONS
1	1dB
2	0.5dB
3	0.25dB
4	0.125dB
5	GND
6	0.0625dB
7	0.03125dB (LSB)
8	GND
9	Not Used
10	Not Used
11	+12VDC
12	16dB (MSB)
13	8dB
14	4dB
15	2dB



PMI CONFIDENTIAL AND PROPRIETARY

ENVIRONMENTAL RATINGS:

- TEMPERATURE: . . . . . -50°C TO +100°C (OPERATING)
  -65°C TO +125°C (STORAGE)
- HUMIDITY: . . . . . MIL-STD-202F, METHOD 103B COND. B
- SHOCK: . . . . . MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: . . . . . MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: . . . . . MIL-STD-202F, METHOD 105C COND. B
- SALT FOG: . . . . . MIL-STD-202F, METHOD 107D COND. A
- FUNGUS: . . . . . MIL-STD-810C, METHOD 508.2
- TEMPERATURE CYCLE: . . MIL-STD-202F, METHOD 107

NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	2/11/11	PK
	A2	ECN # 14-0037	2/11/11	

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

PLANAR MONOLITHICS INDUSTRIES, INC.
7311-F GROVE ROAD
FREDERICK, MARYLAND 21704 USA
TEL: 301-662-5019 FAX: 301-662-1731
WEBSITE: www.pmi-rf.com
E-MAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED

APPROVALS	DATE
DRAWN: NJA	11/7/11
CHECKED:	
ISSUED:	

TITLE: PRODUCT FEATURE
DTA-26R5G40G-30-CD-1

SIZE	FSCM NO.	DWG NO.	REV.
A	05X00	27015082	A2

SCALE: N.S SHEET 1 OF 1

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Typical Characteristics For DTA-26R5G40G-30-CD-1

+25°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	26.5 GHz – 40 GHz	0.1 GHz – 40 GHz	
2	Insertion Loss:	26.5 - 40 GHz 6.0 dB Max.	5.93 dB	
3	VSWR:	2.5 : 1 Max.	2.25 : 1	
4	Monotonicity	Verify	PASS	
5	Flatness @ 10dB:		± 0.98 dB	
6	Flatness @ 20dB:		± 1.45 dB	
7	Flatness @ 30dB:		± 1.92 dB	
8	Accuracy of Attenuation 0 to 10 dB:	± 2 dB	± 0.35 dB	
9	Accuracy of Attenuation 10 to 20 dB:	± 2 dB	± 0.31 dB	
10	Accuracy of Attenuation 20 to 30 dB:	± 2 dB	± 0.33 dB	
11	Switching Speed:	1.0 uSEC MAX	0.30 uSEC	
12	DC Supply:	+12VDC @ 50 mA	+15 VDC @ 38 mA	

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
1.00	0.93	0.07	0.18
2.00	2.06	-0.06	0.28
4.00	3.91	0.09	0.49
8.00	7.73	0.27	0.89
16.00	15.76	0.24	1.28

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
5.00	4.65	0.35	0.56
10.00	9.91	0.09	0.98
15.00	14.75	0.25	1.22
20.00	19.81	0.19	1.45
25.00	24.81	0.19	1.61
30.00	29.62	0.38	1.92

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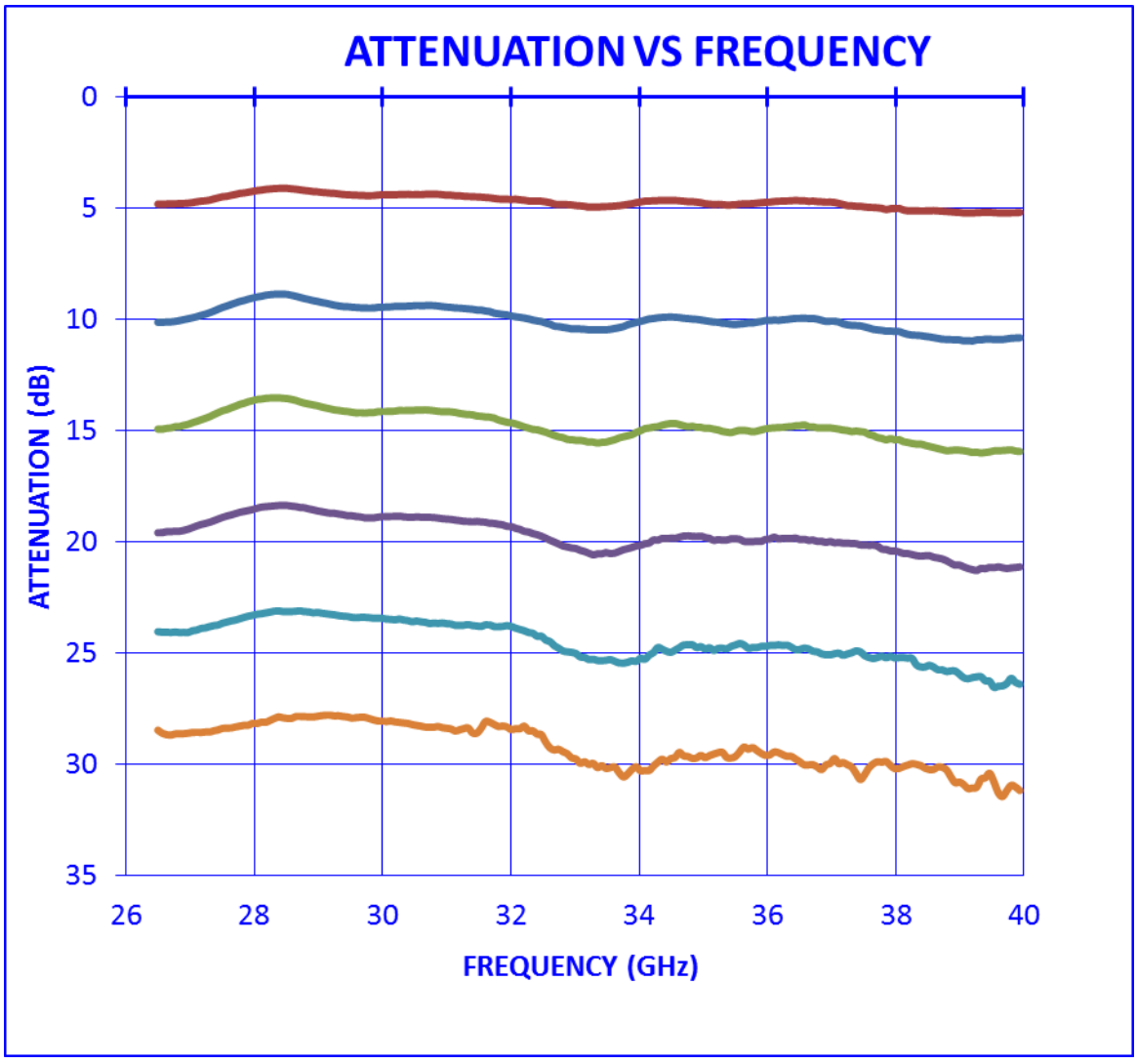
Typical Characteristics For DTA-26R5G40G-30-CD-1

+25°C Attenuation vs. Frequency Plot



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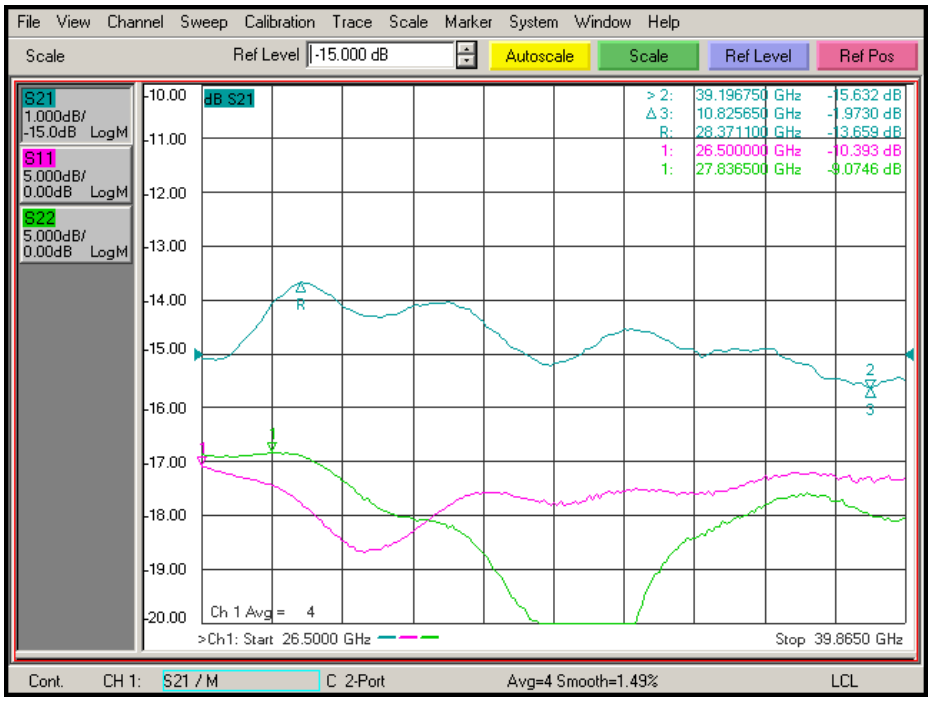
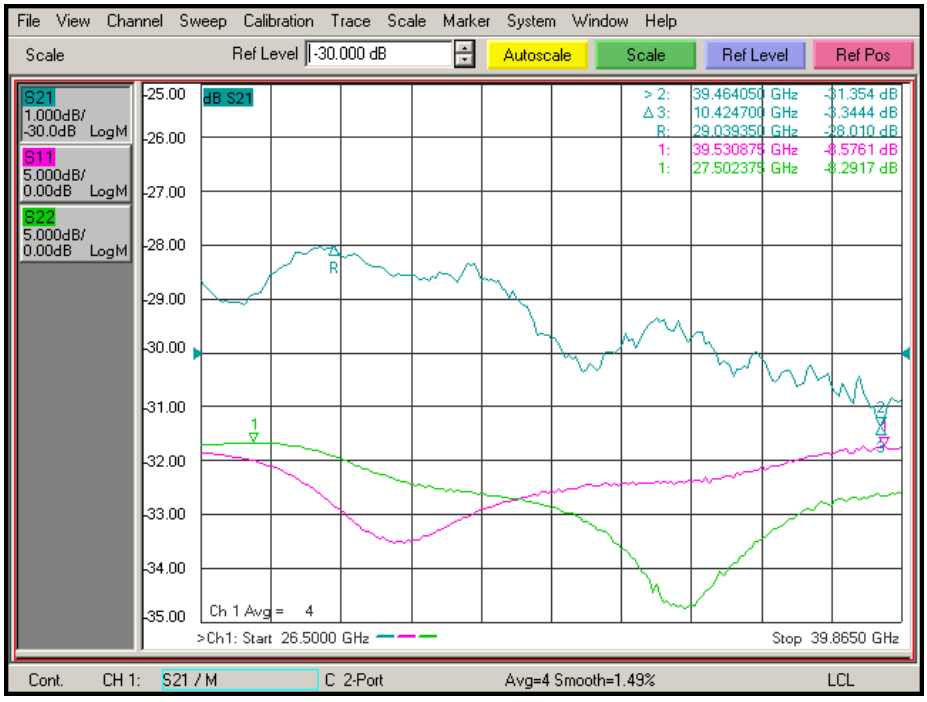
Typical Characteristics For DTA-26R5G40G-30-CD-1

+25°C @ -15dB Attenuation



+25°C @ -30dB Attenuation



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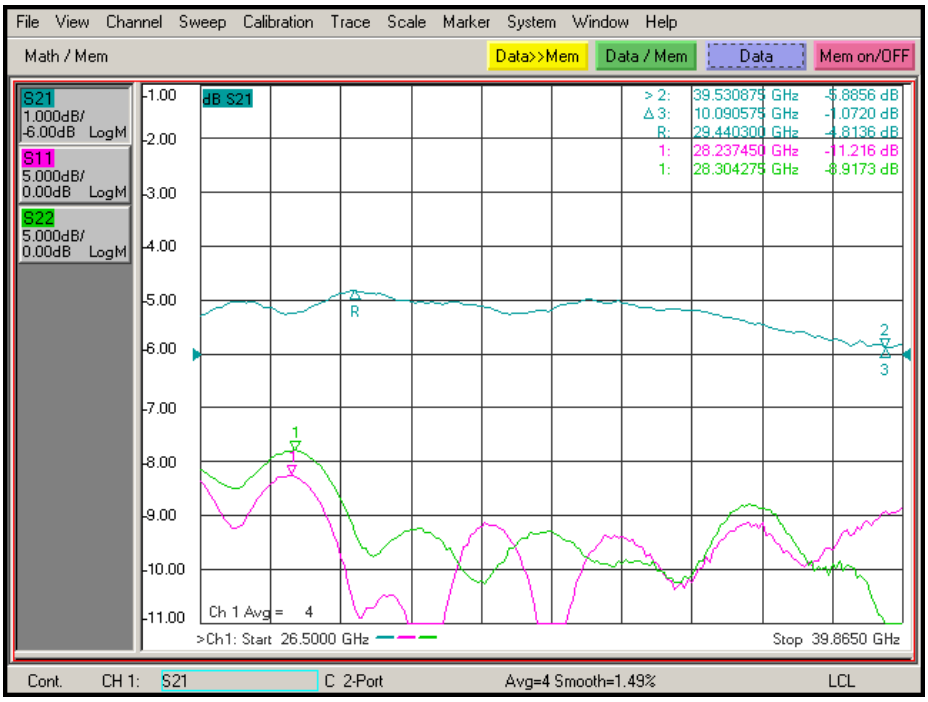
Typical Characteristics For DTA-26R5G40G-30-CD-1

+25°C Insertion Loss & Return Loss



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Typical Characteristics For DTA-26R5G40G-30-CD-1

-40°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	26.5 GHz – 40 GHz	0.1 GHz – 40 GHz	
2	Insertion Loss:	26.5 - 40 GHz 6.0 dB Max.	5.5 dB	
3	VSWR:	2.5 : 1 Max.	2.37 : 1	
4	Monotonicity	Verify	PASS	
5	Flatness @ 10dB:		± 0.63 dB	
6	Flatness @ 20dB:		± 1.21 dB	
7	Flatness @ 30dB:		± 1.89 dB	
8	Accuracy of Attenuation 0 to 10 dB:	± 2 dB	± 0.98 dB	
9	Accuracy of Attenuation 10 to 20 dB:	± 2 dB	± 1 dB	
10	Accuracy of Attenuation 20 to 30 dB:	± 2 dB	± 1.42 dB	
11	Switching Speed:	1.0 uSEC MAX	0.30 uSEC	
12	DC Supply:	+12VDC @ 50 mA	+15 VDC @ 38 mA	

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
1.00	0.72	0.28	0.11
2.00	1.67	0.33	0.21
4.00	3.29	0.71	0.35
8.00	6.34	1.66	0.57
16.00	14.24	1.76	0.90

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
5.00	4.07	0.93	0.40
10.00	8.28	1.72	0.63
15.00	13.18	1.82	0.85
20.00	18.87	1.13	1.21
25.00	24.55	0.45	1.48
30.00	30.42	-0.42	1.89

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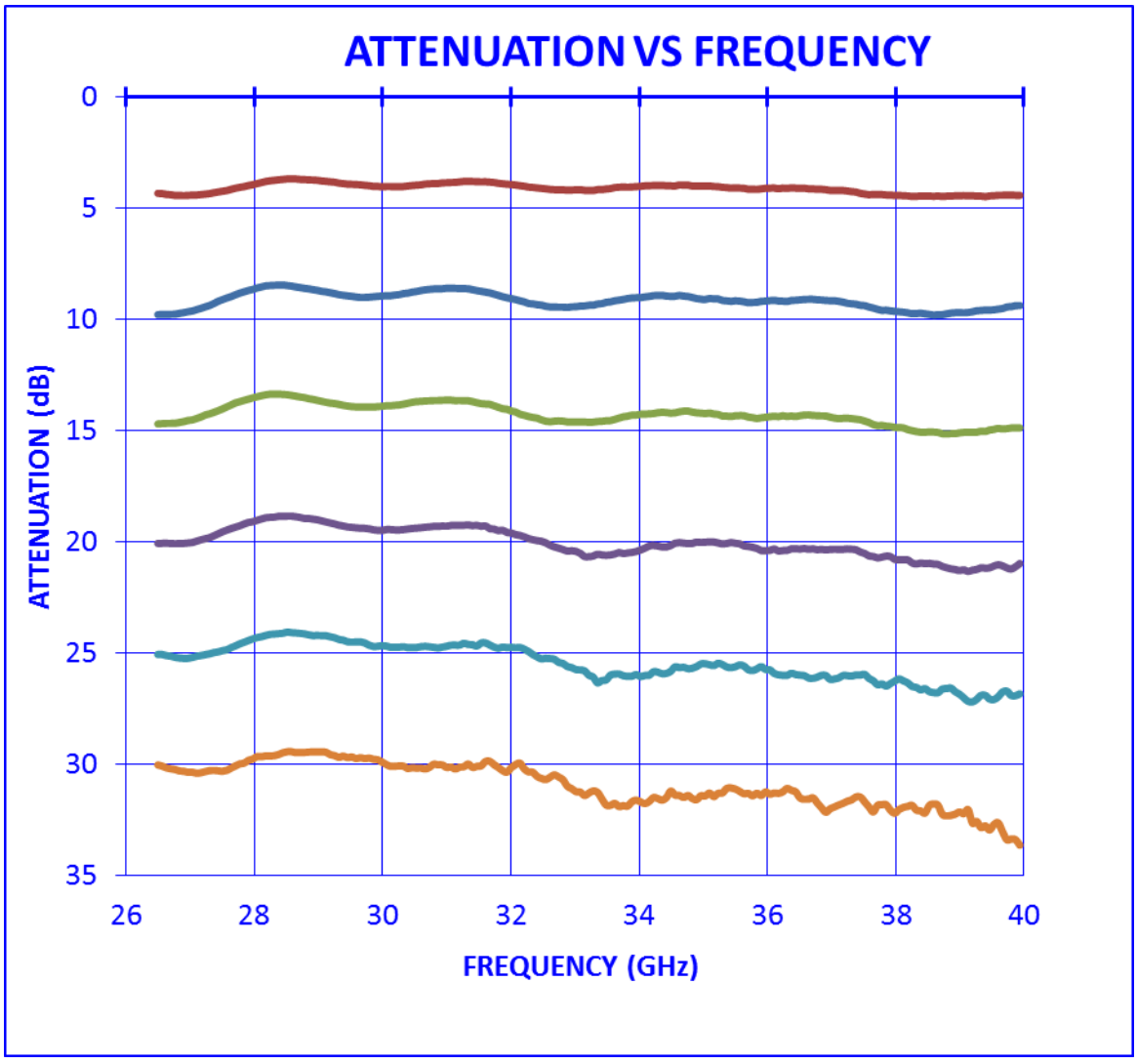
Typical Characteristics For DTA-26R5G40G-30-CD-1

-40°C Attenuation vs. Frequency Plot



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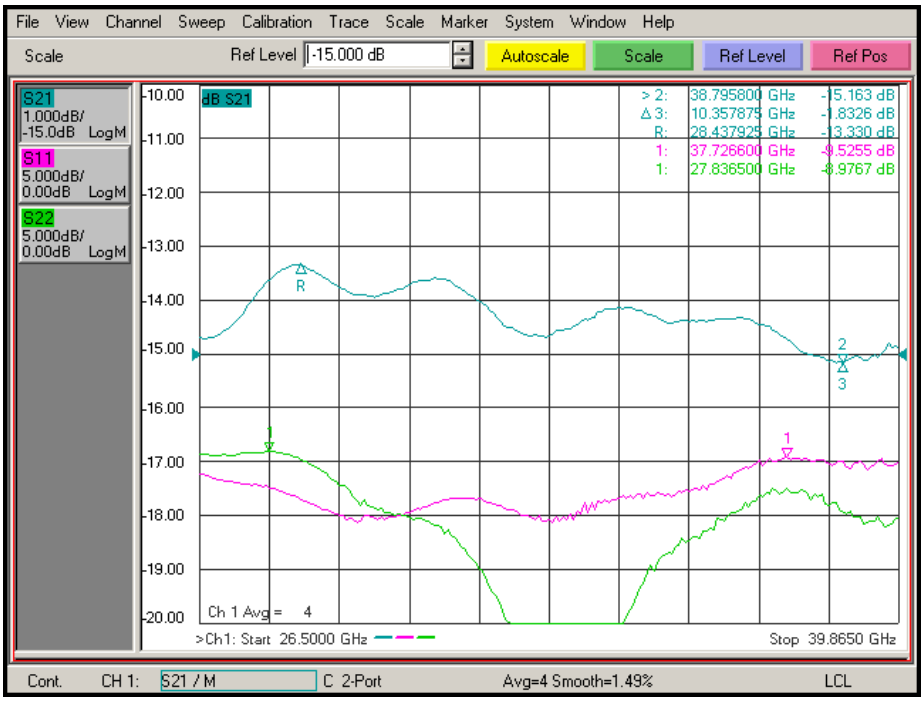
Typical Characteristics For DTA-26R5G40G-30-CD-1

-40°C @ -15dB Attenuation



-40°C @ -30dB Attenuation

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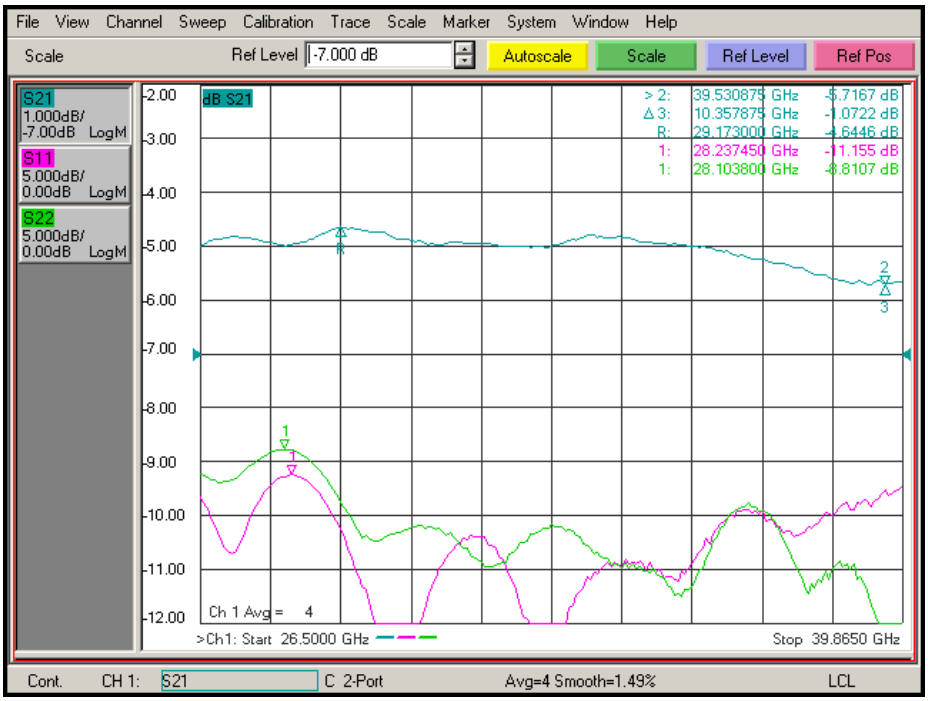
Typical Characteristics For DTA-26R5G40G-30-CD-1

-40°C Insertion Loss & Return Loss



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Typical Characteristics For DTA-26R5G40G-30-CD-1

+85°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	26.5 GHz – 40 GHz	0.1 GHz – 40 GHz	
2	Insertion Loss:	26.5 - 40 GHz 6.0 dB Max.	6.5 dB	
3	VSWR:	2.5 : 1 Max.	2.32 : 1	
4	Monotonicity	Verify	PASS	
5	Flatness @ 10dB:		± 0.78 dB	
6	Flatness @ 20dB:		± 1.29 dB	
7	Flatness @ 30dB:		± 1.8 dB	
8	Accuracy of Attenuation 0 to 10 dB:	± 2 dB	± 1.01 dB	
9	Accuracy of Attenuation 10 to 20 dB:	± 2 dB	± 1.07 dB	
10	Accuracy of Attenuation 20 to 30 dB:	± 2 dB	± 0.91 dB	
11	Switching Speed:	1.0 uSEC MAX	0.30 uSEC	
12	DC Supply:	+12VDC @ 50 mA	+15 VDC @ 38 mA	

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
1.00	1.18	-0.18	0.13
2.00	2.71	-0.71	0.24
4.00	4.75	-0.75	0.44
8.00	8.01	-0.01	0.67
16.00	15.51	0.49	0.98

Programed Attenuation	Attenuation	Accuracy of Attenuation	Flatness dB
dB	dB	dB	±dB
5.00	5.57	-0.57	0.49
10.00	9.97	0.03	0.78
15.00	14.68	0.32	0.96
20.00	19.20	0.80	1.29
25.00	23.51	1.49	1.46
30.00	28.24	1.76	1.80

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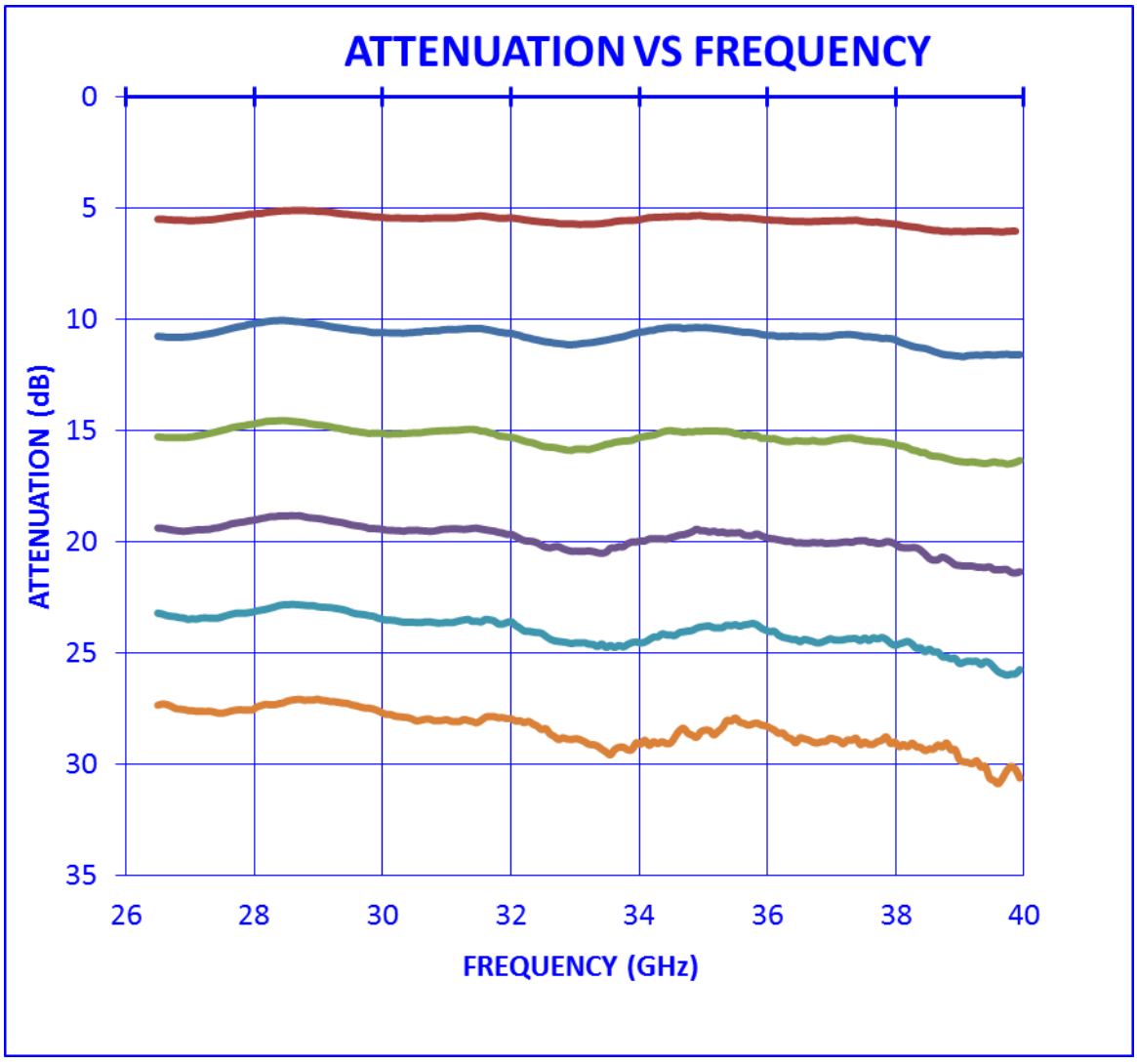
Typical Characteristics For DTA-26R5G40G-30-CD-1

+85°C Attenuation vs. Frequency Plot



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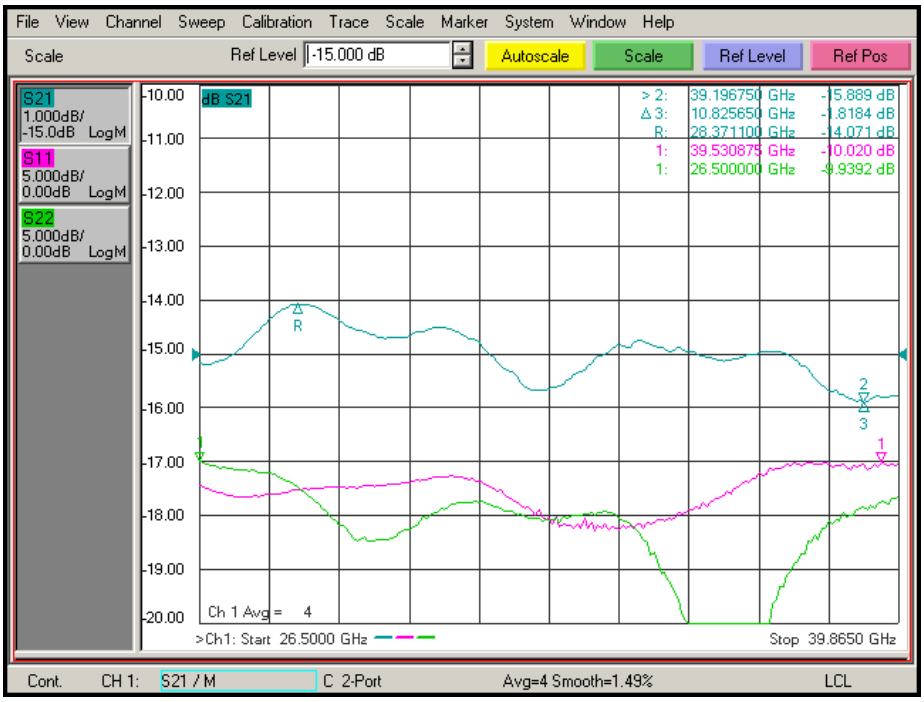
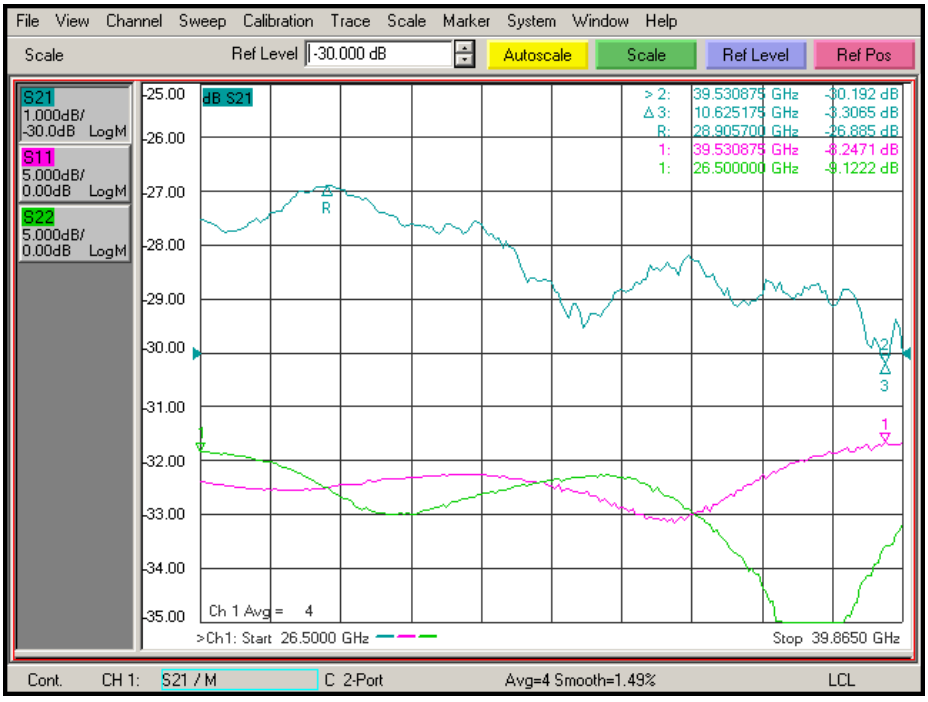
Typical Characteristics For DTA-26R5G40G-30-CD-1

+85°C @ -15dB Attenuation



+85°C @ -30dB Attenuation



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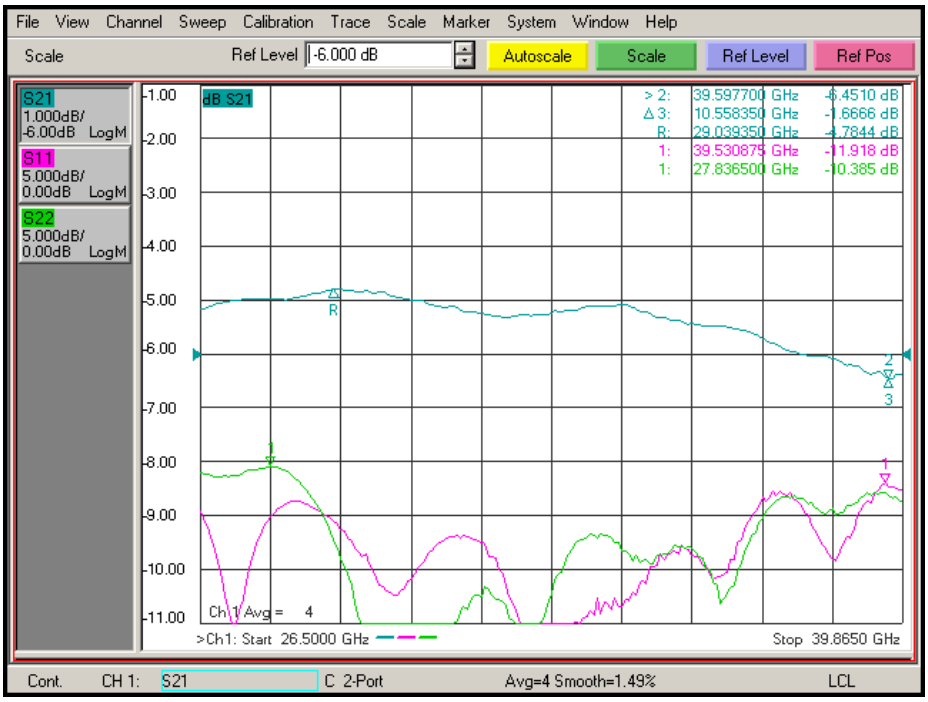
Typical Characteristics For DTA-26R5G40G-30-CD-1

+85°C Insertion Loss & Return Loss



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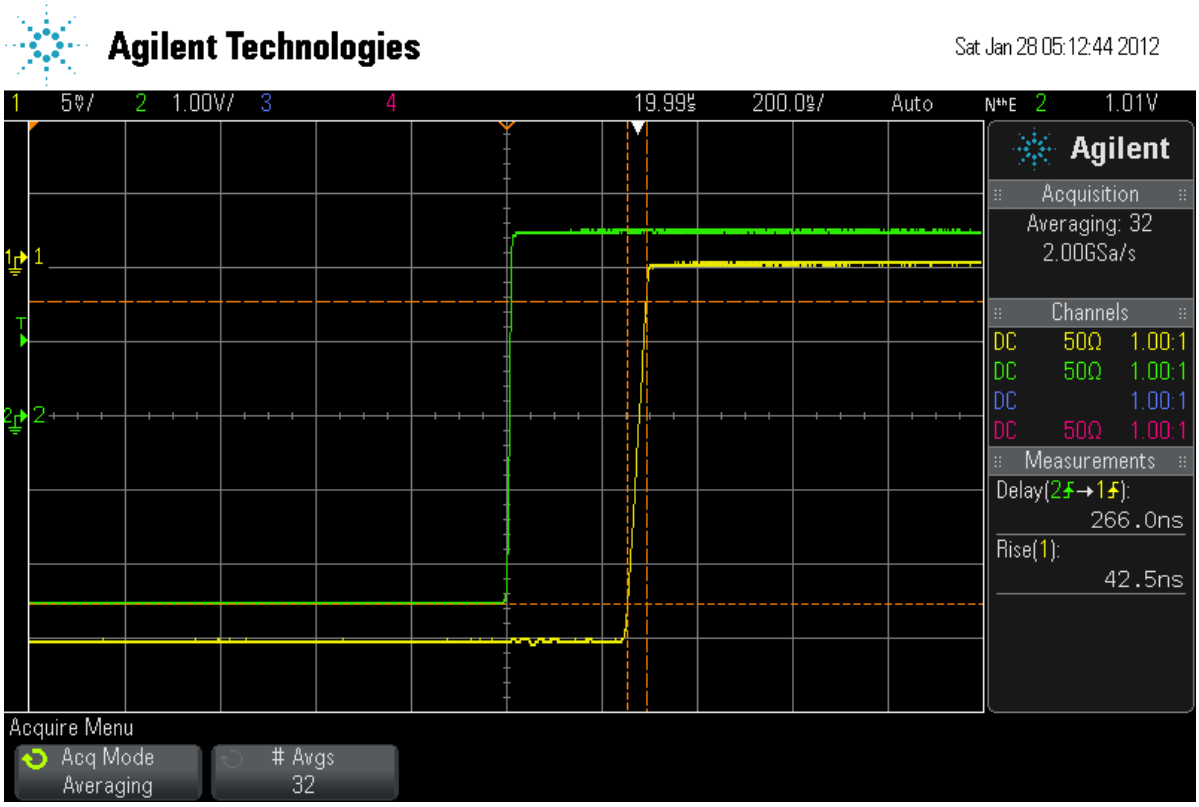
Typical Characteristics For DTA-26R5G40G-30-CD-1

Delay On
Measured with a Tunnel Diode @ 30GHz
Input Power @ -5dBm



Channel 1 (Yellow): Tunnel Diode output

Channel 2 (Green): TTL Input from Signal Generator

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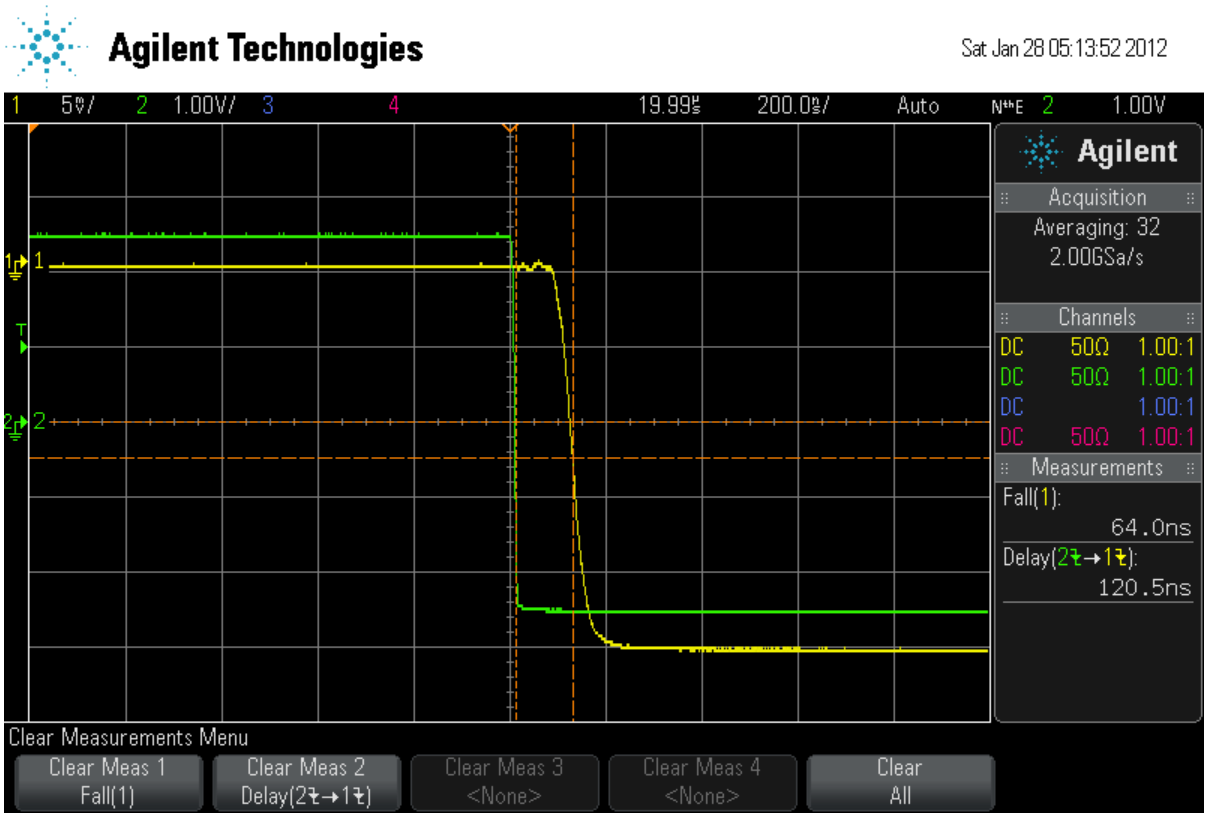
Typical Characteristics For DTA-26R5G40G-30-CD-1

Delay Off
Measured with a Tunnel Diode @ 30GHz
Input Power @ -5dBm



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Channel 2 (Green): TTL Input from Signal Generator

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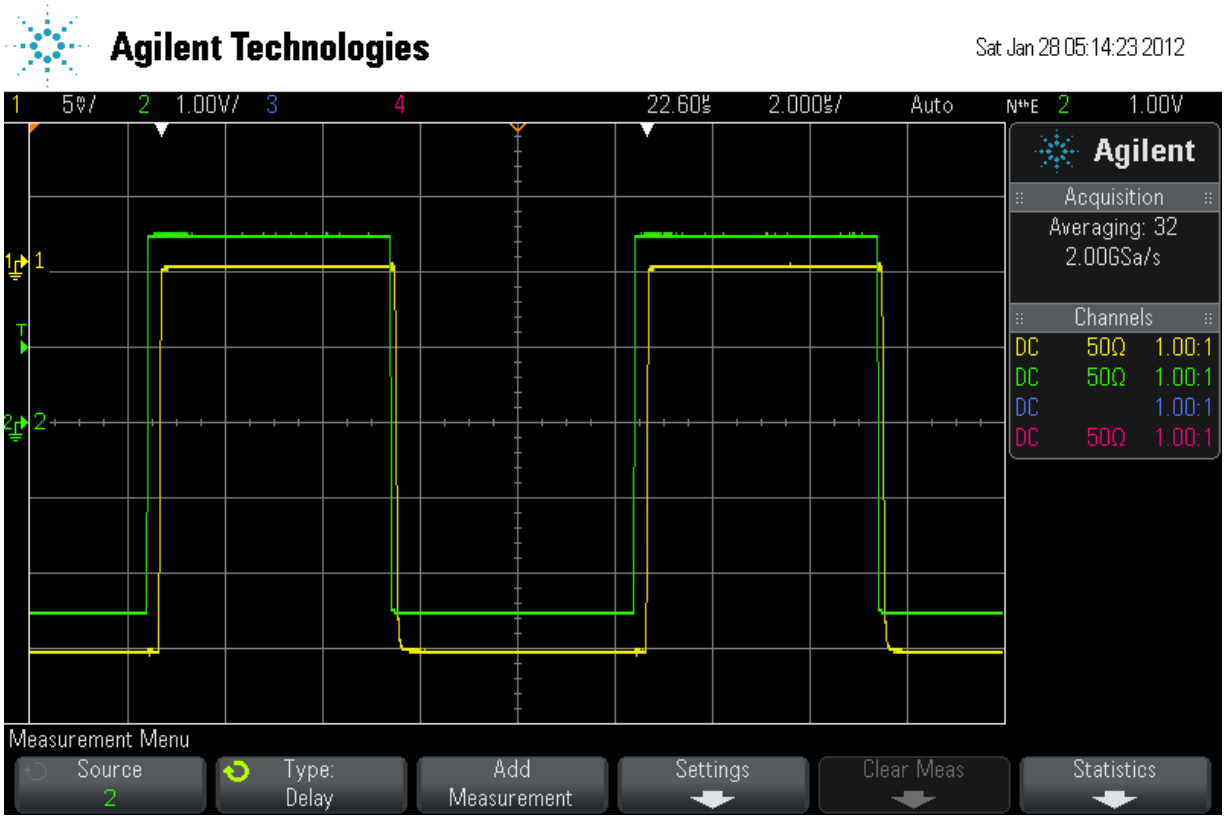
Typical Characteristics For DTA-26R5G40G-30-CD-1

Full Pulse
Measured with a Tunnel Diode @ 30GHz
Input Power @ -5dBm



Channel 1 (Yellow): Tunnel Diode output

Channel 2 (Green): TTL Input from Signal Generator

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