



Typical Characteristics for DTA-22G28G-50-CD-1

PMI MODEL NUMBER DTA-22G28G-50-CD-1 IS A 50 dB MONOTONIC PROGRAMMABLE ATTENUATOR WITH 11-BIT RESOLUTION THAT PROVIDES A STEP SIZE OF 0.025dB. IT HAS ALSO BEEN DESIGNED TO HAVE VERY LOW INSERTION LOSS OVER THE FREQUENCY RANGE OF 22.5 TO 27.5GHz.



August 16, 2013
Designed by: Paul Kuhn
Drafted by: Justin Shupe
Reported by: Paul Kuhn

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com



Typical Characteristics for DTA-22G28G-50-CD-1

Summary Test Data @ 25°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	22 GHz – 28 GHz	22 GHz – 28 GHz	
2	Insertion Loss:	3.5 dB Max.	3.29 dB	
3	VSWR:	2.2: 1 Max.	1.8: 1	
4	Monotonicity	Verify	Verified	
5	Max Input Power	10dBm Max.	Verified	
6	Power Supply Rejection	0.1dB/Volt Max	0.0dB/Volt	
7	Flatness @ 20dB:	± 1.0 dB Max	± 0.51 dB	
8	Flatness @ 50dB:	± 2.0 dB Max	± 0.58 dB	
9	Accuracy of Attenuation 0 to 10 dB:	± 1.0 dB Max	± 0.14 dB	
10	Accuracy of Attenuation 10 to 30 dB:	± 1.0 dB Max	-0.05 dB	
11	Accuracy of Attenuation 30 to 50 dB:	± 1.0 dB Max	0.12 dB	
12	Switching Speed:	500 ns MAX	450 ns	
13	DC Supply:	+15VDC @ 100 mA	+15 VDC @ 25 mA	

Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB
0.025	0.04	-0.01	0.03
0.050	0.07	-0.02	0.02
0.100	0.14	-0.04	0.02
0.200	0.27	-0.07	0.02
0.400	0.51	-0.11	0.04
0.800	0.94	-0.14	0.06
1.600	1.73	-0.13	0.08
3.200	3.20	0.00	0.16
6.400	6.42	-0.02	0.28
12.800	12.88	-0.08	0.45
25.600	25.71	-0.11	0.50
51.175	51.14	0.04	0.62

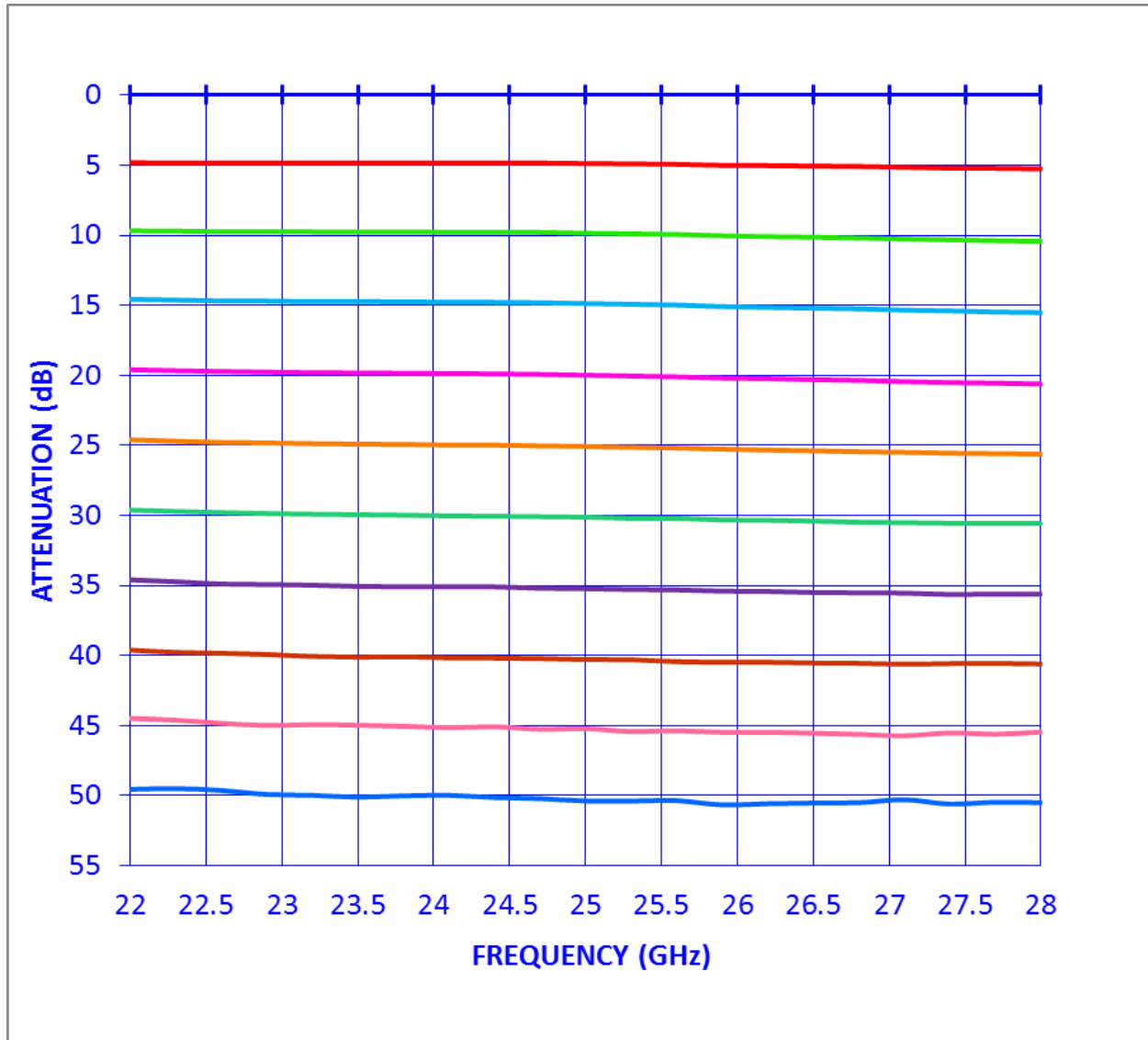
Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB
5.00	5.04	-0.04	0.22
10.00	10.06	-0.06	0.38
15.00	15.05	-0.05	0.47
20.00	20.11	-0.11	0.51
25.00	25.11	-0.11	0.51
30.00	30.10	-0.10	0.48
35.00	35.12	-0.12	0.52
40.00	40.12	-0.12	0.51
45.00	45.10	-0.10	0.62
50.00	50.08	-0.08	0.58

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com



Typical Characteristics for DTA-22G28G-50-CD-1

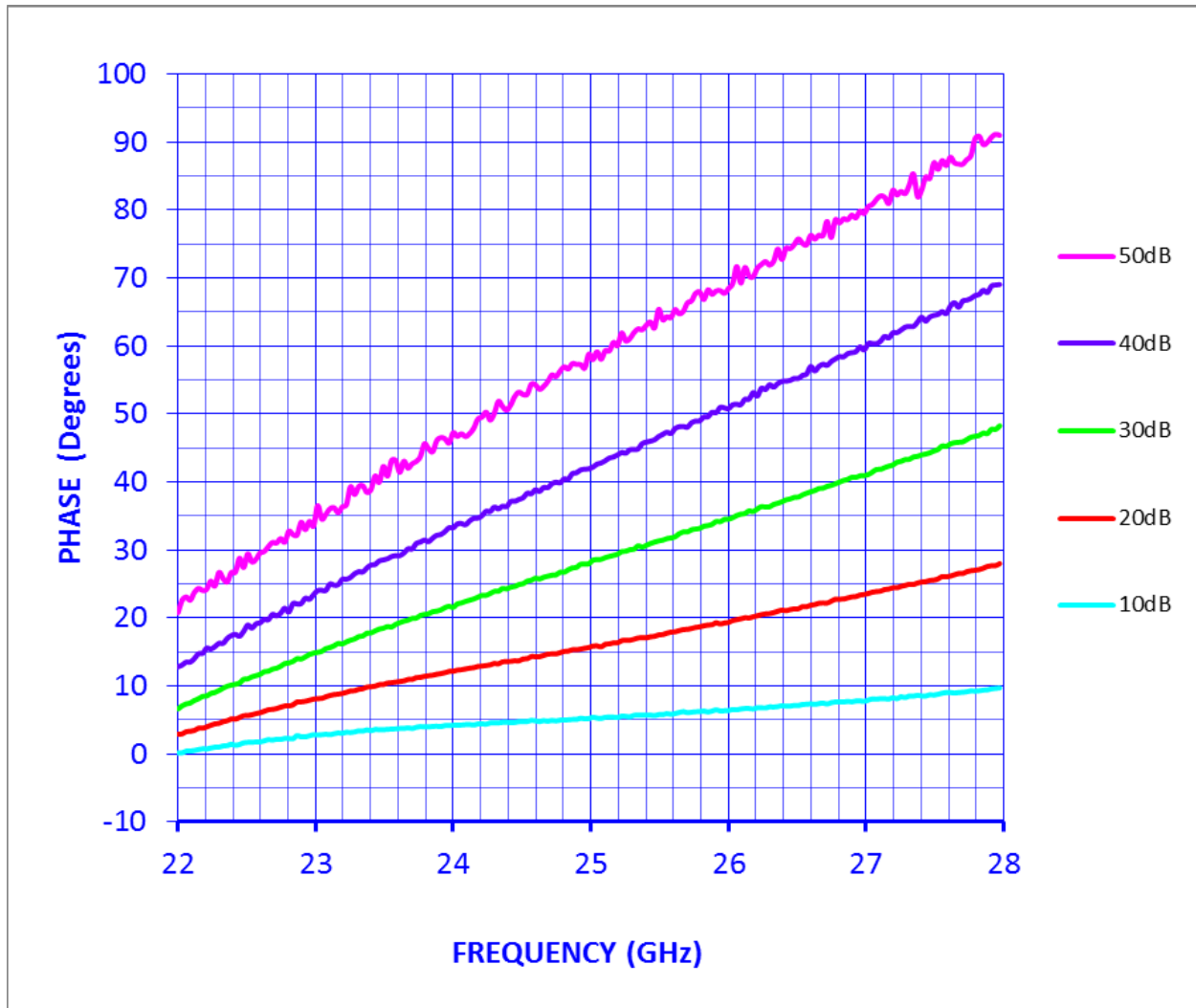
Attenuation Graph Data @ 25°C





Typical Characteristics for DTA-22G28G-50-CD-1

Phase VS Attenuation Graph Data @ 25°C





Typical Characteristics for DTA-22G28G-50-CD-1

Summary Test Data @ 85°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	22 GHz – 28 GHz	22 GHz – 28 GHz	
2	Insertion Loss:	3.5 dB Max.	3.47 dB	
3	VSWR:	2.2: 1 Max.	1.8: 1	
4	Monotonicity	Verify	Verified	
5	Max Input Power	10dBm Max.	Verified	
6	Power Supply Rejection	0.1dB/Volt Max	0.0dB/Volt	
7	Flatness @ 20dB:	± 1.0 dB Max	± 0.54 dB	
8	Flatness @ 50dB:	± 2.0 dB Max	± 0.74 dB	
9	Accuracy of Attenuation 0 to 10 dB:	± 1.0 dB Max	± -0.01 dB	
10	Accuracy of Attenuation 10 to 30 dB:	± 1.0 dB Max	± 0.31 dB	
11	Accuracy of Attenuation 30 to 50 dB:	± 1.0 dB Max	± 0.16 dB	
12	Switching Speed:	500 ns MAX	450 ns	
13	DC Supply:	+15VDC @ 100 mA	+15 VDC @ 25 mA	

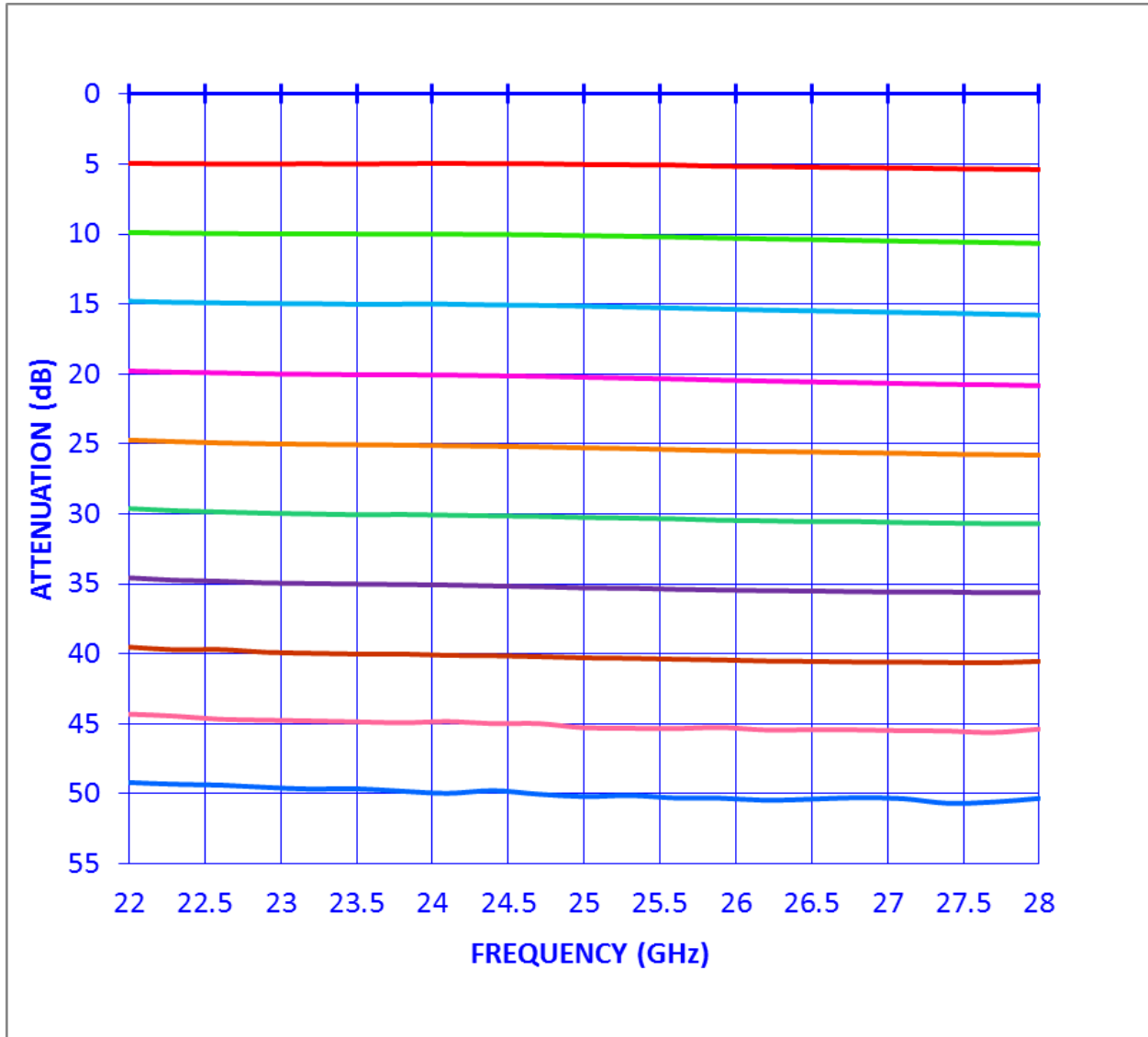
Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB	Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB
0.025	0.04	-0.01	0.02	5.00	5.17	-0.17	0.22
0.050	0.07	-0.02	0.02	10.00	10.28	-0.28	0.39
0.100	0.13	-0.03	0.02	15.00	15.29	-0.29	0.49
0.200	0.26	-0.06	0.03	20.00	20.31	-0.31	0.52
0.400	0.50	-0.10	0.04	25.00	25.26	-0.26	0.54
0.800	0.95	-0.15	0.05	30.00	30.16	-0.16	0.54
1.600	1.76	-0.16	0.10	35.00	35.10	-0.10	0.53
3.200	3.27	-0.07	0.15	40.00	40.07	-0.07	0.56
6.400	6.58	-0.18	0.27	45.00	44.96	0.04	0.66
12.800	13.11	-0.31	0.46	50.00	49.93	0.07	0.74
25.600	25.84	-0.24	0.54				
51.175	50.97	0.21	0.69				

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com



Typical Characteristics for DTA-22G28G-50-CD-1

Attenuation Graph Data @ 85°C





Typical Characteristics for DTA-22G28G-50-CD-1

Summary Test Data @ -40°C

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	PASS/FAIL	QA QC
1	Frequency Range:	22 GHz – 28 GHz	22 GHz – 28 GHz	
2	Insertion Loss:	3.5 dB Max.	3.13 dB	
3	VSWR:	2.2: 1 Max.	1.8: 1	
4	Monotonicity	Verify	Verified	
5	Max Input Power	10dBm Max.	Verified	
6	Power Supply Rejection	0.1dB/Volt Max	0.0dB/Volt	
7	Flatness @ 20dB:	± 1.0 dB Max	± 0.47 dB	
8	Flatness @ 50dB:	± 2.0 dB Max	± 0.56 dB	
9	Accuracy of Attenuation 0 to 10 dB:	± 1.0 dB Max	± 0.2 dB	
10	Accuracy of Attenuation 10 to 30 dB:	± 1.0 dB Max	± 0.2 dB	
11	Accuracy of Attenuation 30 to 50 dB:	± 1.0 dB Max	± 0.16 dB	
12	Switching Speed:	500 ns MAX	450 ns	
13	DC Supply:	+15VDC @ 100 mA	+15 VDC @ 25 mA	

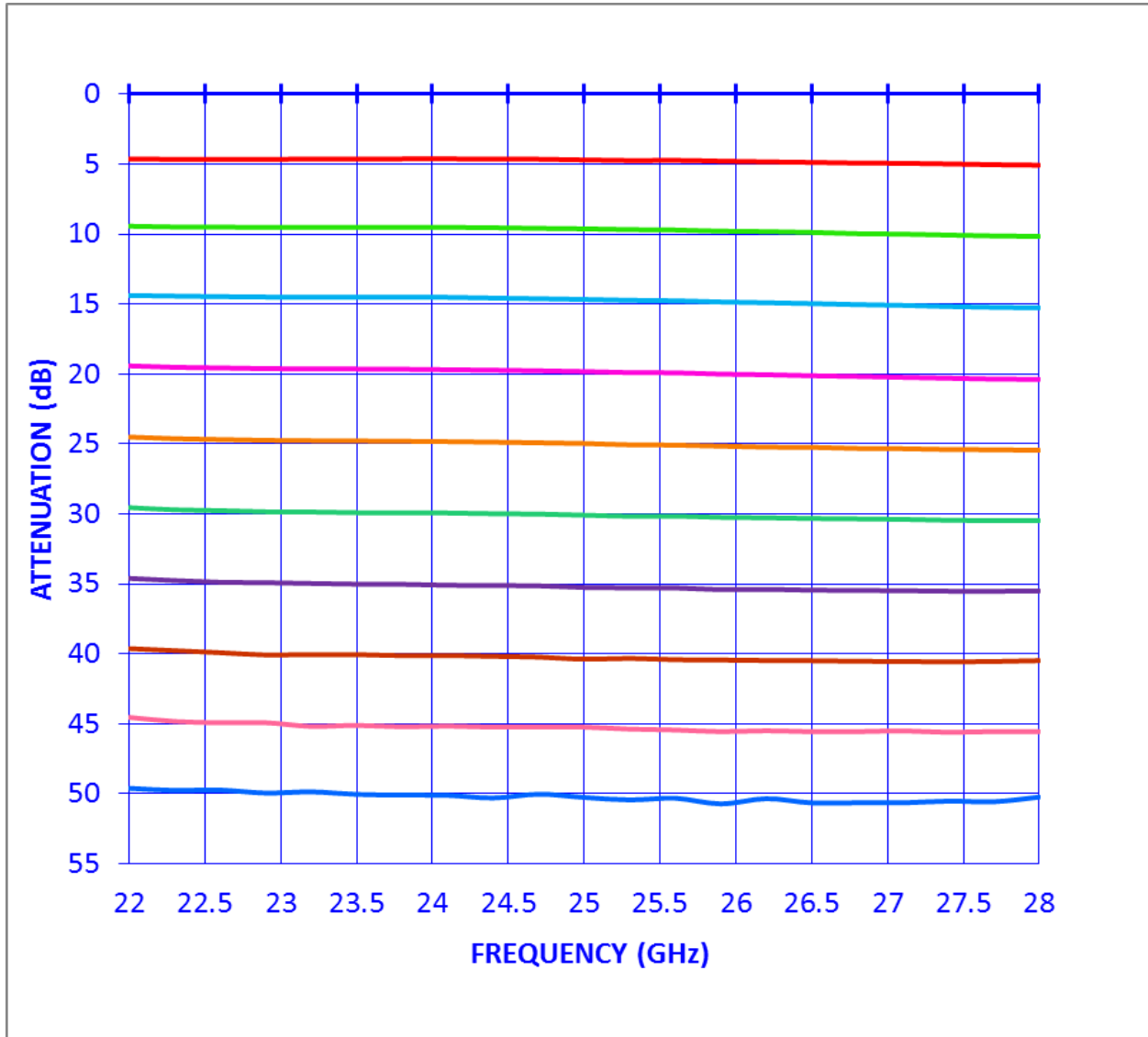
Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB	Programed Attenuation dB	Attenuation dB	Accuracy of Attenuation dB	Flatness dB ±dB
0.025	0.04	-0.01	0.02	5.00	4.85	0.15	0.23
0.050	0.07	-0.02	0.02	10.00	9.80	0.20	0.36
0.100	0.12	-0.02	0.02	15.00	14.83	0.17	0.44
0.200	0.25	-0.05	0.03	20.00	19.90	0.10	0.48
0.400	0.48	-0.08	0.04	25.00	24.98	0.02	0.47
0.800	0.91	-0.11	0.06	30.00	30.01	-0.01	0.47
1.600	1.67	-0.07	0.10	35.00	35.06	-0.06	0.46
3.200	3.08	0.12	0.16	40.00	40.09	-0.09	0.48
6.400	6.20	0.20	0.26	45.00	45.07	-0.07	0.53
12.800	12.63	0.17	0.44	50.00	50.16	-0.16	0.56
25.600	25.58	0.02	0.47				
51.175	51.06	0.12	0.70				

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com



Typical Characteristics for DTA-22G28G-50-CD-1

Attenuation Graph Data @ -40°C





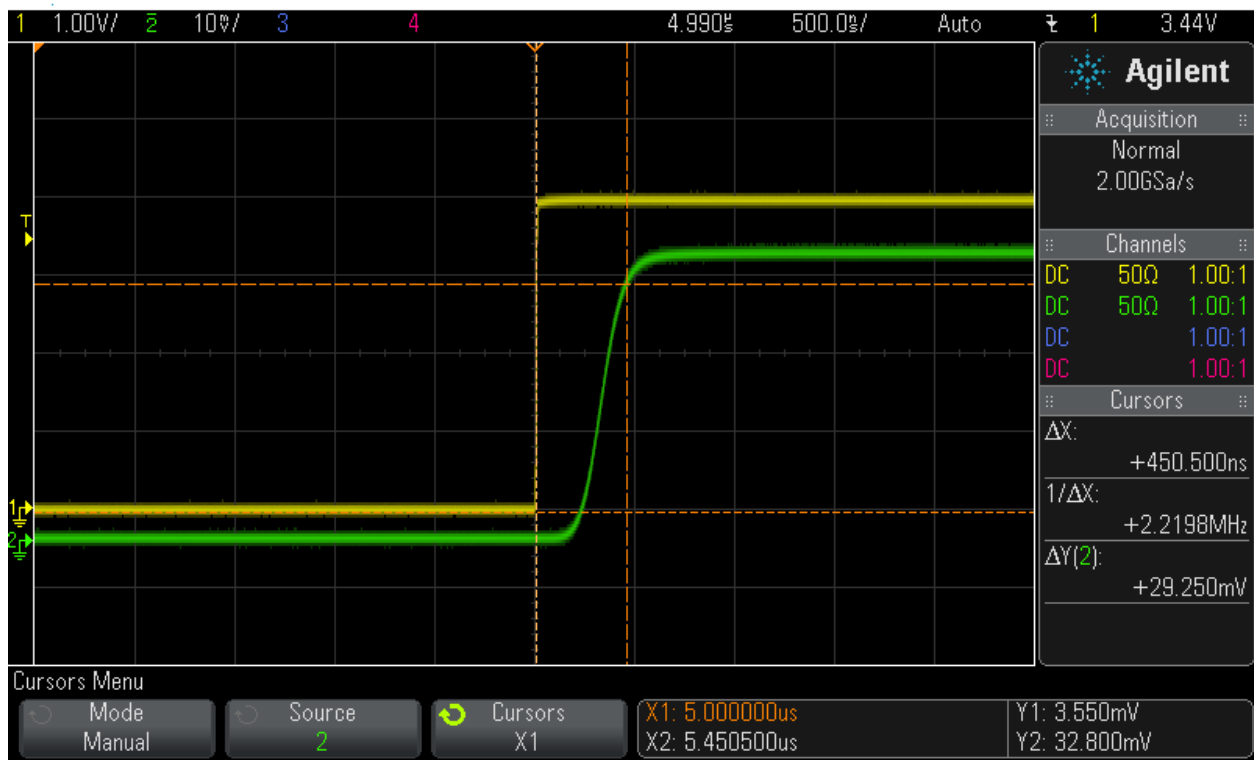
Typical Characteristics for DTA-22G28G-50-CD-1

Rise Time, Delay On (Switching Speed) @ 25°C



Agilent Technologies

Tue Jul 02 03:33:21 2013



Yellow Trace(1):
Green Trace(2):

Input Signal
Attenuator Response
(Measured with a Tunnel Diode)



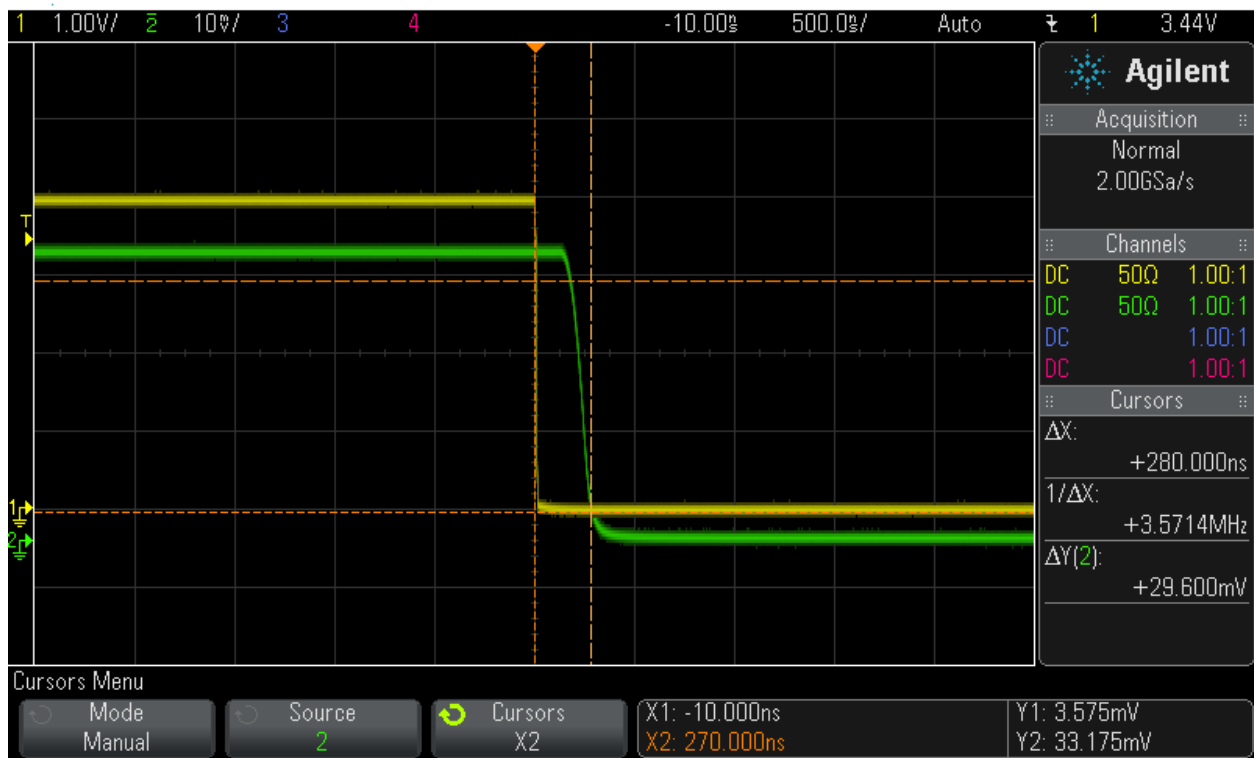
Typical Characteristics for DTA-22G28G-50-CD-1

Fall Time, Delay Off (Switching Speed) @ 25°C



Agilent Technologies

Tue Jul 02 03:31:07 2013



Yellow Trace(1):
Green Trace(2):

Input Signal
Attenuator Response
(Measured with a Tunnel Diode)



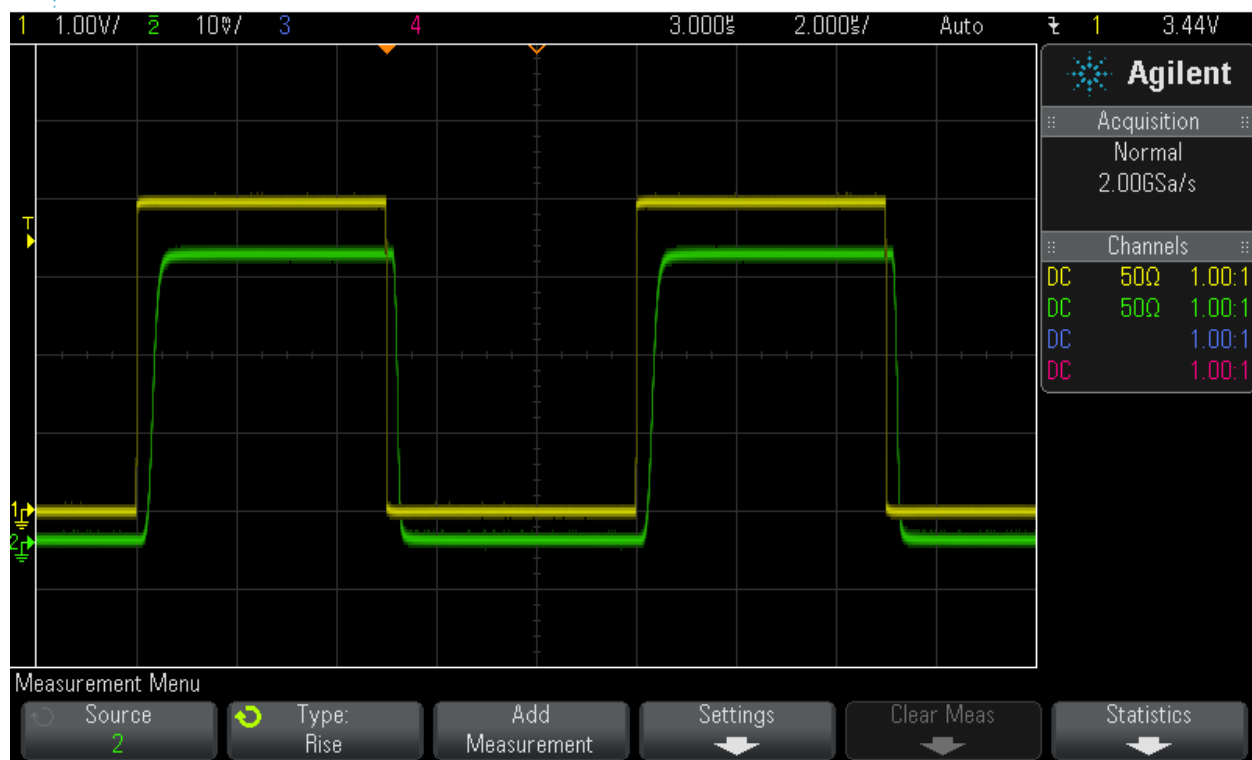
Typical Characteristics for DTA-22G28G-50-CD-1

Full Pulse Response (Switching Speed) @ 25°C



Agilent Technologies

Tue Jul 02 03:31:32 2013



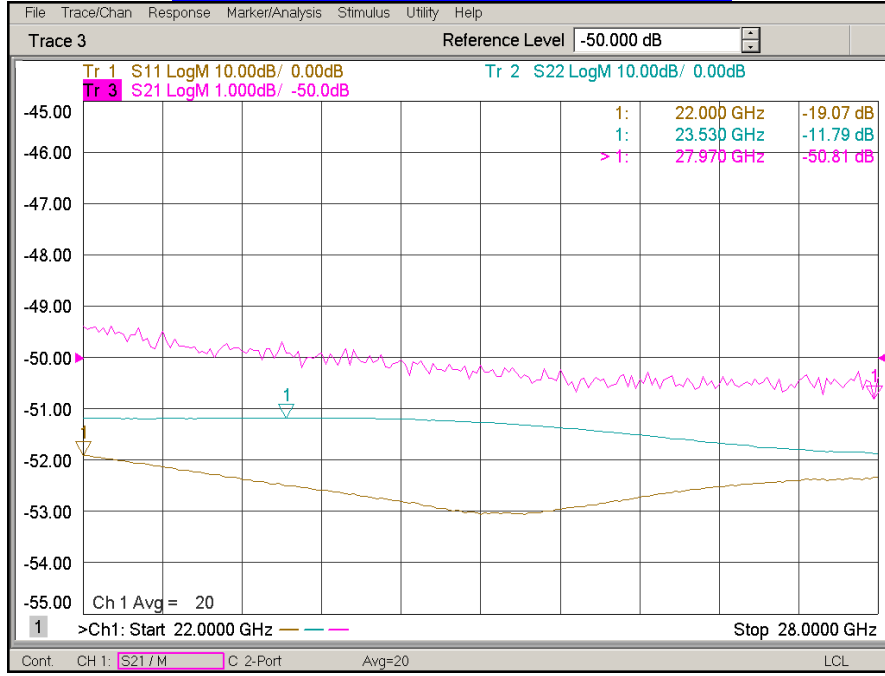
Yellow Trace(1):
Green Trace(2):

Input Signal
Attenuator Response
(Measured with a Tunnel Diode)

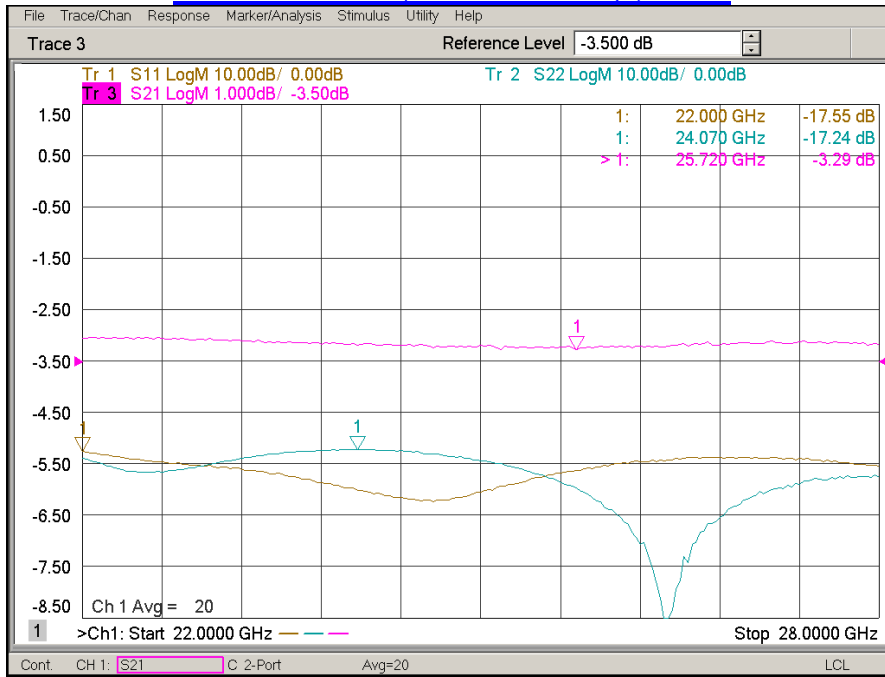


Typical Characteristics for DTA-22G28G-50-CD-1

VSWR (50dB Attenuation) @ 25°C



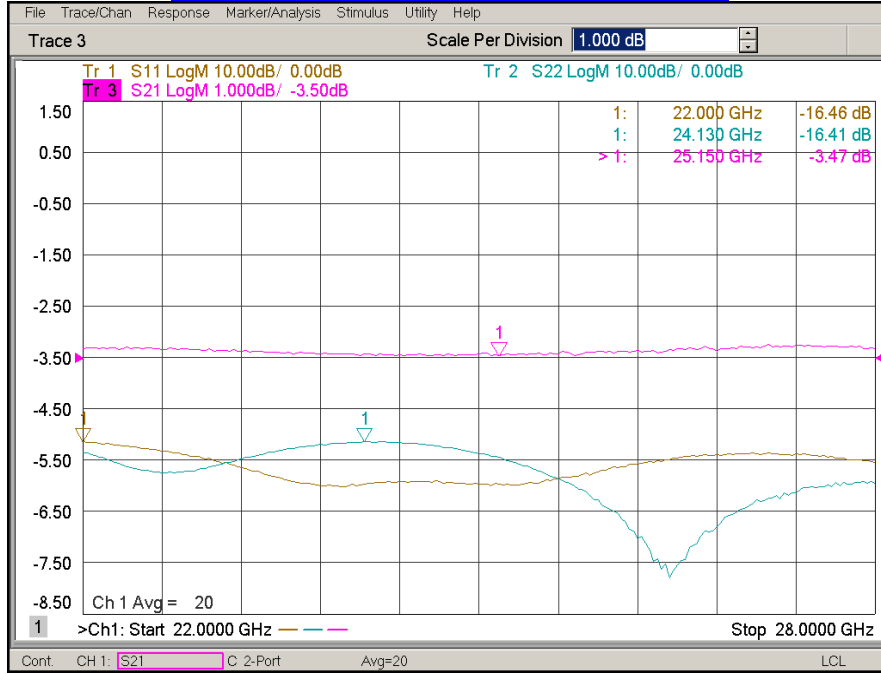
Insertion Loss, and VSWR @ 25°C





Typical Characteristics for DTA-22G28G-50-CD-1

Insertion Loss, and VSWR @ 85°C



Insertion Loss, and VSWR @ -40°C

