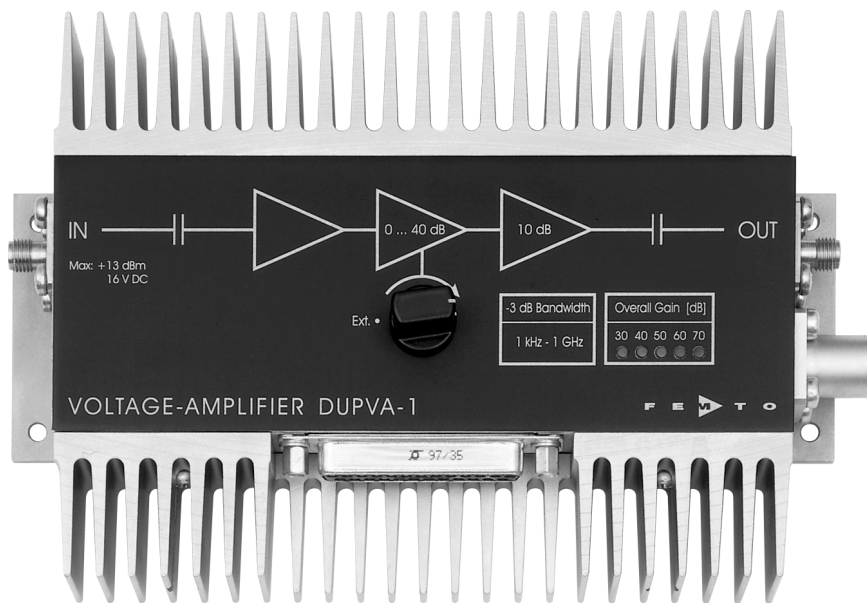


Variable-Gain Ultra-Wideband Voltage Amplifier

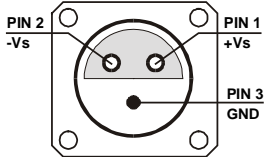


<p>Features</p>	<ul style="list-style-type: none"> • Variable Gain 20 to 60 dB, switchable in 10 dB Steps • Bandwidth 1 kHz ... 1.2 GHz • Bandwidth, Frequency- and Pulse Response independent of Gain Setting • Local and Remote Control • DC Monitor Output
<p>Applications</p>	<ul style="list-style-type: none"> • Oscilloscope and Transient-Recorder Preamplifier • Photomultiplier and Microchannel-Plate Amplifier • Signal-Booster for Optical Receivers and Current Amplifiers • Time-Resolved Pulse and Transient Measurements • Automated Measurement Systems
<p>Block Diagram</p>	<p style="text-align: right; font-size: small;">BS01-0640-13</p>

Variable-Gain Ultra-Wideband Voltage Amplifier

Specifications	<i>Test Conditions</i>	<i>V_s = ± 15 V, T_a = 25°C, System Impedance = 50 Ω</i>
Gain	Gain Values	20, 30, 40, 50, 60 dB
	Gain Accuracy	± 0.1 dB (between Settings) ± 1 dB (Overall)
	Gain Flatness	± 0.15 dB
Frequency Response	Lower Cut-Off Frequency	1 kHz
	Upper Cut-Off Frequency	1.2 GHz
	Upper Cut-Off Frequency Rolloff	40 dB/Oct.
Time Response	Rise / Fall Time (10% - 90%)	380 ps
	Group Delay	2.2 ns
Input	Input Impedance AC	50 Ω
	Input Impedance DC	100 kΩ
	Input VSWR (@ 20 dB Gain)	1.12 : 1 (f < 1 GHz) 1.7 : 1 (f < 2 GHz)
	Input VSWR (@ 30 – 60 dB Gain)	1.2 : 1 (f < 1 GHz) 1.75 : 1 (f < 2 GHz)
	50 Ω Noise Figure	3.0 dB (@ 60 dB Gain) 3.5 dB (@ 30 – 50 dB Gain)
	Equivalent Input Voltage Noise	450 pV/√Hz (@ 60 dB Gain) 500 pV/√Hz (@ 30 – 50 dB Gain)
	1/f-Noise Corner	40 kHz
	Output	Output Impedance
Output Power P _{1dB}		13 dBm (@ 100 MHz) 10 dBm (@ 500 MHz)
Output Peak-Peak Voltage for linear Amplification		2 V (@ 100 MHz) 1.7 V (@ 500 MHz)
Output VSWR		1.77 : 1 (f < 1 GHz) 2.0 : 1 (f < 2 GHz)
Third Order Intercept Point IP ₃		21 dBm
Reverse Isolation		80 dB
Dynamic Range (w/o Average)		70 dB (P _{1dB} – Min. Detectable Signal)
Monitor Output		Monitor Output Gain
	Monitor Output Voltage Range	± 10 V
	Monitor Output Current	± 25 mA
	Monitor Output Bandwidth	DC ... 100 kHz
Digital Control	Control Input Voltage Range	Low: - 0.8 ... + 0.8 V High: + 1.8 ... + 12 V
Power Supply	Supply Voltage	± 15 V
	Supply Current	+ 350 / -100 mA
	Stabilized Power Supply Output	± 12 V / max. 100 mA, + 5V / max. 50 mA
Case	Weight	510 gr. (1.2 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature	-40 ... +100 °C
	Operating Temperature	0 ... +60 °C

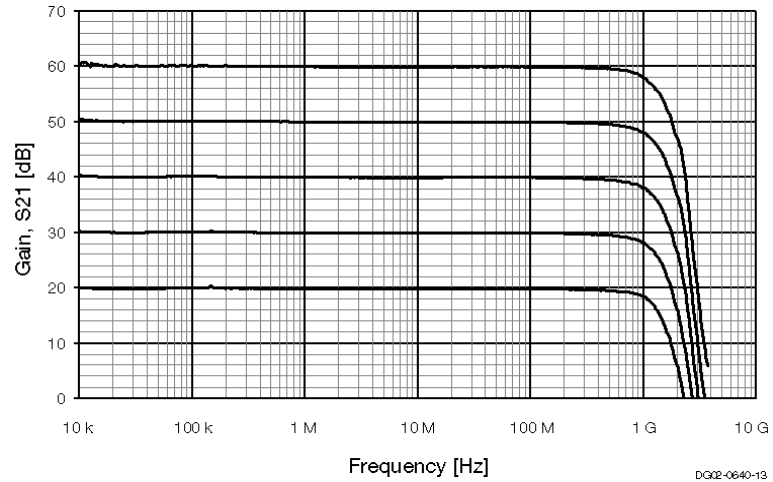
Variable-Gain Ultra-Wideband Voltage Amplifier

<p>Absolute Maximum Ratings</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Signal Input Power</td> <td style="padding: 2px;">+ 13 dBm</td> <td style="padding: 2px;">(f > 1 kHz)</td> </tr> <tr> <td style="padding: 2px;">Signal Input DC Voltage</td> <td style="padding: 2px;">± 16 V</td> <td></td> </tr> <tr> <td style="padding: 2px;">Signal Output Reverse Power</td> <td style="padding: 2px;">+ 20 dBm</td> <td></td> </tr> <tr> <td style="padding: 2px;">Signal Output Reverse DC Voltage</td> <td style="padding: 2px;">+ 20 V / - 12 V</td> <td></td> </tr> <tr> <td style="padding: 2px;">Control Input Voltage</td> <td style="padding: 2px;">+ 16 V / - 5 V</td> <td></td> </tr> <tr> <td style="padding: 2px;">Power Supply Voltage</td> <td style="padding: 2px;">± 17 V</td> <td></td> </tr> </table>	Signal Input Power	+ 13 dBm	(f > 1 kHz)	Signal Input DC Voltage	± 16 V		Signal Output Reverse Power	+ 20 dBm		Signal Output Reverse DC Voltage	+ 20 V / - 12 V		Control Input Voltage	+ 16 V / - 5 V		Power Supply Voltage	± 17 V													
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<p>Remote Control Operation</p>	<p>General</p> <p>Remote Control Input Bits are opto-isolated and connected by logical OR to local switch setting. For remote control of the gain setting, set the local switch to "Ext." and select the wanted gain setting via a 3-bit-code at the corresponding digital inputs:</p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Gain Setting - Corresponding Inputs</th> <th style="text-align: center; border-bottom: 1px solid black;">Gain</th> <th style="text-align: center; border-bottom: 1px solid black;">Pin 14</th> <th style="text-align: center; border-bottom: 1px solid black;">Pin 15</th> <th style="text-align: center; border-bottom: 1px solid black;">Pin 16</th> </tr> </thead> <tbody> <tr> <td>20 dB</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>30 dB</td> <td style="text-align: center;">High</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>40 dB</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">High</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>50 dB</td> <td style="text-align: center;">High</td> <td style="text-align: center;">High</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> </tr> <tr> <td>60 dB</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">Low</td> <td style="text-align: center;">High</td> <td style="text-align: center;">High</td> </tr> </tbody> </table>	Gain Setting - Corresponding Inputs	Gain	Pin 14	Pin 15	Pin 16	20 dB	Low	Low	Low	Low	30 dB	High	Low	Low	Low	40 dB	Low	High	Low	Low	50 dB	High	High	Low	Low	60 dB	Low	Low	High	High
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50 dB	High	High	Low	Low																											
60 dB	Low	Low	High	High																											

Variable-Gain Ultra-Wideband Voltage Amplifier

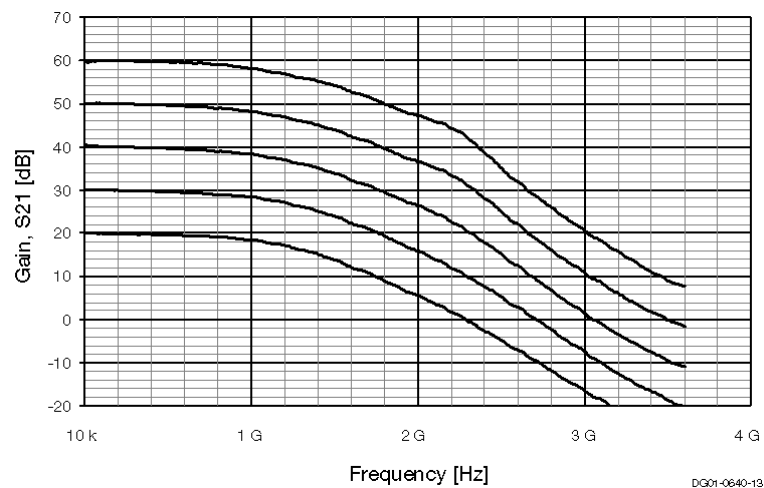
Typical Performance
Characteristics

Frequency Response (Logarithmic)



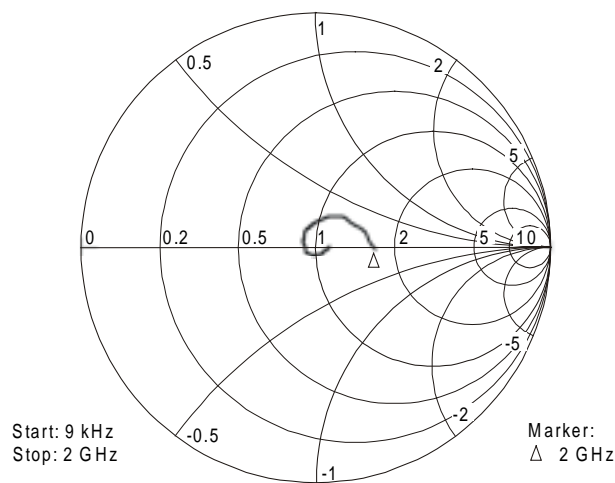
DG22-0640-13

Frequency Response (Linear)



DG01-0640-13

Input Reflection, S11

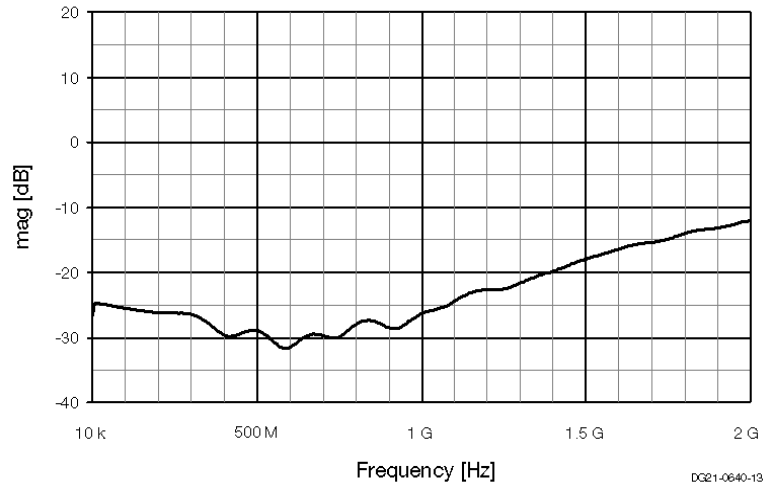


DG22-0640-13

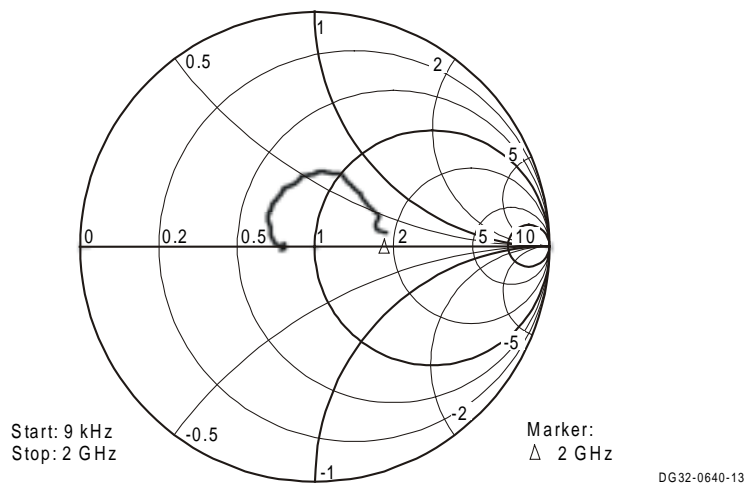
Variable-Gain Ultra-Wideband Voltage Amplifier

Typical Performance
Characteristics

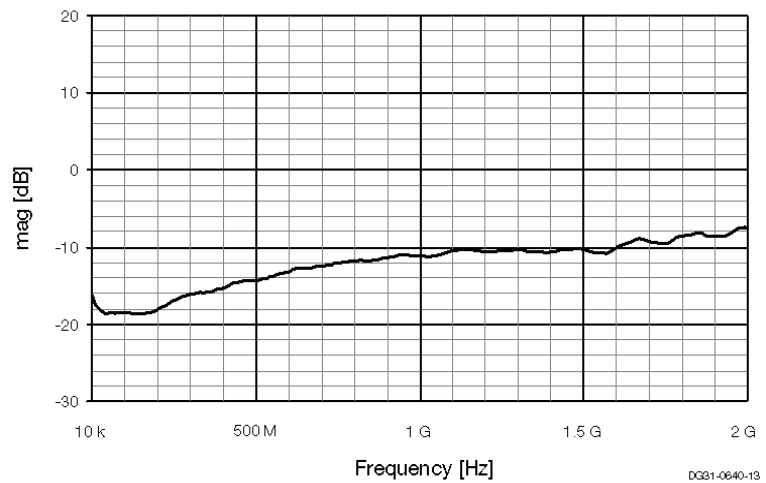
Input Return Loss, S11 (Linear Magnitude)



Output Reflection, S22

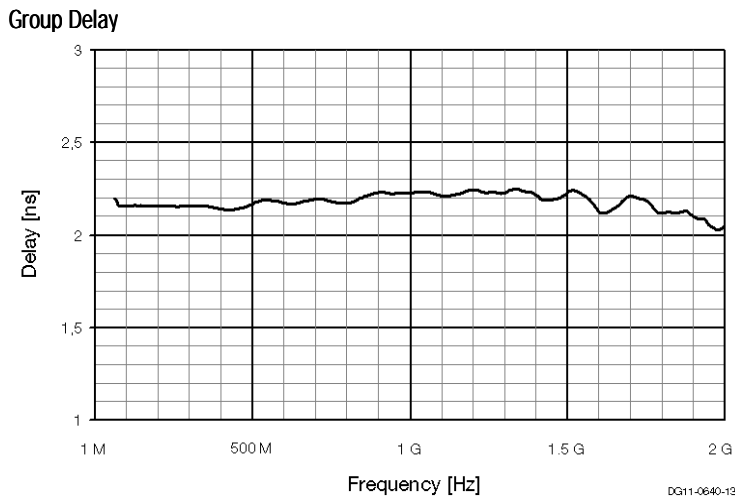


Output Return Loss, S22 (Linear Magnitude)

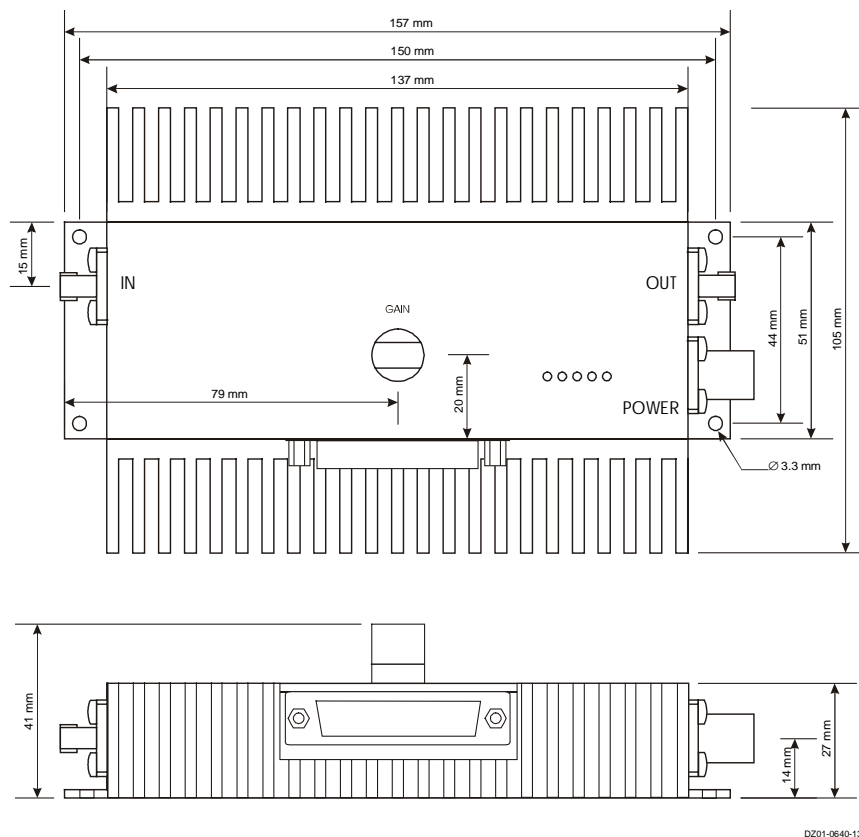


Variable-Gain Ultra-Wideband Voltage Amplifier

Typical Performance
Characteristics



Dimensions



Accessories

BNC-Adapterset

Model No.: ADAP-SMA-BNC-1
- Set of 2 SMA to BNC Adapters

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