DMP700

Variable Gain Control Module

FEATURES

- **EXTREMELY FLAT GAIN AND LINEAR PHASE RESPONSE**
- **> 40dB Gain Adjust**
- **710 MHz Small-Signal Bandwidth @ 6dB Gain**
- **High Slew Rate 2500V/μs**
- **LOW DC VOLTAGE OFFSET**

DESCRIPTION

The DMP700 provides a convenient variable gain module with differential or single-ended inputs. The module can be order with BNC or SMA connections with low distortion and noise inputs for amplifying those lab signals where bandwidth and pulse response is important. The high bandwidth and input range of the DMP700 provides fast settling pulse applications. The amp provides dc to high frequency amplification for processing signals where composite signals must be maintained. .

ABSOLUTE MAXIMUM RATINGS[1]

Power Supply..... ± $18V_{DC}$
Differential Input Voltage..... ± 1.2
Input Voltage Range..... ± 3.0
Storage Voltage Range: .....-40°C to +125°

APPLICATIONS

- **Variable Attenuator**
- **Variable Gain Differential or Signal-Ended**
- **Video**
- **Test Instruments Amplification**

The DMP products can be order in a variety of input configurations to best fits your specific lab or application.

DMP PRODUCTS

	Small Signal Gain	Input Configuration	-3dB BANDWIDTH PRODUCT (MHz)
700	>40dB	Differential	700
700A	>40dB	Non-inverted Single-ended	700
700B	>40dB	Inverted Single-ended	700

ELECTROSTATIC DISCHARGE SENSITIVITY

This integrated circuit can be damaged by ESD. Its recommended that all boxes be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

ORDERING INFORMATION

www.dmp-inc.net
970-726-2459

PRODUCT	PACKAGE-LEAD	PACKAGE DESIGNATOR[1]	Gain Setting	ORDERING NUMBER	QUANTITY
DMP700-1	BNC		40dB		
DMP700-2	SMA	"	40dB		

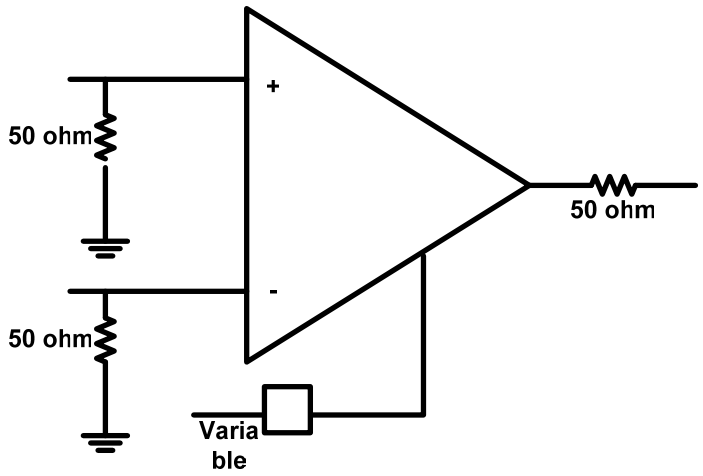


Figure 1, Differential Variable Gain Control

www.dmp-inc.net
970-726-2459

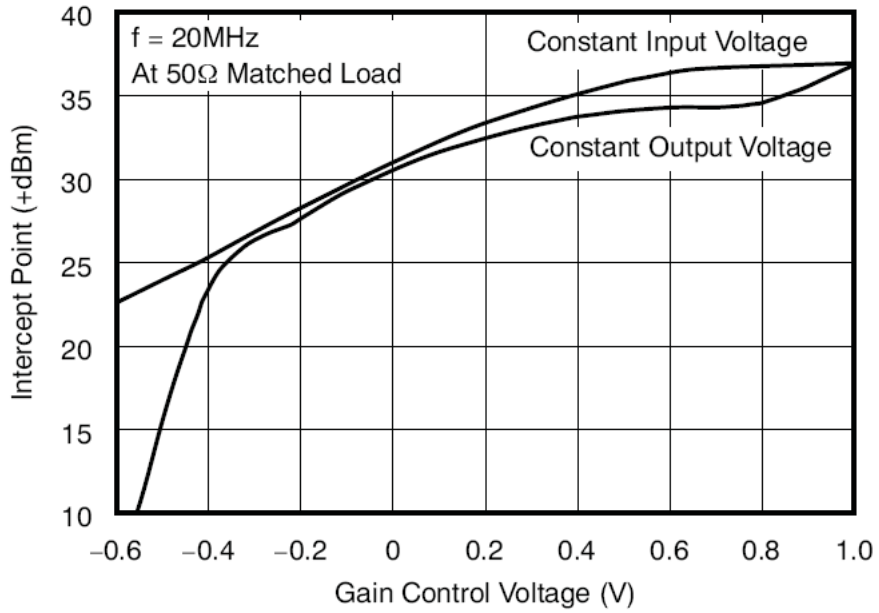
ELECTRICAL CHARACTERISTICS: $V_S = \pm 15V$

At T_A =+25° C, V_S = ±15V, , R_L = 100Ω,

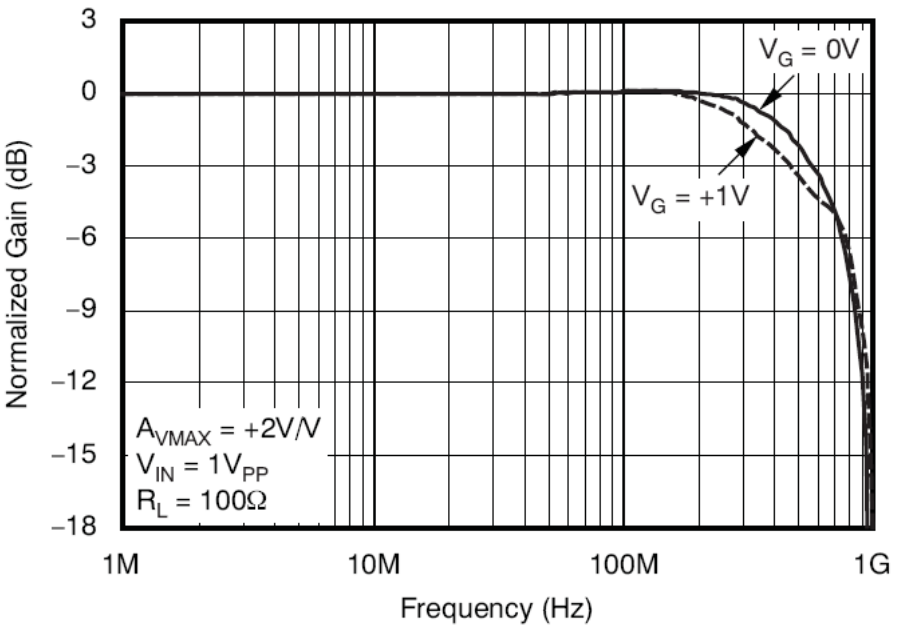
PARAMETER	CONDITIONS	TYP 25°C	Min	Max	UNITS	MIN/MAX
Small-Signal Bandwidth (Vo=1Vp-p)	G=2	700	600		MHz	typ
Bandwidth for 0.2dB Gain Flatness	G = +2, R_L = 50Ω, V_O =500mVp-p	250	200		MHz	min
Large Signal Bandwidth	G=+10 Vo=4.0Vp-p	420	400		MHz	typ
Harmonic Distortion	G = +20, f = 10MHz, V_O =2Vp-p					
2nd-Harmonic	R_L = 50Ω Vo=2Vpp, f=20MHz	-66			dBc	typ
	R_L > 500Ω	-78			dBc	typ
3rd-Harmonic	R_L = 100Ω	-86			dBc	typ
	R_L = 500Ω	-86			dBc	typ
2-Tone, 3rd-Order Intercept	G = 20dB to load, f = 100MHz				dBm	min
Total Input Referred Voltage Noise		6			nV/$\sqrt{Hz}$	max
Noise Figure					dB	typ
Rise-and-Fall Time	G=+20, Vo=0.5V Step				ns	max
	G=+20, Vo=4V Step				ns	max
Slew Rate	G=+20, Vo=4V Step	2500			V/µs	min
Settling Time to 0.01%	2V Step				ns	typ
0.1%	2V Step				ns	max
DC PERFORMANCE(4)						
Input Offset Voltage	V_{CM} = 0v A_{VMAX}	±4	**±17.00**	±19	mV	max
Average Offset Voltage Drift	V_{CM} = 0v			±30	µV/° C	max
INPUT						
Most Positive Input Voltage	R_L= 50 ohms	+1.6	**+1.6**	+1.6	V	min
Most Negative Input Voltage	R_L= 50 ohms	-2.0	**-2.0**	-2.0	V	max
Common-Mode Rejection (CMR)	V_{CM} = ±1V, Input Referred	80	**65**	60	dB	min
Input/Output Impedance		50			Ohm	typ
OUTPUT						
Power Output		19			dBm	
Current Output, Sourcing	V_O = 0V	±90	**±60**	±50	mA	min
POWER SUPPLY						
Specified Operating Voltage		±15			V	typ
Maximum Operating Voltage		±18			V	max
Minimum Operating Voltage		±9			V	min
Max Quiescent Current	V_S = ±15V	100			mA	max
+PSRR, -PSRR	ÍV$_S$Í = 4.5 to 5.5, Input Referred	100	**90**	88	dB	min

www.dmp-inc.net
970-726-2459

TWO-TONE, 3RD-ORDER INTERMODULATION INTERCEPT vs GAIN CONTROL VOLTAGE



SMALL-SIGNAL FREQUENCY RESPONSE



Additional Plots when samples are ready.

www.dmp-inc.net
970-726-2459