Ar² Communications Products

INSTRUCTION SHEET

P28VDG
P50VDG
P136VDG
P144VDG
P220VDG
P432VDG

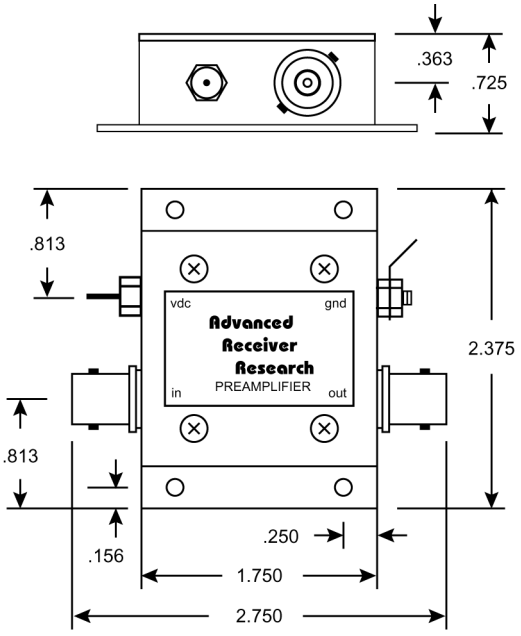
Series PXXXVDG preamplifiers have been specifically designed for commercial use. Each preamplifier is housed in a completely shielded, rugged custom aluminum enclosure. To maintain a high degree of rf shielding a feedthough-type capacitor is used for the positive dc connection. A solder-lug terminal opposite the feedthrough capacitor is provided for the dc ground connection. Every preamplifier has been precision aligned on our Hewlett-Packard HP8970B/HP346A noise-figure measuring equipment and should not require further adjustment.

The PXXXVDG preamplifiers are suitable for fixed, mobile or portable operation. Power supply requirements are a regulated 11 - 16 VDC at 25 mA current draw. Small size, low power consumption and rugged construction make these preamplifiers ideal for installation within existing equipment or remote mounting at the antenna.

Theory and Operation

Signals arriving at the input terminal are routed to the gate of the GaAsFET through an L network comprised of C1 and L1. The source of the device is held above ground by R1 which develops the appropriate gate-source voltage. The .01 uF capacitors ground the source for rf. A broadband ferrite transformer is used to match the drain circuit and provide a low impedance load for the GaAsFET. The positive supply line is passed through a .001 uF feedthrough capacitor to maintain effective shielding. A series diode protects the preamplifier against accidental application of reverse polarity voltage. A 78L05 provides a regulated 5-volt supply for the GaAsFET and protects the device from power supply transients.

Interconnection to a receiver is quite straightforward. The antenna is connected to the the preamplifier input terminal (labeled **IN**). A coaxial cable is used to connect the output of the preamplifier (labeled **OUT**) to the receiver antenna terminal. A power supply capable of delivering the proper voltage and current is connected to the lugs marked **VDC** and **GND**. Vdc is positive and gnd is negative. Each preamplifier is specified for operation over the temperature range of -25 to +65 degrees C.



Specifications

Model	Bandwidth 1 dB	Noise Figure	Gain	Compression 1 dB
P28VDG	2.0 MHz	0.5 dB	26 dB	+12 dBm
P50VDG	4.0 MHz	0.5 dB	24 dB	+12 dBm
P136VDG	7 MHz	0.5 dB	24 dB	+12 dBm
P144VDG	7 MHz	0.5 dB	24 dB	+12 dBm
P220VDG	12 MHz	0.5 dB	20 dB	+12 dBm
P432VDG	40 MHz	0.5 dB	16 dB	+12 dBm

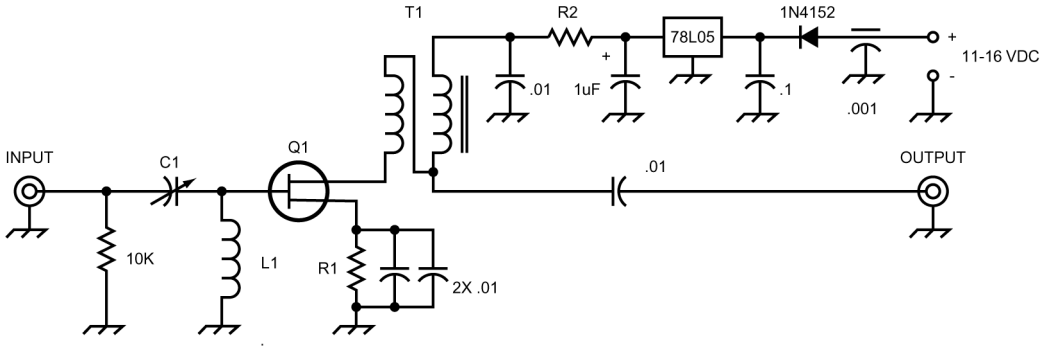
Supply Voltage: 11-16 Vdc
Supply Current: 25 mA
Weight: 2.0 oz.

Box 1242 Burlington CT 06013 (860)485-0310 www.advancedreceiver.com

Warranty

All Advanced Receiver Research products are warranted against defects in materials and workmanship. This applies for one year from the date of delivery. We will repair or replace products which prove to be defective during the warranty period provided they are returned to Advanced Receiver Research. Shipments should not be made without prior authorization by Advanced Receiver Research. No other warranties are expressed or implied. We are not liable for consequential damages.

This warranty does not apply to any product repaired or altered by persons not authorized by Advanced Receiver Research, or not in accordance with instructions furnished by Advanced Receiver Research. If the unit is found to be defective as a result of misuse, improper repair, or abnormal conditions of operation, repairs will be billed at cost.



Model	C1	L1	T1
P28VDG	30 pF	25T No. 30 T-25-10	8T No. 32 bifilar FT-23-43
P50VDG	20 pF	21T No. 30 T-25-12	16T No. 32 bifilar FT-23-61
P136VDG	5 pF	7T No. 20 0.3125 dia.	15T No. 32 bifilar FT-23-63
P144VDG	5 pF	6T No. 20 0.3125 dia.	15T No. 32 bifilar FT-23-63
P220VDG	5 pF	5T No. 20 0.250 dia.	11T No. 32 bifilar FT-23-63
P432VDG	5 pF	3T No. 20 0.125 dia.	5T No. 32 bifilar FT-23-63

All Models

Q1 - MGF-1302
R1 - 15 ohm
R2 -100 ohm