

The 70/75 dB Detector Logarithmic Video Amplifier

American Microwave Corp.
Frederick, MD



The LVD-281-70/75 (option 618) DC-coupled, detector logarithmic video amplifier (DLVA) operates over the 6 to 18 GHz frequency range. This unit has a dynamic range of 80 dB, a -72 dBm TSS and a typical video bandwidth of 30 to 40 MHz. The LVD-218-70/75 DLVA has the capability to detect RF pulses in the 2 to

18 GHz frequency band from CW to 50 ns pulse widths in the dynamic range of -75 dBm to +10 dBm with < 25 ns rise time and < 250 ns recovery time. This unit is designed for ELINT and EW applications.

The unit consists of two planar diode detector sections that operate up to +10 dBm RF power levels, a state-of-the-art GaAs FET low noise amplifier (LNA) and two truly DC-coupled MMIC video logging sections in a successive detection arrangement together with internal voltage regulation circuitry. The unit is designed to drive video loads of 50 or 100 Ω typically.

The typical logging error curve of the LVD-218-70/75 (option 618) DLVA is shown in Figure 1. The log

slope is 50 mV/dB \pm 10 percent and the logging accuracy is \pm 1.5 dB (max) over the -70 to +10 dBm dynamic range.

Typical frequency flatness error over the 6 to 18 GHz band from -70 to +10 dBm RF input is shown in Figure 2. Measured flatness is \pm 1.75 dB. The measured transfer characteristics over the temperature range of 0 to 60°C is shown in Figure 3. The guaranteed maximum temperature deviation is \pm 1.75 dB at any given RF frequency, temperature and power level. Measured rise and recovery times are shown in Figure 4. Recovery times for lower power levels are faster, typically 100 ns at -20 dBm and with input SWR of 2.5 with rise time of < 25 ns.

The LVD-218-70/75 DLVA is also available in other frequency ranges of 2 to 18 GHz, 2 to 8 GHz, 2 to 6 GHz, 2 to 4 GHz, 4 to 8 GHz and 8 to 18 GHz, as well as in dynamic ranges of 40 dB and 55 dB over an instantaneous RF bandwidth of 0.5 to 18 GHz and 0.2 to 20 GHz.

Size: 3" \times 3.5" \times 0.5". Weight: 3 oz. Delivery: 60 to 90 days (standard production units).

American Microwave Corporation,
Frederick, MD (301) 662-4700.
Circle No. 303

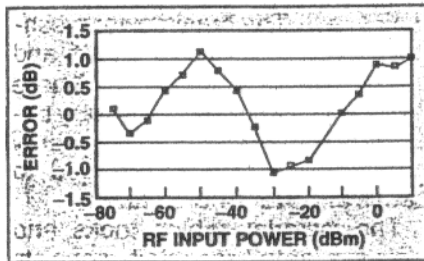


Fig. 1 Log linearity error.

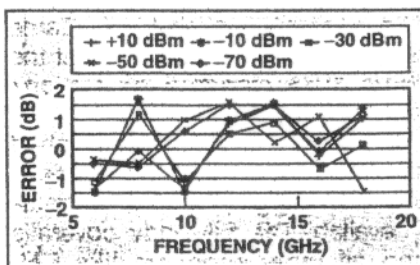


Fig. 2 Frequency flatness error.

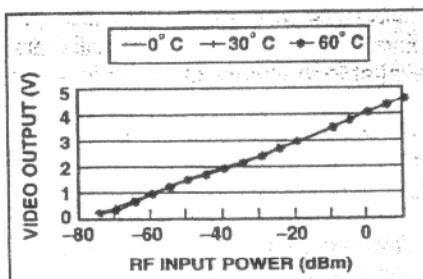


Fig. 3 Log response with temperature.

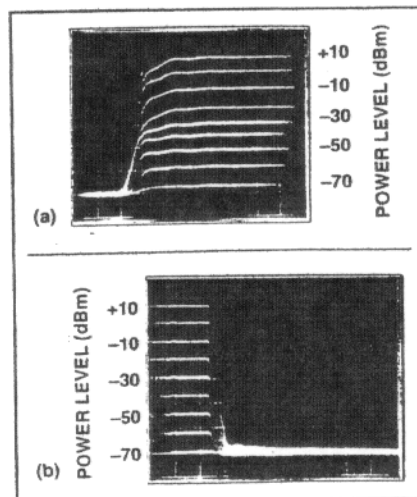


Fig. 4 Typically measured (a) rise time (20 ns/div) and (b) recovery time (100 ns/div) of the model LVD-218-70/75 amplifier from 6 to 18 GHz.

STRENGTH IN NUMBERS!

Circle the numbers on the Reader Service Card for more information fast on products and services that can make your business stronger. Cards are found near the back of every issue.