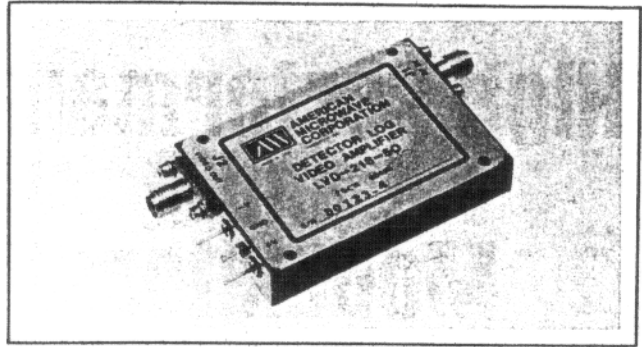


A Detector Logarithmic Video Amplifier

American Microwave Corp.
Frederick, MD



The model LVD-218-50 detector logarithmic video amplifier (DLVA) operates over the 2 to 18 GHz frequency range. This unit has a dynamic range of 45 to 50 dB, a -41

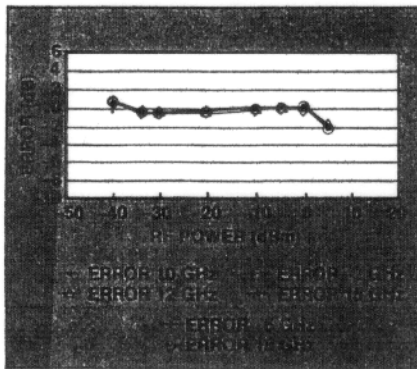


Fig. 1 Typical logging error curve.

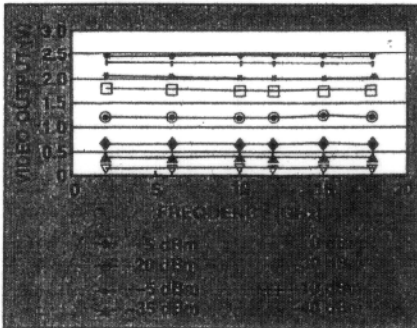


Fig. 2 Typical flatness over the 2 to 18 GHz band.

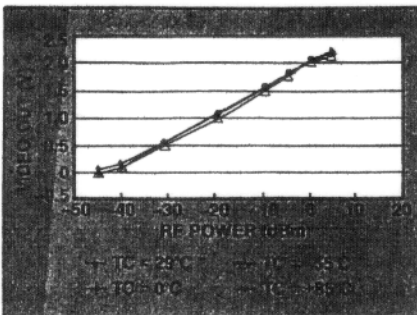


Fig. 3 The measured transfer characteristic over the temperature range.

dBm TSS and a typical video bandwidth of 70 to 80 MHz. The LVD-218-50 DLVA has the capability to process RF pulses in the 2 to 18 GHz frequency band from CW to 50 ns pulse widths in amplitudes from -40 dBm to +5 dBm < 20 ns rise time and < 150 ns recovery time. This unit is designed for ELINT and EW applications.

The unit employs an integrated multiple planar diode detector technique with state-of-the-art silicon true DC coupled MMIC video and operational amplifier circuitry to provide up to 80 MHz of video bandwidth and high speed performance with 45 to 50 dB dynamic range. The DLVA's logging accuracy is fully compensated for over the -55° to +85°C temperature range and is designed to drive video loads of 50 or 100 Ω (min.).

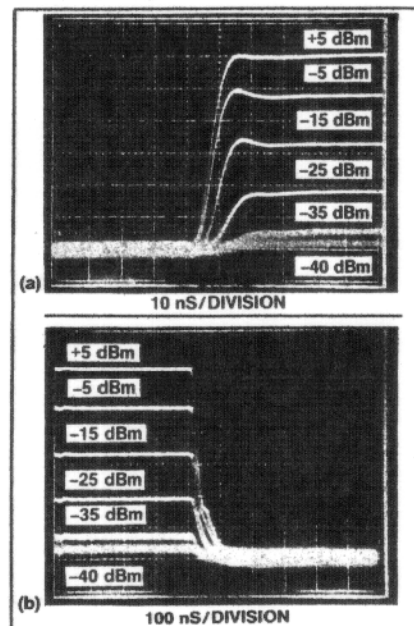


Fig. 4 Measured (a) rise and (b) recovery time of the LVD-218-50.

The typical logging error curve is shown in Figure 1. The log slope is 50 mV/dB ±10 percent and the logging accuracy is ±1 dB (max.) over the -40 to 0 dBm dynamic range. Other log slope types are also available. A dynamic range of 55 dB (-45 to +10 dBm) with ±2.5 dB typical logging error with some sacrifice in recovery time is available by specifying the optimal 12 to 20 MHz video bandwidth.

Typical flatness over the 2 to 18 GHz band from -40 to +5 dBm is shown in Figure 2. Measured flatness is ±0.75 dB to 15 GHz and ±1.5 dB to 18 GHz. Other DLVAs in the frequency range of 0.5 to 20 GHz are also available.

The measured transfer characteristic over the temperature range is shown in Figure 3. The guaranteed maximum temperature deviation is ±1 dB at any given RF frequency and power level over the operating temperature range.

Measured rise and recovery times are shown in Figure 4. Guaranteed rise times are less than 20 ns and maximum recovery time from 0 dBm is less than 100 ns and at +5 dBm is less than 150 ns. Recovery times from lower power levels are faster, typically 50 ns at -20 dBm.

The LVD-218-50 DLVA is commercially screened and characterized in ambient temperatures ranging from -55° to 85°C. It can be ordered as a hermetically sealed unit using true metal-to-metal seal and back-filled with dry nitrogen.

Size: 1.5" × 2.2" × 0.4". Delivery: standard production units in 30 to 60 days.

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