HEWLETT® PACKARD

Avantek Products

Thin-Film Limiting Amplifier 5 to 500 MHz

Technical Data

UDL-503

Features

- **Frequency Range: 5 to 500 MHz**
- **Output Power Flatness: ±0.8 dB (Max.)**
- **Input Power Range: 40.0 dB**
- **Low Phase Shift Variation**
- **High Even-Harmonic Suppression**

Applications

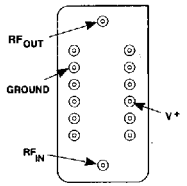
- **All FM Systems**
- **Communications**
- **Telemetry**
- **Radar Warning**
- **Measurement Systems**

Description

The UDL-503 is a three-stage bipolar RF limiting amplifier having 38 dB (typ) of small signal gain. Emitter-coupled pair design provides even-harmonic suppression and low AM-to-PM conversion. The RF signal is coupled through the amplifier by means of internal blocking capacitors.

Pin Configuration

DIP Case



(See Section 5 for detailed case drawings.)

Maximum Ratings

Parameter	Maximum
DC Voltage	+17 Volts
Continuous RF Input Power	+13 dBm
Operating Case Temperature	–55 to +125°C
Storage Temperature	–62 to +150°C
"R" Series Burn-In Temperature (T_C)	+125°C

Thermal Characteristics[1]

θ_{JC}	240°C/W
Active Transistor Power Dissipation	100 mW
Junction Temperature Above Case Temperature	24°C

Note 1: For further information, see Reliability Screening, Section 6.

Weight: (typical) 5.7 grams

Electrical Specifications

(Measured in 50 Ω system @ +15 VDC nominal unless otherwise noted)

Symbol	Characteristic	Typical	Guaranteed Specifications		Unit
		T_C = 25°C	T_C = 0 to 50°C	T_C = –55 to +85°C	
BW	Frequency Range	5-500	5-500	5-500	MHz
GP	Small Signal Gain (Min.)	38.0	30.0	30.0	dB
—	Saturated Output Power (Min.), P_{IN} = 0 dBm	–0.5	–2.0	–4.0	dBm
—	Saturated Flatness (Max.), P_{IN} = 0 dBm	±0.8	±1.0	±1.7	dB
—	VSWR Input (Max.)	1.5:1	2.0:1	2.0:1	—
—	VSWR Output (Max.)	1.2:1	2.0:1	2.0:1	—
—	Phase Shift per dB of Comp. per MHz	0.0023	—	—	°/dB MHz
—	Even Harmonic Suppression @ P_{IN} = –33 to +10 dBm	20	15.0	15	dBc
NF	Noise Figure (Max.)	9.0	10.0	11.0	dB
I_D	DC Current	70	—	—	mA

Typical Performance Over Temperature (@ +15 VDC unless otherwise noted)

Key: +25°C ——— +85°C — — -55°C ———