

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**

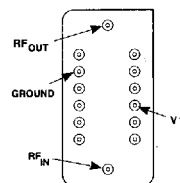
Applications

- 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 Characteristics¹

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 $T_c = 25^\circ\text{C}$	Guaranteed Specifications		Unit
			$T_c = 0$ to 50°C	$T_c = -55$ to $+85^\circ\text{C}$	
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	—	—	$^\circ/\text{dB MHz}$
—	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 ———

