



UDL-503
Thin-Film Limiting Amplifier
5 to 500 MHz

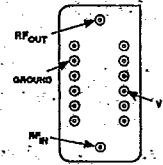
T-74-09.01

FEATURES

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

APPLICATIONS

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



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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-

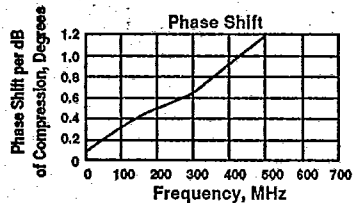
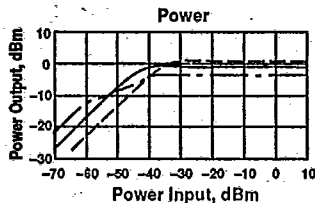
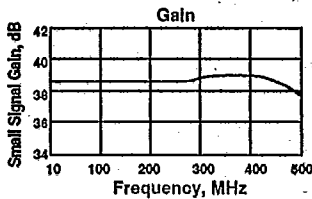
PM conversion. The RF signal is coupled through the amplifier by means of internal blocking capacitors.

ELECTRICAL SPECIFICATIONS (Measured in a 50-ohm system @ +15 VDC nominal)

Symbol	Characteristic	Typical $T_o = 25^\circ\text{C}$	Guaranteed Specifications		Unit
			$T_o = 0^\circ$ to 50°C	$T_o = -55^\circ$ 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 Compression per MHz	0.0023	—	—	degree/ 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_b	DC Current	70	—	—	mA

TYPICAL PERFORMANCE AT 25°C TEMPERATURE (@ +15 VDC unless otherwise noted)

KEY: +25°C ———
+85°C - - - - -
-55°C ·····



MAXIMUM RATINGS

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

THERMAL CHARACTERISTICS*

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

*For further information, see High Reliability section, p. 17-2.

WEIGHT: (typical) 5.7 grams