The RF Line

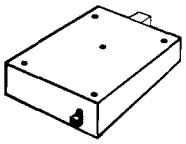
Linear Power Amplifier

ATV5030

**20 W — 470–860 MHz
LINEAR
POWER AMPLIFIER**

. . . a solid state Class A amplifier specifically designed for TV transposers and transmitters. This amplifier incorporates microstrip technology and discrete linear push-pull transistors with gold metallization and diffused emitter ballast resistors to enhance ruggedness and reliability.

- 470–860 MHz
- 20 W — P_{out}
- 26.5 V — V_{CC}
- 8.5 dB Typ Gain, Class A



CASE 389B-02, STYLE 1
(AMR)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector Voltage Supply	V_{CC}	27	Vdc
Supply Current	I_{CC}	4	Adc
Operating Temperature Range (Note 1)	T_C	−20 to +70	°C
Storage Temperature Range	T_{stg}	−40 to +100	°C

ELECTRICAL CHARACTERISTICS (T_C = 50°C, 50 Ω system, V_{CC} = 26.5 V unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Bandwidth	BW	470	—	860	MHz
Power Gain (P_{ref} = 20 W, 3 tones)	G_p	7.5	8.5	—	dB
Power Output @ 1 dB Gain Compression (Reference to P_{out} = 20 W)	$P_{out(1\ dB)}$	25	28	—	W
Supply Current (P_{out} = 20 W)	I_{CC}	—	3.8	—	A
Input Return Loss (P_{out} = 20 W)	IRL	15	—	—	dB
Output Return Loss (P_{out} = 20 W)	ORL	15	—	—	dB
Load Mismatch (P_{ref} = 20 W, 3 tones, f = 860 MHz, Load VSWR = ∞:1, All Phase Angles)	ψ	No degradation in power output			
Gain Flatness (P_{ref} = 20 W, 3 tones, BW = 470 to 860 MHz)	G_r	—	±0.5	±0.8	dB
Intermodulation Distortion — 3 tones (f = 860 MHz, V_{CE} = 25.5 V, P_{ref} = 20 W, Vision Carrier = −7 dB, Sound Carrier = −8 dB, Sideband Signal = −16 dB, Specification TV05001)	IMD_1	—	−52	−51	dB
Intermodulation Distortion (IDEM) (f = 860 MHz, V_{CE} = 25.5 V, P_{ref} = 20 W, Vision Carrier = −10 dB, Sound Carrier = −8 dB, Sideband Signal = −16 dB)	IMD_2	—	−55	−54	dB

Notes: 1. Case Temperature is measured at base plate.

TYPICAL CHARACTERISTICS

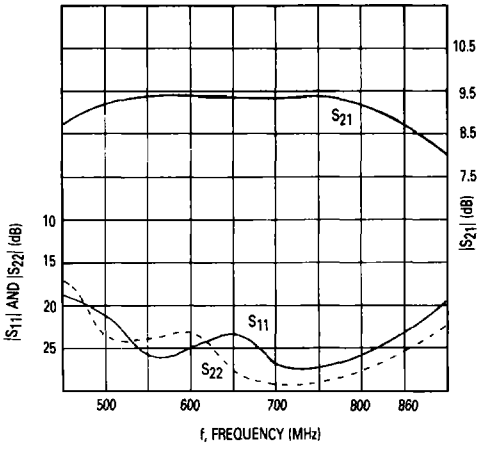


Figure 1. Small-Signal « S » Parameter Magnitude versus Frequency

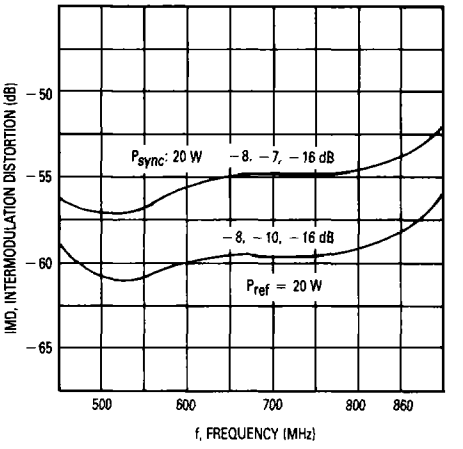


Figure 2. Intermodulation versus Frequency

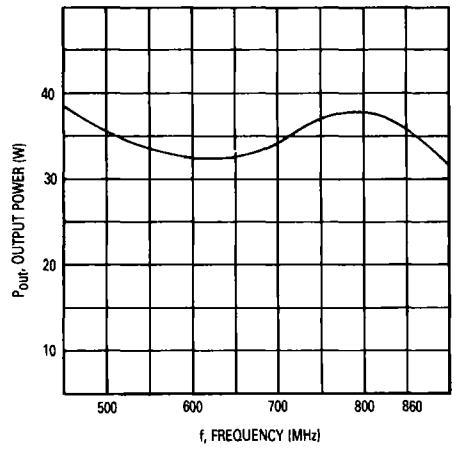


Figure 3. Output Power at 1 dB Gain Compression versus Frequency

* 3 tones test method:

IMD1: Vision carrier — 8 dB, sound carrier — 7 dB Sideband signal — 16 dB; Zero dB corresponds to peak sync level.

IMD2: Vision carrier — 8 dB, sound carrier — 10 dB Sideband signal — 16 dB; Zero corresponds to reference level.

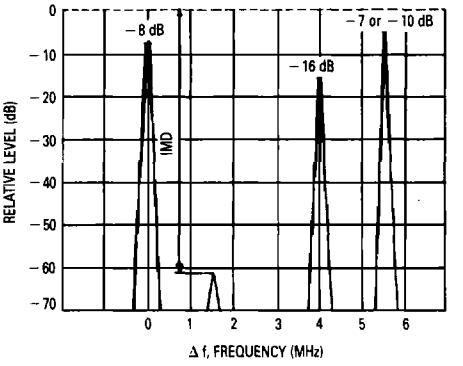


Figure 4. Relative Level versus Frequency

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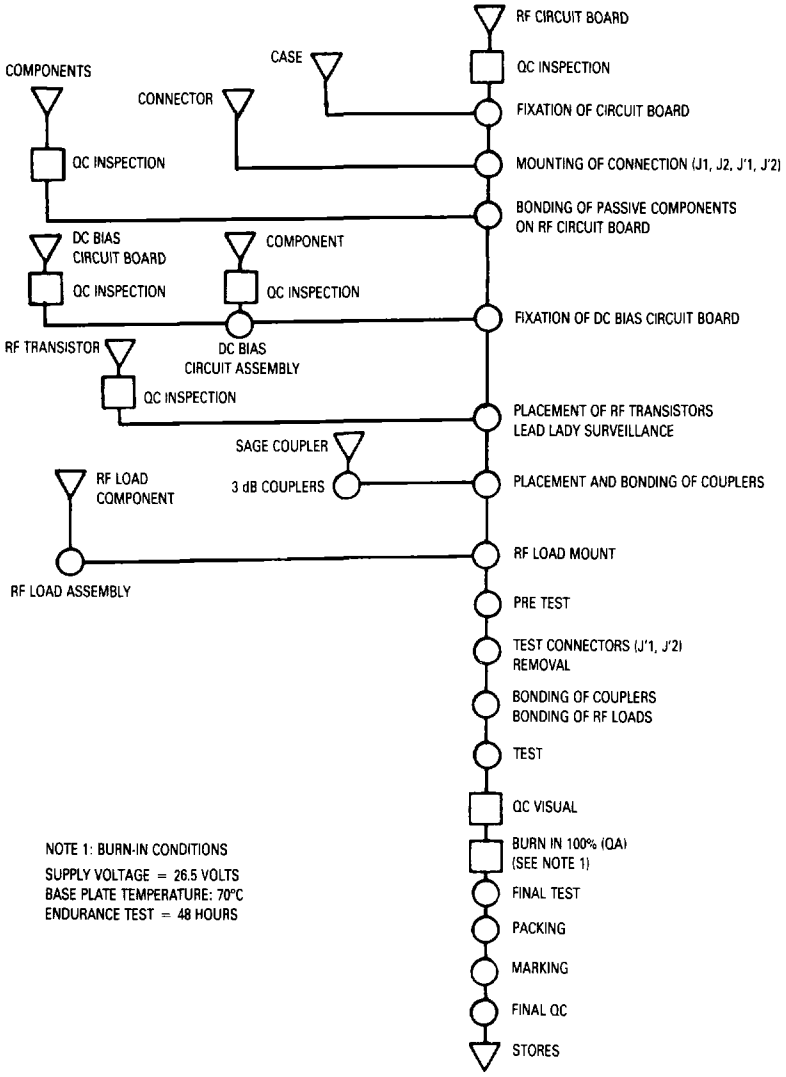

Figure 5. Manufacturing Flow Chart Operation

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