

The RF Line

**60-Channel (450 MHz) CATV
Hi-Slope Trunk Amplifier**

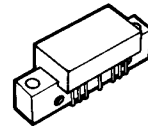
... increased gain slope versus frequency effectively reduces the need for equalization external to the amplifier in CATV systems.

Designed for broadband applications requiring low-distortion amplification. Specifically intended for CATV market requirements. These amplifiers feature ion-implanted arsenic emitter transistors and an all gold metallization system.

- Specified Characteristics at $V_{CC} = 24 \text{ V}$, $T_C = 25^\circ\text{C}$:
Frequency Range — 40 to 450 MHz
Power Gain — 15.4 dB Typ @ $f = 50 \text{ MHz}$
— 20.5 dB Typ @ $f = 450 \text{ MHz}$
Noise Figure — 5.5 dB Typ @ $f = 450 \text{ MHz}$
CTB — -60 dB @ $V_{out} = 48 \text{ dBmV}$ with 5 dB cable slope.
- All Gold Metallization System for Improved Reliability

CA7901

**15-20 dB
40-450 MHz
60-CHANNEL
CATV
TRUNK AMPLIFIER**



**CASE 714F-01, STYLE 1
[CA (POS. SUPPLY)]**

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	60	dBmV
DC Supply Voltage	V_{CC}	28	Vdc
Operating Case Temperature Range	T_C	-20 to +100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +100	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($V_{CC} = 24 \text{ V}$, $T_C = 25^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	450	MHz
Power Gain — 50 MHz — 450 MHz	G_p	14.6 20	15.4 20.5	16.2 21	dB
Gain Slope	S	4.7	5.1	5.5	dB
Gain Flatness (Note 1)	—	—	—	± 0.2	dB
Return Loss — Input/Output ($f = 40\text{--}450 \text{ MHz}$)	IRL/ORL	18	20	—	dB
Composite Second Order Distortion ($V_{out} = +48 \text{ dBmV}$ @ 450 MHz, Ch. H22, 60-Channel @ 5.0 dB Cable Upslope)	CSO	—	-68	-61	dB
Cross Modulation Distortion ($V_{out} = +48 \text{ dBmV}$ @ 450 MHz, Ch. 2, 60-Channel @ 5.0 dB Cable Upslope)	XMD	—	-62	-60	dB
Composite Triple Beat ($V_{out} = +48 \text{ dBmV}$ @ 450 MHz, Ch. H22, 60-Channel @ 5.0 dB Cable Upslope)	CTB	—	-60	-58	dB
Noise Figure $f = 50 \text{ MHz}$ $f = 450 \text{ MHz}$	NF	— —	4.6 5.5	6.0 7.0	dB
DC Current	I_{DC}	—	220	240	mA

Note: 1. Flatness calculation is based upon the following gain curve:

$$G_f = G_{50} + \Delta G [\alpha (f - 50) + \beta (f - 50)^2 + \gamma (f - 50)^3]$$

where: G_{50} = Gain at 50 MHz
 G_f = Gain at frequency f MHz
 ΔG = Gain slope between 50 MHz and 450 MHz
 $\alpha = 3.132 \cdot 10^{-3}$
 $\beta = 1.993 \cdot 10^{-6}$
 $\gamma = -8.934 \cdot 10^{-9}$