CA7901

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

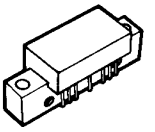
The RF Line

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 V, T_C = 25°C:
  Frequency Range — 40 to 450 MHz
  Power Gain — 15.4 dB Typ @ f = 50 MHz
  — 20.5 dB Typ @ f = 450 MHz
  Noise Figure — 5.5 dB Typ @ f = 450 MHz
  CTB — −60 dB @ V_{out} = 48 dBmV with 5 dB cable slope.
- All Gold Metallization System for Improved Reliability



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	°C
Storage Temperature Range	T_{stg}	−40 to +100	°C

ELECTRICAL CHARACTERISTICS (V_{CC} = 24 V, T_C = 25°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 = 40–450 MHz)	IRL/ORL	18	20	—	dB
Composite Second Order Distortion (V_{out} = +48 dBmV @ 450 MHz, Ch. H22, 60-Channel @ 5.0 dB Cable Upslope)	CSO	—	−68	−61	dB
Cross Modulation Distortion (V_{out} = +48 dBmV @ 450 MHz, Ch. 2, 60-Channel @ 5.0 dB Cable Upslope)	XMD	—	−62	−60	dB
Composite Triple Beat (V_{out} = +48 dBmV @ 450 MHz, Ch. H22, 60-Channel @ 5.0 dB Cable Upslope)	CTB	—	−60	−58	dB
Noise Figure f = 50 MHz f = 450 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
$\alpha = 3.132\ 10^{-3}$
$\beta = 1.993\ 10^{-6}$
$\gamma = -8.934\ 10^{-9}$