The RF Line

36-Channel (450 MHz) CATV Hi-Slope Input/Output Trunk Amplifier

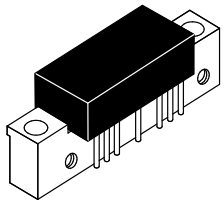
CA97901

. . . allows increased trunk length. Effectively reduces trunk distortion. 5.0 dB less output noise at low end.

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. The input amplifier is tuned for minimum noise figure while the output amplifier is tuned for minimum distortion.

- Specified Characteristics at V_{CC} = 24 V, T_C = 25°C:
  Frequency Range — 40 to 450 MHz
  Power Gain — 15.6 dB Typ @ f = 50 MHz
  — 20.7 dB Typ @ f = 450 MHz
  Noise Figure — 5.7 dB Typ @ f = 450 MHz
  CTB — –66 dB @ V_{out} = 46 dBmV
- All Gold Metallization System for Improved Reliability

15 – 20 dB
40 – 450 MHz
36–CHANNEL
CATV INPUT/OUTPUT
TRUNK AMPLIFIER



CASE 714F–03, STYLE 1
[CA (POS. SUPPLY)]

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	69	dBmV
DC Supply Voltage	V_{CC}	28	Vdc
Operating Case Temperature Range	T_C	–20 to +100	°C
Storage Temperature Range	T_{stg}	–55 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	14.8 20.2	15.6 20.7	16.4 21.2	dB
Gain Slope	S	4.7	5.1	5.5	dB
Gain Flatness (Note 1)	—	—	—	±0.2	dB
Return Loss — Input/Output (f = 40 MHz) (f = 50–80 MHz) (f = 80–160 MHz) (f = 160–450 MHz)	IRL/ORL	22 20 19 18	26 24 22 20	— — — —	dB
Composite Second Order Distortion (V_{out} = +46 dBmV per ch., Ch. H20, 36–CH Flat) (Note 2)	CSO	—	–68	–65	dB
Cross Modulation Distortion (V_{out} = +46 dBmV per ch., Ch. 2, 36–CH Flat) (Note 2)	XMD	—	–66	–65	dB
Composite Triple Beat (V_{out} = +46 dBmV per ch., Ch. H20, 36–CH Flat) (Note 2)	CTB	—	–66	–65	dB
Noise Figure (f = 50 MHz) (f = 450 MHz)	NF	— —	4.6 5.5	6.0 6.8	dB
DC Current	I_{DC}	—	220	240	mA

NOTE 1 and NOTE 2 — See Next Page.

NOTES:

1. Flatness calculated is based upon the following gain curve:

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

where: G_{50} = Gain at 50 MHz

G_f = Gain at frequency f MHz

ΔG = Gain slope between 50 MHz and 450 MHz

$\alpha = 3.132 * 10^{-3}$

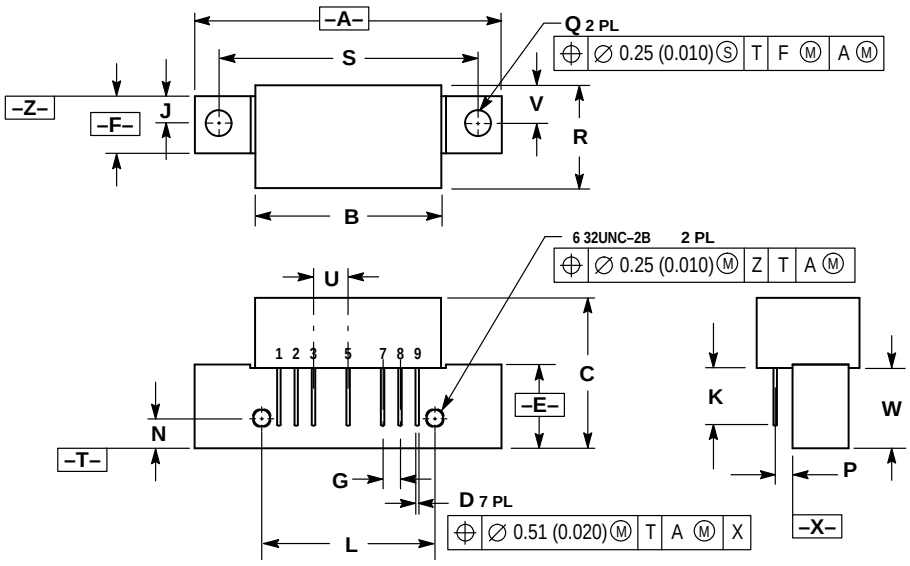
$\beta = 1.993 * 10^{-6}$

$\gamma = -8.934 * 10^{-9}$

2. The following Channels are turned on for the CTB, XMOD and CSO measurement:

Channel #	Frequency (MHz)	Channel #	Frequency (MHz)	Channel #	Frequency (MHz)
1	55.25	13	235.25	25	325.25
2	61.25	14	247.25	26	337.25
3	133.25	15	253.25	27	349.25
4	139.25	16	259.25	28	361.25
5	145.25	17	265.25	29	367.25
6	151.25	18	271.25	30	373.25
7	163.25	19	283.25	31	385.25
8	175.25	20	289.25	32	391.25
9	187.25	21	295.25	33	409.25
10	205.25	22	301.25	34	415.25
11	217.25	23	313.25	35	421.25
12	229.25	24	319.25	36	433.25

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	——	1.775	——	45.08
B	——	1.085	——	27.56
C	——	0.870	——	22.10
D	0.018	0.022	0.46	0.56
E	0.465	0.510	11.81	12.95
F	0.300	0.325	7.62	8.25
G	0.100 BSC		2.54 BSC	
J	0.156 BSC		3.96 BSC	
K	0.330	0.370	8.38	9.40
L	1.000 BSC		25.40 BSC	
N	0.165 BSC		4.19 BSC	
P	0.100 BSC		2.54 BSC	
Q	0.148	0.168	3.76	4.27
R	——	0.595	——	15.11
S	1.500 BSC		38.10 BSC	
U	0.200 BSC		5.08 BSC	
V	0.209	0.239	5.31	6.07
W	0.425	——	10.80	——

STYLE 1:
PIN 1. RF INPUT
2. GROUND
3. GROUND
5. $+V_{CC}$
7. GROUND
8. GROUND
9. RF OUTPUT

CASE 714F–03
ISSUE C

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