CATV Line Amplifier 1F7534P

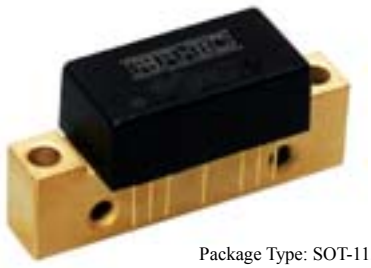
RFHIC

Product Features

- GaAs Push Pull
- Extremely Low Distortion
- Guaranteed Broadband Power Gain
- Heat Sink 99.9% Copper, & Gold Plated
- Excellent Thermal Conductivity
- Single Supply Voltage @ 12V
- Low DC Power Consumption
- Optimal Reliability

Application

- CATV Trunk Amplifier
- Optical Drive Amplifier



Package Type: SOT-115J

Description

Hybrid Push Pull amplifier for CATV Systems up to 750MHz in frequency.
This hybrid amplifier module operates with a single voltage supply of 12V (DC), and use GaAs MMIC technology.

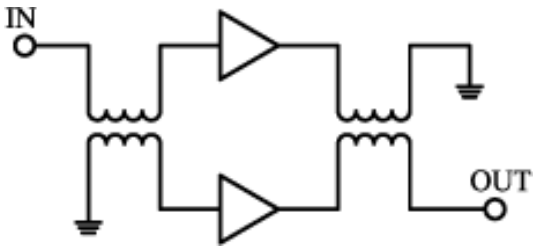
Quick Reference Data

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	Power Gain	F = 50 MHz	33.5	34.5	dB
		F = 750 MHz	34.5	-	dB
I_{tot}	Total Current Consumption (DC)	V_{cc} = 12V	-	650	mA

Limiting Values

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_i	RF Input Voltage (Single Tone)	-	+55	dBmV
V	DC Supply Over Voltage (5 minutes)			V
T_{stg}	Storage Temperature	-40	+100	℃
T_{mb}	Operating Mounting Base Temperature	-20	+100	℃

Functional Diagram



CHARACTERISTICS

Bandwidth 50 to 750MHz; V_{CC} = 12V; T_{case} = 25℃; Z_S = Z_L = 75Ω

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
G_p	Power Gain	f = 50 MHz	33.5	-	34.5	dB
		f = 750 MHz	34.5	34.8	-	dB
SL	Slope Cable Equivalent	f = 50 to 750 MHz	-	-	1.0	dB
FL	Flatness of Frequency Response	f = 50 to 750 MHz	-	0.5	-	dB
S_{11}	Input Return Loss	f = 50 to 80 MHz	16.0	17.0	-	dB
		f = 80 to 160 MHz	16.0	17.0	-	dB
		f = 160 to 320 MHz	16.0	18.0	-	dB
		f = 320 to 640 MHz	16.0	17.5	-	dB
		f = 640 to 750 MHz	16.0	17.5	-	dB
S_{22}	Output Return Loss	f = 50 to 80 MHz	16.0	17.0	-	dB
		f = 80 to 160 MHz	16.0	17.0	-	dB
		f = 160 to 320 MHz	16.0	18.0	-	dB
		f = 320 to 640 MHz	16.0	17.5	-	dB
		f = 640 to 750 MHz	16.0	17.5	-	dB
F	Noise Figure	f = 50 MHz	-	4.5	-	dB
		f = 550 MHz	-	4.5	-	dB
		f = 600 MHz	-	4.5	-	dB
		f = 650 MHz	-	4.5	-	dB
		f = 750 MHz	-	4.5	-	dB
I_{tot}	Total Current Consumption (DC)		560	580	650	mA

DISTORTION

Bandwidth 50 to 870MHz; V_{CC} = 12V; T_{case} = 25℃; Z_S = Z_L = 75Ω

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
CTB	Composite Triple Beat	110 channel flat; V_o = 44dBmV	-	-60	-58	dBc
		79 channel flat; V_o = 46dBmV	-	-61	-59	dBc
XMOD	Cross Modulation	110 channel flat; V_o = 44dBmV	-	-62	-59	dBc
		79 channel flat; V_o = 46dBmV	-	-61	-59	dBc
CSO	Composite Second Order distortion	110 channel flat; V_o = 44dBmV	-	-62	-59	dBc
		79 channel flat; V_o = 46dBmV	-	-62	-59	dBc

Notes;

1. f_p=55.25MHz; V_p=44dBmV; f_q=691.25MHz; V_q=44dBmV; measured at f_p+f_q=746.5MHz

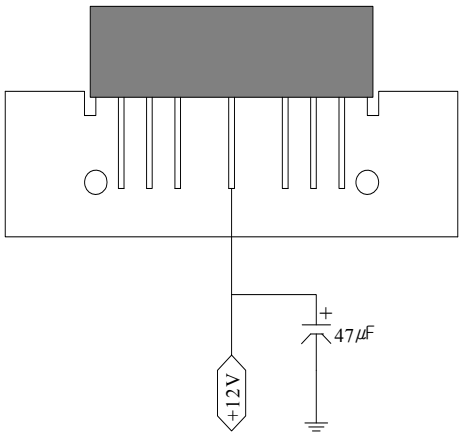
2. f_p=740.25MHz; V_p=V_o; f_q=747.25MHz; V_q=V_o-6dB; f_r=749.25MHz; V_r=V_o-6dB; measured at f_p+f_q-f_r=738.25MHz

ESD PROTECTION

Gallium Arsenide Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices. Some of the precautions recommended are;

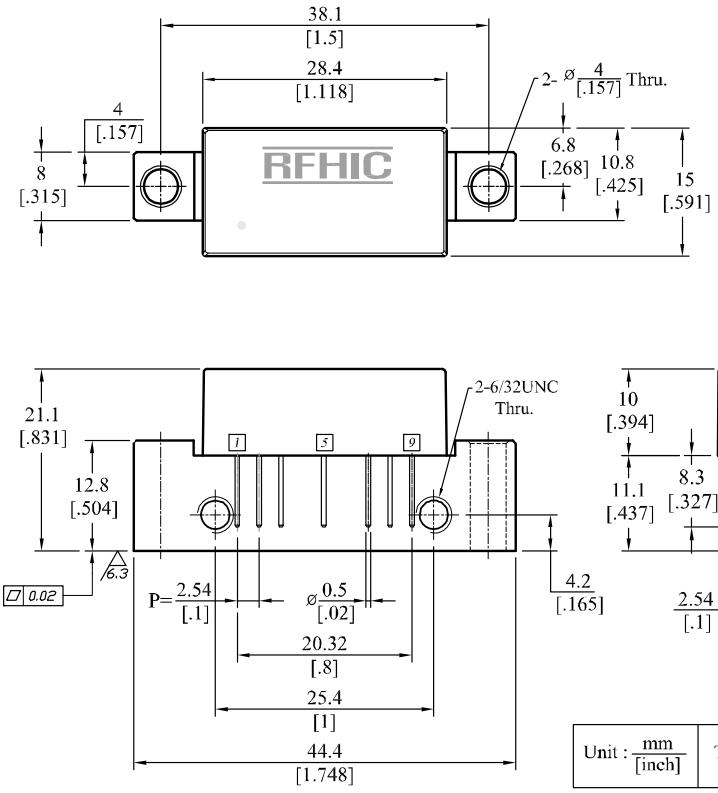
- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.
- Keep static materials, such as plastic envelopes and plastic trays etc. away from the workbench.

NOTES FOR CORRECT USE



1. On the power input port (Pin#5), 47uF/35V capacitor GND is recommended.
2. The heat sink of CATV Hybrids is to be mounted in direct contact with the metal case of the equipment. Heat conducting grease should be applied to the module/equipment interface and the unit tightly secured.
3. Put the power off before adjusting in/output matching of the system.
4. The unit must have a common ground with the equipment and the analyzer.
5. Pay close attention to the input voltage not to over power the hybrid.
6. The space between bottom of socket and the tip of the lead is recommended to have space of 2mm+ to protect the pin
7. Do not open the plastic cover to change the matching inside the hybrid. Once opened, RFHIC will not be responsible for the hybrid.

Package Dimensions (Type: SOT-115J)



Pin No.	Function
1	RF Input
2, 3, 7, 8	Ground
5	Vcc
9	RF Output

Unit : mm [inch] Tolerance : ± 0.2 .008