

## 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 @ 24V
- 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 1000MHz in frequency. This hybrid amplifier module operates with a single voltage supply of 24V(DC), and use GaAs MMIC technology.

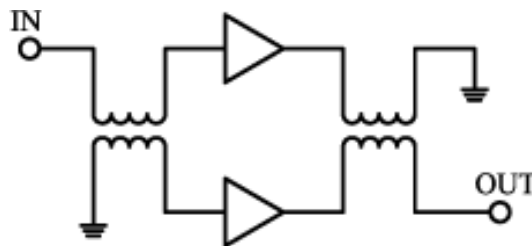
## Quick Reference Data

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$G_p$	Power Gain	F = 45 MHz	20.0	20.5	dB
		F = 1000 MHz	20.5	22.0	dB
$I_{tot}$	Total Current Consumption (DC)	$V_{cc} = 24V$	-	240	mA

## Limiting Values

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
$V_i$	RF Input Voltage (Single Tone)	-	+70	dBmV
V	DC Supply Over Voltage (5 minutes)		28	V
$T_{stg}$	Storage Temperature	-40	+100	°C
$T_{mb}$	Operating Mounting Base Temperature	-20	+100	°C

## Functional Diagram



## CHARACTERISTICS

Bandwidth 45 to 1000MHz;  $V_{CC} = 24V$ ;  $T_{case} = 25^{\circ}C$ ;  $Z_S = Z_L = 75\Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$G_p$	Power Gain	f = 45 MHz	19.5	-	20.5	dB
		f = 1000 MHz	20.5	-	22.0	dB
SL	Slope Cable Equivalent	f = 45 to 1000 MHz	1.0	-	2.0	dB
FL	Flatness of Frequency Response	f = 45 to 1000 MHz	-	-	0.6	dB
$S_{11}$	Input Return Loss	f = 45 to 80 MHz	20.0	-	-	dB
		f = 80 to 160 MHz	19.0	-	-	dB
		f = 160 to 320 MHz	18.0	-	-	dB
		f = 320 to 640 MHz	17.0	-	-	dB
		f = 640 to 1000 MHz	16.0	-	-	dB
$S_{22}$	Output Return Loss	f = 45 to 80 MHz	20.0	-	-	dB
		f = 80 to 160 MHz	19.0	-	-	dB
		f = 160 to 320 MHz	18.0	-	-	dB
		f = 320 to 640 MHz	17.0	-	-	dB
		f = 640 to 1000 MHz	15.0	-	-	dB
F	Noise Figure	f = 45 MHz	-	5.0	6.0	dB
		f = 1000 MHz	-	5.8	8.0	dB
$I_{tot}$	Total Current Consumption (DC)		200	220	240	mA

## DISTORTION

Bandwidth 45 to 870MHz;  $V_{CC} = 24V$ ;  $T_{case} = 25^{\circ}C$ ;  $Z_S = Z_L = 75\Omega$

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
CTB	Composite triple beat	135 channel flat; $V_o = 40dBmV$	-	-60	-57	dBc
XMOD	Cross modulation	135 channel flat; $V_o = 40dBmV$	-	-63	-53	dBc
CSO	Composite second order distortion	135 channel flat; $V_o = 40dBmV$	-	-64	-58	dBc

Notes;

135 Channels, NTSC frequency raster: 55.25MHz to 859.25MHz, +40dBmV flated output level.

CTB, XMOD, CSO definitions follow NCTA definition

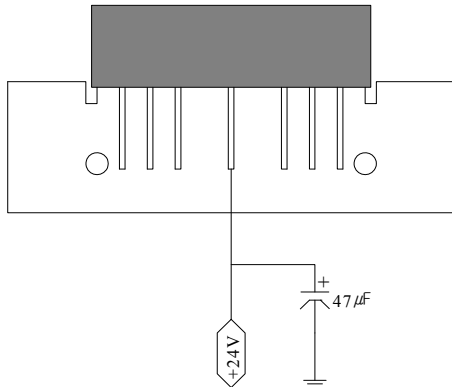
## ESD PROTECTION

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;

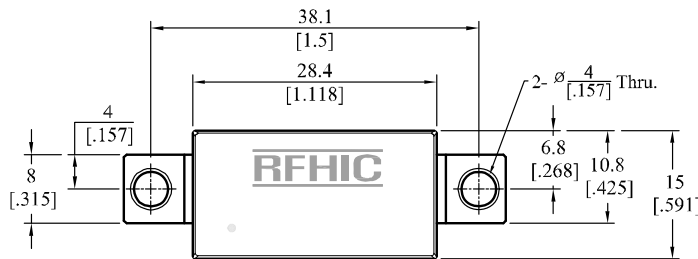
- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.
- Keep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

## NOTES FOR CORRECT USE

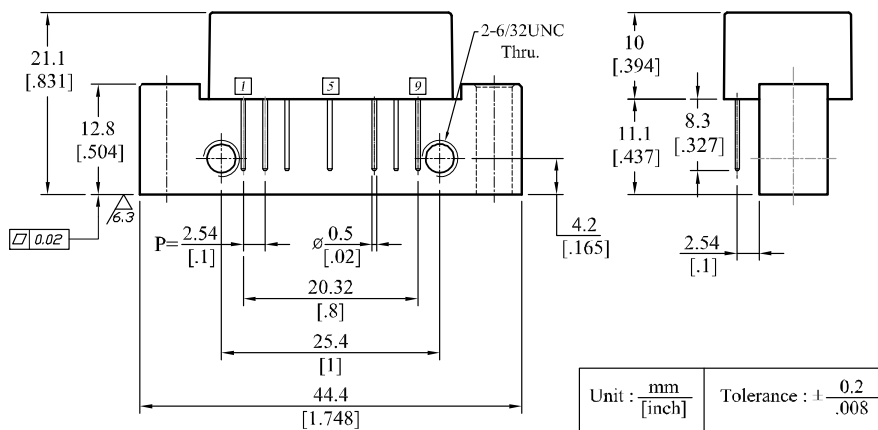


1. On the power input port (Pin#5), 47µF/35V capacitor GND is recommended.
2. The heat sink of CATV Hybrids is to be mounted in direct contact with the metal case of the equipment. Heat conducting grease should be applied to the module/equipment interface and the unit tightly secured.
3. Put the power 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 : $\frac{\text{mm}}{\text{[inch]}}$	Tolerance : $\pm \frac{0.2}{.008}$
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