CATV Line Amplifier 2F8725D

RFHIC

Product Features

- GaAs Power Doubler
- 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 Power Doubler amplifier for CATV Systems up to 870MHz in frequency.
This hybrid amplifier module operates with a single voltage supply of 24V (DC), and use GaAs MMIC technology.

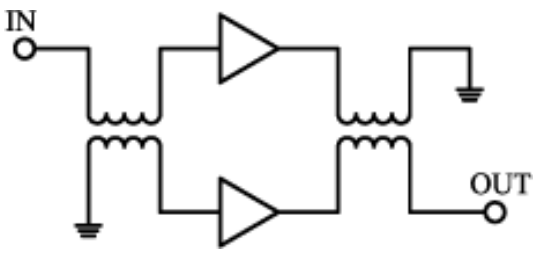
Quick Reference Data

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
G_p	Power Gain	F = 45 MHz	25.0	26.0	dB
		F = 870 MHz	25.5	-	dB
I_{tot}	Total Current Consumption (DC)	V_{cc} = 24V	-	430	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	℃
T_{mb}	Operating Mounting Base Temperature	-20	+100	℃

Functional Diagram



CHARACTERISTICS

Bandwidth 45 to 870MHz; V_{CC} = 24V; T_{case} = 25℃; Z_S = Z_L = 75Ω

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
G_p	Power Gain	f = 45 MHz	24.5	-	26.0	dB
		f = 870 MHz	25	-	-	dB
SL	Slope Cable Equivalent	f = 45 to 870 MHz	-	0.5	-	dB
FL	Flatness of Frequency Response	f = 45 to 870 MHz	-	-	0.5	dB
S_{11}	Input Return Loss	f = 45 to 80 MHz	18.0	-	-	dB
		f = 80 to 160 MHz	17.0	-	-	dB
		f = 160 to 320 MHz	17.0	-	-	dB
		f = 320 to 640 MHz	16.0	-	-	dB
		f = 640 to 870 MHz	16.0	-	-	dB
S_{22}	Output Return Loss	f = 45 to 80 MHz	18.0	-	-	dB
		f = 80 to 160 MHz	17.0	-	-	dB
		f = 160 to 320 MHz	17.0	-	-	dB
		f = 320 to 640 MHz	16.0	-	-	dB
		f = 640 to 870 MHz	16.0	-	-	dB
F	Noise Figure	f = 45 to 870 MHz	3	-	4.2	dB
I_{tot}	Total Current Consumption (DC)		380	400	430	mA

DISTORTION

Bandwidth 45 to 870MHz; V_{CC} = 24V; T_{case} = 25℃; Z_S = Z_L = 75Ω

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
CTB	Composite Triple Beat	135 channel flat; V_o = +48dBmV	-	-62	-56	dBc
XMOD	Cross Modulation	135 channel flat; V_o = +48dBmV	-	-62	-55	dBc
CSO	Composite Second Order Distortion	135 channel flat; V_o = +48dBmV	-	-64	-60	dBc

Notes;

135 Channels, NTSC frequency raster: 55.25MHz to 859.25MHz, +48dBmV flat output level.

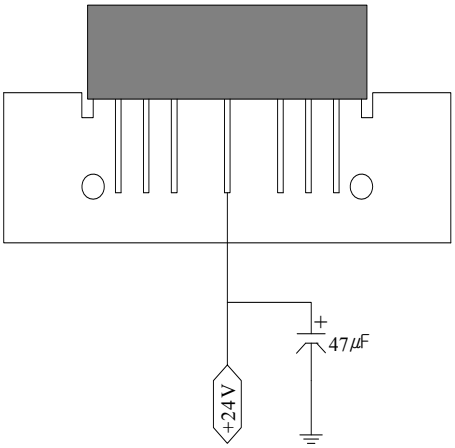
CTB, XMOD, CSO definitions follow NCTA definition

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

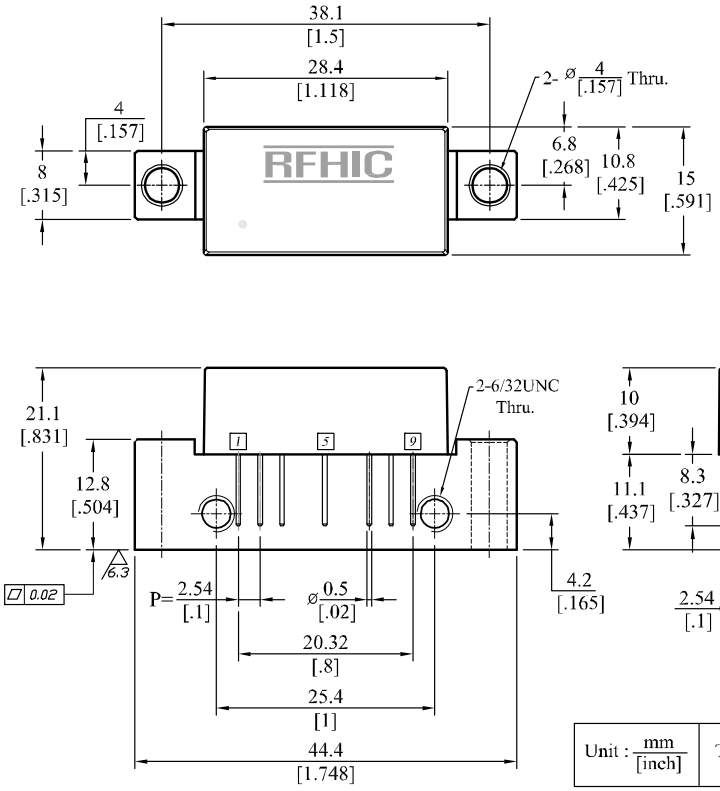


1. On the power input port (Pin#5), 47uF/35V capacitor GND is recommended.
2. The heat sink of CATV Hybrids is to be mounted in direct contact with the metal case of the equipment. Heat conducting grease should be applied to the module/equipment interface and the unit tightly secured.
3. Put the power 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.
8. This CATV Hybrid amplifier is designed with GaAs technology and can be damaged by electrical shock. To protect the device from excessive AC input, user should use a high pass filter(Note 1) at the in/output port of the hybrid amp or use a diplexer filter at the in/output port of the system/equipment to be on the safe side.

Note 1. Recommend High Pass Filter

Recommended Filter		Specification @ 25℃
Cutoff Frequency		45 MHz
Bandwidth		45 ~ 1000 MHz
Return Loss		15 dB Min.
Attenuation	**@ DC ~ 20 MHz**	25 dBc Min
In/Out Impedance		75 ohm

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