# CATV Line Amplifier 2F8725D



### **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



# **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.

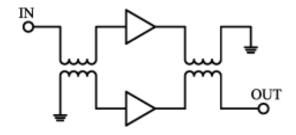
## **Quick Reference Data**

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
C	Power Gain	F = 45 MHz	25.0	26.0	dB
$G_p$	Power Gain	F = 870 MHz	25.5	-	dB
I <sub>tot</sub>	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	$^{\circ}$ C
T <sub>mb</sub>	Operating Mounting Base Temperature	-20	+100	$^{\circ}$ C

# **Functional Diagram**



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### **CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
$G_p$	Power Gain	f = 45 MHz	24.5	-	26.0	dB
	Power Gain	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
		f = 45  to  80  MHz	18.0	-	-	dB
		f = 80  to  160  MHz	17.0	dB		
$S_{11}$	Input Return Loss	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 = 45  to  80  MHz	18.0	-	-	dB
		f = 80  to  160  MHz	17.0	-	-	dB
S <sub>22</sub>	Output Return Loss	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 <sub>tot</sub>	Total Current Consumption (DC)		380	400	430	mA

## **DISTORTION**

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

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

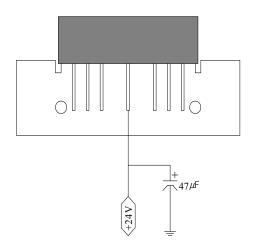
Tel: 82-31-250-5011rfsales@rfhic.com

<sup>•</sup> Version 5.5

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### NOTES FOR CORRECT USE



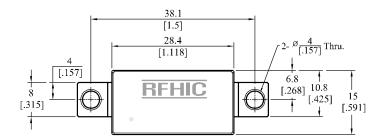
- 1. On the power input port (Pin#5), 47uF/35V capacitor GND is recommended.
- The heat sink of CATV Hybrids is to be mounted in direct contact with the metal case of the equipment. Heat conducting grease should be applied to the module/equipment interface and the unit tightly secured.
- 3. Put the power off before adjusting in/output matching of the system.
- 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

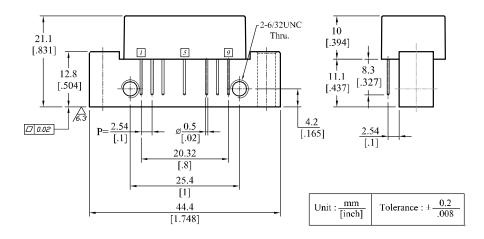
Recomn	nended Filter	Specification @ 25°C		
Cutoff Frequency		45 MHz		
Bai	ndwidth	45 ~ 1000 MHz		
Ret	urn Loss	15 dB Min.		
Attenuation	@ DC ~ 20 MHz	25 dBc Min		
In/Out	Impedance	75 ohm		



## Package Dimensions (Type: SOT-115J)



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



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