CATV Line Amplifier 2F8727D

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

Applications

- 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.

Electrical Specifications @ V_{CC} = 24V; T_{case} = 25°C; $Z_S = Z_L$ = 75Ω

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL	CONDITION
Operating Frequency	MHz	45	-	870	f_O	-
Power Gain	dB	26.5	-	28.0	G_p	f = 45 MHz
		27.0	-	-		f = 870 MHz
Slope Cable Equivalent	dB	-	0.5	-	SL	f = 45 ~ 870 MHz
Flatness of Frequency Response	dB	-	-	0.5	FL	f = 45 ~ 870 MHz
Input Return Loss	dB	18.0	-	-	S_{11}	f = 45 ~ 80 MHz
		17.0	-	-		f = 80 ~ 160 MHz
		17.0	-	-		f = 160 ~ 320 MHz
		16.0	-	-		f = 320 ~ 640 MHz
		16.0	-	-		f = 640 ~ 870 MHz
Output Return Loss	dB	18.0	-	-	S_{22}	f = 45 ~ 80 MHz
		17.0	-	-		f = 80 ~ 160 MHz
		17.0	-	-		f = 160 ~ 320 MHz
		16.0	-	-		f = 320 ~ 640 MHz
		16.0	-	-		f = 640 ~ 870 MHz
Noise Figure	dB	3.0	-	4.5	F	f = 45 ~ 870 MHz
Total Current Consumption (DC)	mA	380	400	430	I_{tot}	-

Distortion @ V_{CC} = 24V; T_{case} = 25°C; $Z_S = Z_L$ = 75Ω

PARAMETER	UNIT	MIN	TYP	MAX	SYMBOL	CONDITION
Frequency	MHz	45	-	870	f	-
Composite Triple Beat	dBc	-	-62	-57	CTB	135 channel flat; V_o = 48dBmV
Cross Modulation	dBc	-	-62	-60	XMOD	135 channel flat; V_o = 48dBmV
Composite Second Order Distortion	dBc	-	-64	-57	CSO	135 channel flat; V_o = 48dBmV

Note
135 Channels, NTSC frequency raster: 55.25MHz ~ 859.25MHz, 48dBmV flat Output level.
CTB, XMOD, CSO definitions follow NCTA definition.

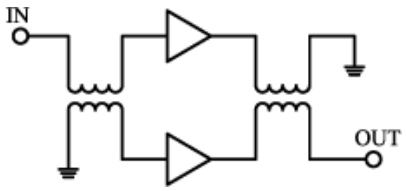
Absolute Maximum Ratings

PARAMETER	UNIT	MIN	MAX	SYMBOL	CONDITION
RF Input Voltage	dBmV	-	70	V_i	Single Tone
DC Supply Over Voltage	V	-	28	V	5 minutes
Storage Temperature	℃	-40	100	T_{stg}	-
Operating Mounting Base Temperature	℃	-20	100	T_{mb}	-

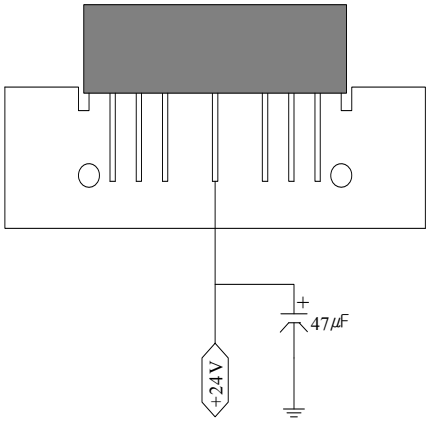
Quick Reference Data

PARAMETER	UNIT	MIN	MAX	SYMBOL	CONDITION
Power Gain	dB	27.0	28.0	G_p	f = 45 MHz
		27.5	-		f = 870 MHz
Total Current Consumption (DC)	mA	-	430	I_{tot}	V_{cc} = 24V

Functional Diagram



Note 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 system/equipment to be on the safe side.

Note 1*. Recommend High Pass Filter ; Temperature = 25°C

PARAMETER	UNIT	MIN	TYP	MAX
Cutoff Frequency	MHz	-	45	-
Operating Frequency	MHz	45	-	1000
Return Loss	dB	15	-	-
Attenuation @ DC ~ 20MHz	dBc	25	-	-
In/Out Impedance	Ohm	-	75	-

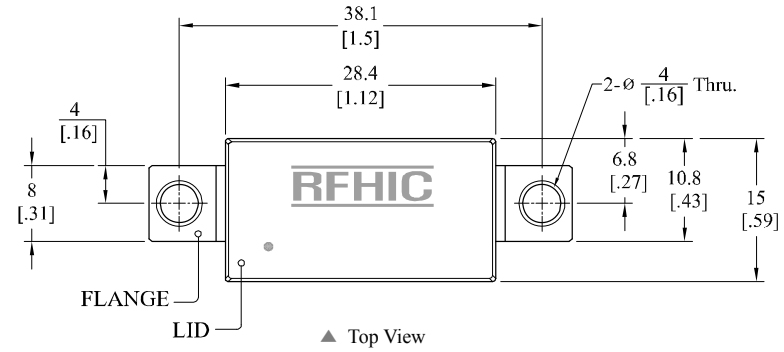
ESD Protection

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;

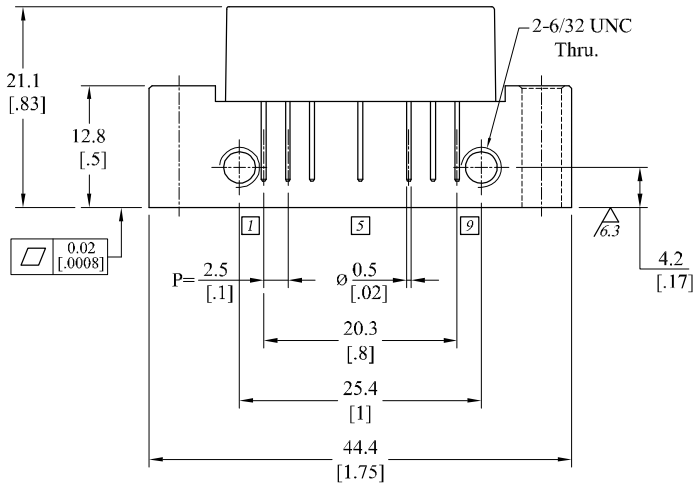
- Person at a workbench should be earthed via a wrist strap and a resistor.
- All mains-powered equipment should be connected to the mains via an earth-leakage switch.
- Equipment cases should be grounded.
- Relative humidity should be maintained between 40% and 50%.
- An ionizer is recommended.
- Keep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

Package Dimensions (Type: SOT-115J)

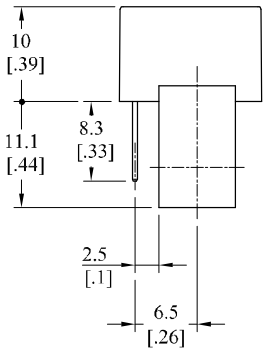
* Unit: mm[inch] | Tolerance: ±0.2[.008]



▲ Top View



▲ Front View



▲ Side View

Pin Description					
Pin No	**Function**	**Pin No**	**Function**	**Pin No**	**Function**
1	RF Input	4	-	7	GND
2	GND	5	Vcc	8	GND
3	GND	6	-	9	RF Output

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
2F8727D	2012.9.5	5.6	-	-

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