

# ISG56526

## 5 TO 65 MHz SILICON CATV 26 dB HYBRID AMPLIFIER



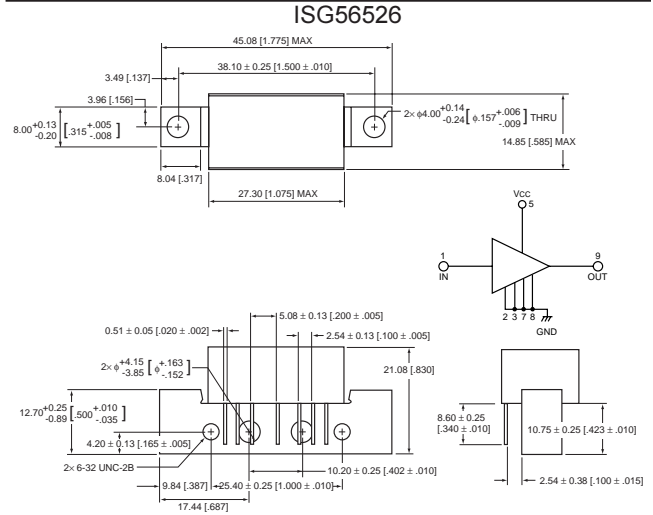
### FEATURES

- FLAT GAIN RESPONSE FROM 5 TO 65 MHz:  $f = \pm 0.2$  dB
- INPUT AND OUTPUT MATCHING TO 75 OHMS:  $R_L = > 19$  dB
- LOW DISTORTION:  $P_{1dB} = 78$  dBmV
- LOW NOISE: 3.0dB
- AUTOMATED SURFACE MOUNT CONSTRUCTION

### DESCRIPTION

The ISG56526 is a low noise, low distortion hybrid amplifier specified for use in return path HFC Cable TV applications. The ISG56526 is comprised of 100% surface mount components, including high performance silicon transistors. It features excellent noise, gain, and thermal stability across a wide range of operating conditions and frequencies. The amplifiers are manufactured to ISO9002 standards are very rugged and exhibit excellent unit to unit uniformity.

### OUTLINE DIMENSIONS (Units in mm [inches])



### ELECTRICAL CHARACTERISTICS ( $V_{CC} = 24$ V, $\pm 10\%$ $T_A = 25^\circ\text{C}$ , 75 $\Omega$ System)

PART NUMBER				ISG56526		
SYMBOLS	PARAMETERS	CONDITIONS	UNITS	MIN	TYP	MAX
	Frequency Range	Min (f <sub>L</sub> ) to Max (f <sub>H</sub> ) +5%	MHz	5		65
G	Gain (S <sub>21</sub> )	F <sub>H</sub> = 65 MHz	dB	24.9	25.5	26.4
G <sub>F</sub>	Gain Flatness	F <sub>L</sub> to F <sub>H</sub>	dB		±0.15	±0.2
R <sub>LIN</sub>	Input Return Loss (S <sub>11</sub> )	5-10 MHz	dB	29	35	
R <sub>LIN</sub>	Input Return Loss (S <sub>11</sub> )	11-65 MHz	dB	19	21	
R <sub>LOUT</sub>	Output Return Loss	5-10 MHz	dB	24	25	
R <sub>LOUT</sub>	Output Return Loss	11-65 MHz	dB	19	15	
N <sub>F</sub>	Noise Figure	5-65 MHz NF	dB		3.0	3.3
	Reverse Isolation (S <sub>12</sub> )	R <sub>FOUT</sub> to R <sub>FIN</sub> , over F <sub>H</sub> to F <sub>L</sub>	dB		29	
CTB	Composite Triple Beat	See Note 1	dBc			-70
XM	Cross Modulation	See Note 1	dBc			-60
CSO	Composite 2nd Order Distortion	See Note 1	dBc			-72
	R <sub>FIN</sub> to DC and DC to R <sub>FOUT</sub>	0.3 MHz-5 MHz	dB			-10
P <sub>1dB</sub>	Output Level at 1 dB Gain Compression	Single tone at any channel frequency	dBmV		78	
V <sub>CC</sub>	Supply Voltage		V		24	
I <sub>OP</sub>	Operating Current		mA	180	190	200
Ω	Input & Output Impedance		ohms		75	

Note:

1. Composite Triple Beat, Cross Modulation, 2nd Order Distortion are all measured with 7 channels (T7 through T13) at 50 dBmV/ch output and at 25°C.

Performance tests and ratings for Sirenza Microdevices' products were performed internally by Sirenza and measured using specific computer systems and/or components and reflect the approximate performance of the products as measured by those tests. Any difference in circuit implementation, test software, or test equipment may affect actual performance. The information provided herein is believed to be reliable at press time and Sirenza Microdevices assumes no responsibility for the use of this information. All such use shall be entirely at the user's own risk. Prices and specifications for Sirenza Microdevices' products are subject to change without notice. Buyers should consult Sirenza Microdevices' standard terms and conditions of sale for Sirenza's limited warranty with regard to its products. No patent rights or licenses to any of the circuits described herein are implied or granted to any third party. Sirenza Microdevices does not authorize or warrant any product for use in life-support devices and/or systems.

# ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

(T<sub>c</sub> = 25 °C unless otherwise noted)

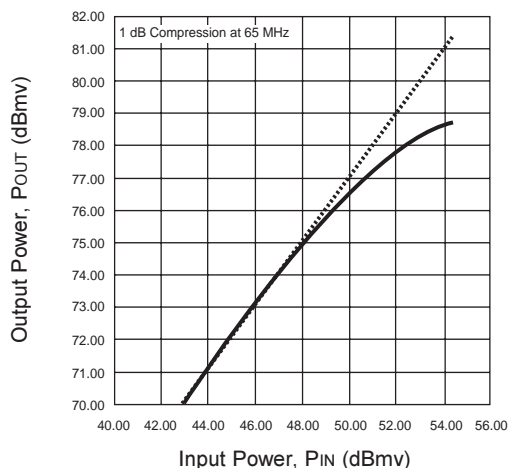
SYMBOLS	PARAMETERS	UNITS	RATINGS
V <sub>CC</sub>	DC Supply	V <sub>DC</sub>	+28
V <sub>IN</sub>	RF Input Voltage (Single Tone)	dBmV	+65
T <sub>c</sub>	Operating Case Temperature Range	°C	-20 to +100
T <sub>STG</sub>	Storage Temperature Range	°C	-40 to +100

Note:

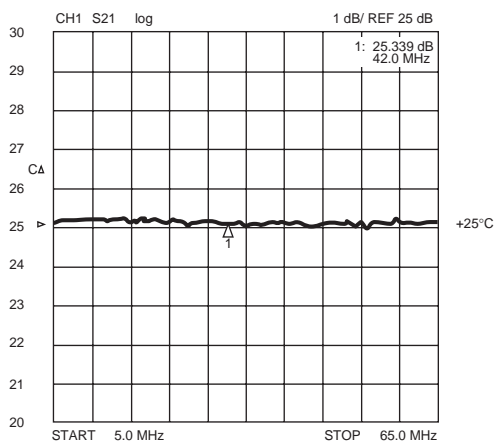
1. Operation in excess of any one of these parameters may result in permanent damage.

## TYPICAL PERFORMANCE CURVES (T<sub>A</sub> = 25°C)

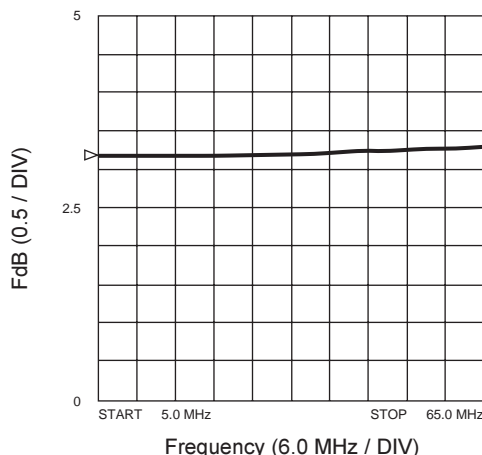
power in vs power out @ 65 MHz



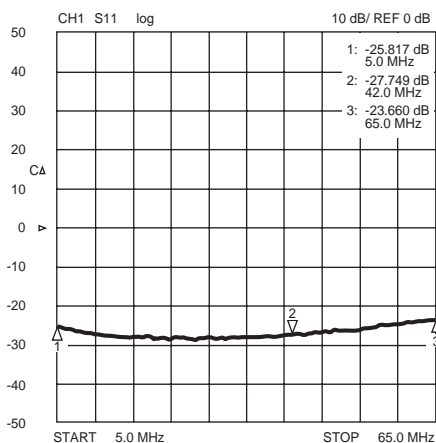
GAIN vs. FREQUENCY



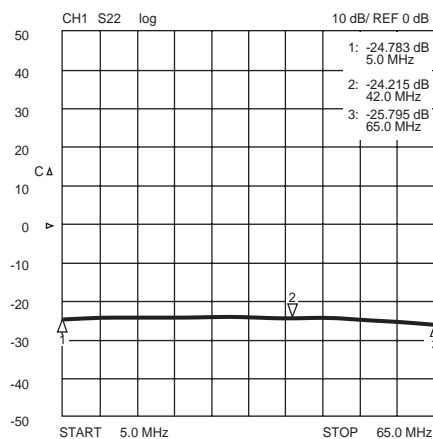
NOISE FIGURE



INPUT RETURN LOSS



OUTPUT RETURN LOSS



DATA SUBJECT TO CHANGE WITHOUT NOTICE