

ISG56531

5 TO 65 MHz SILICON CATV 31 dB HYBRID AMPLIFIER



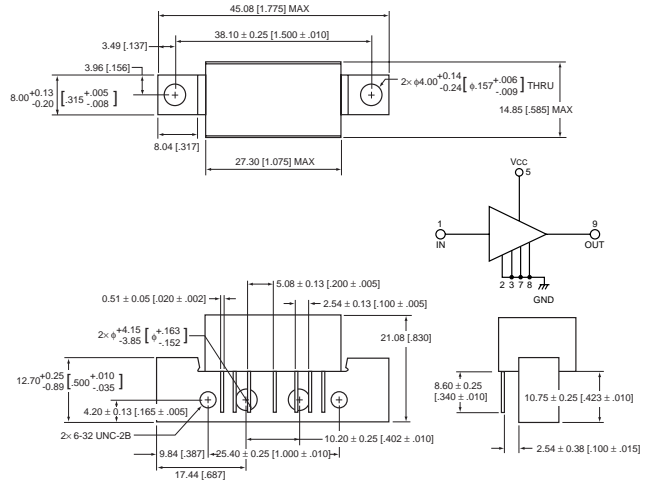
FEATURES

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

DESCRIPTION

The ISG56531 is a low noise, low distortion hybrid amplifier specified for use in return path HFC Cable TV applications. The ISG56531 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 Ω System)

PART NUMBER				ISG56531		
SYMBOLS	PARAMETERS	CONDITIONS	UNITS	MIN	TYP	MAX
	Frequency Range	Min (f _L) to Max (f _H) +5%	MHz	5		65
G	Gain (S ₂₁)	F _H = 65 MHz	dB	29.5	30.4	31
G _F	Gain Flatness	F _L to F _H	dB		± 0.15	± 0.2
R _{LIN}	Input Return Loss (S ₁₁)	5-10 MHz	dB	27.0	33.0	
R _{LIN}	Input Return Loss (S ₁₁)	11-65 MHz	dB	20.0	23.0	
R _{LOUT}	Output Return Loss	5-10 MHz	dB	25.0	27.0	
R _{LOUT}	Output Return Loss	11-65 MHz	dB	17.5	19.0	
N _F	Noise Figure	5-65 MHz NF	dB		3.0	3.3
	Reverse Isolation (S ₁₂)	R _{FOUT} to R _{FIN} , over F _H to F _L	dB		34	
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		-76	-72
	R _{FIN} to DC and DC to R _{FOUT}	0.3 MHz-5 MHz	dB			-10
P _{1dB}	Output Level at 1 dB Gain Compression	Single tone at any channel frequency	dBmV		78	
V _{CC}	Supply Voltage		V		24	
I _{OP}	Operating Current at +25°C at -20°C to +100°C		mA	170		200 220
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.

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ABSOLUTE MAXIMUM RATINGS¹

(T_c = 25 °C unless otherwise noted)

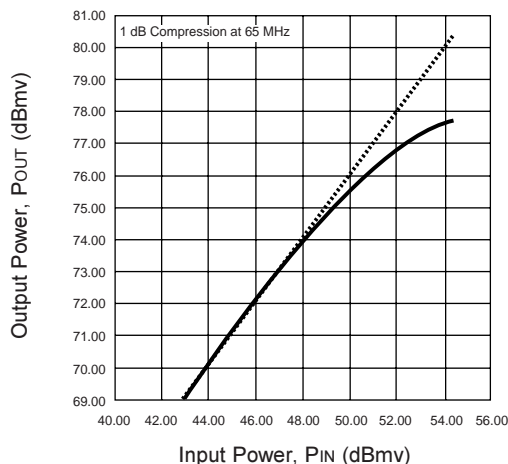
SYMBOLS	PARAMETERS	UNITS	RATINGS
V _{CC}	DC Supply	V _{DC}	+28
V _{IN}	RF Input Voltage (Single Tone)	dBmV	+65
T _c	Operating Case Temperature Range	°C	-20 to +100
T _{STG}	Storage Temperature Range	°C	-40 to +100

Note:

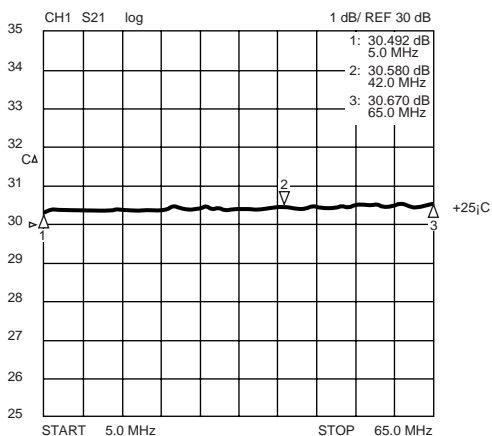
1. Operation in excess of any one of these parameters may result in permanent damage.

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

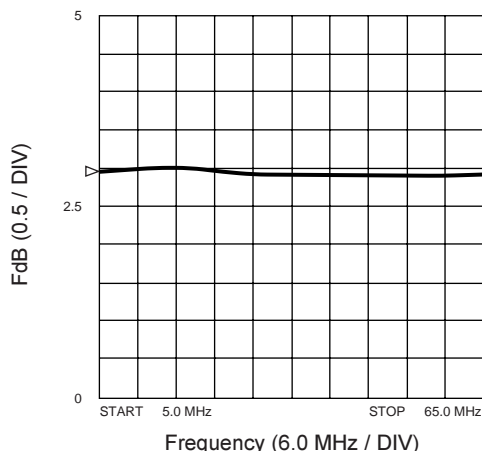
Power in vs power out @ 65 MHz



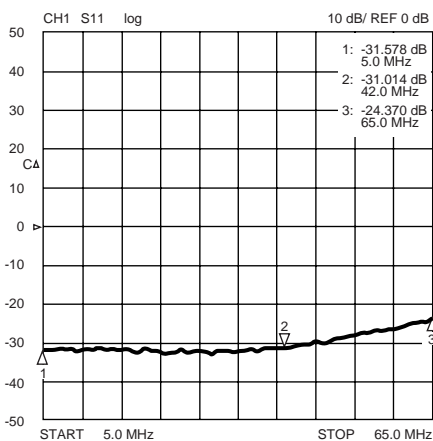
GAIN vs. FREQUENCY



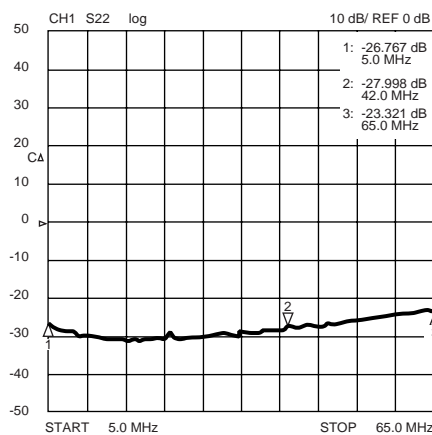
NOISE FIGURE



INPUT RETURN LOSS



OUTPUT RETURN LOSS



DATA SUBJECT TO CHANGE WITHOUT NOTICE