ISG56531

5 TO 65 MHz SILICON CATV 31 dB HYBRID AMPLIFIER

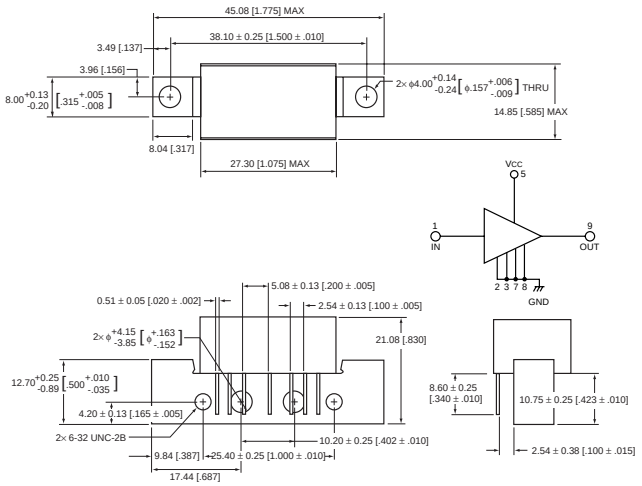
FEATURES

- FLAT GAIN RESPONSE FROM 5 TO 65 MHz: f = ±0.2 dB
- INPUT AND OUTPUT MATCHING TO 75 OHMS: R_L = > 19 dB
- LOW DISTORTION: P1dB = 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, ± 10% T_A = 25°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
RL_{IN}	Input Return Loss (S_{11})	5-10 MHz	dB	27.0	33.0	
RL_{IN}	Input Return Loss (S_{11})	11-65 MHz	dB	20.0	23.0	
RL_{OUT}	Output Return Loss	5-10 MHz	dB	25.0	27.0	
RL_{OUT}	Output Return Loss	11-65 MHz	dB	17.5	19.0	
NF	Noise Figure	5-65 MHz NF	dB		3.0	3.3
	Reverse Isolation (S_{12})	RF_{OUT} to RF_{IN}, 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
	RF_{IN} to DC and DC to RF_{OUT}	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		mA	170		200
	at -20°C to +100°C					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.

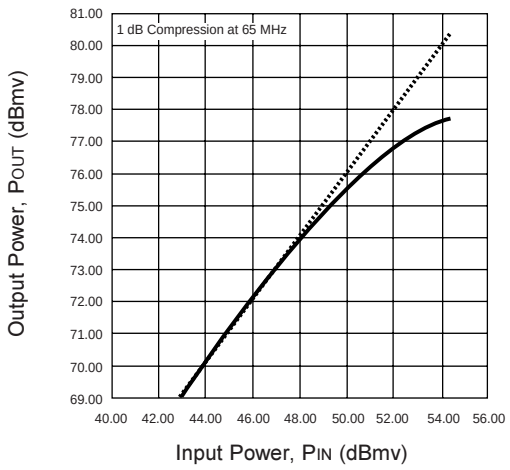
ABSOLUTE MAXIMUM RATINGS[1]

(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

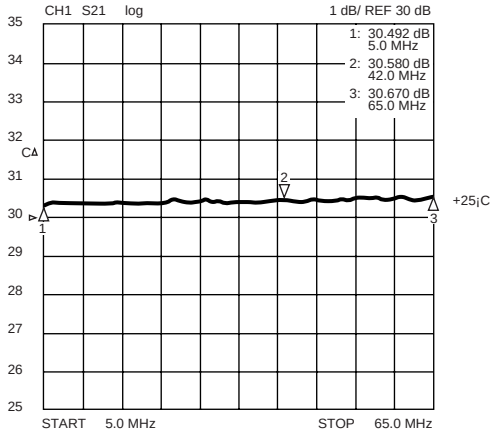
Note:
1. Operation in excess of any one of these parameters may result in permanent damage.

Power in vs power out @ 65 MHz

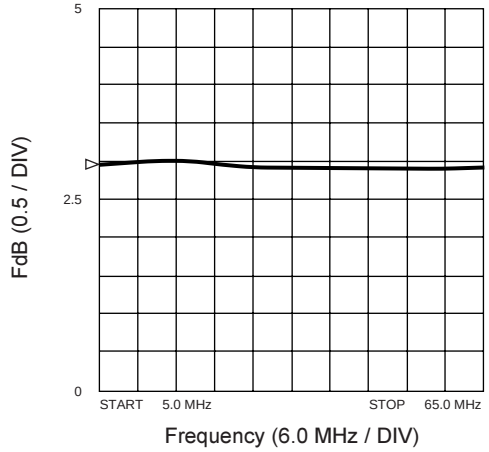


TYPICAL PERFORMANCE CURVES (T_A = 25°C)

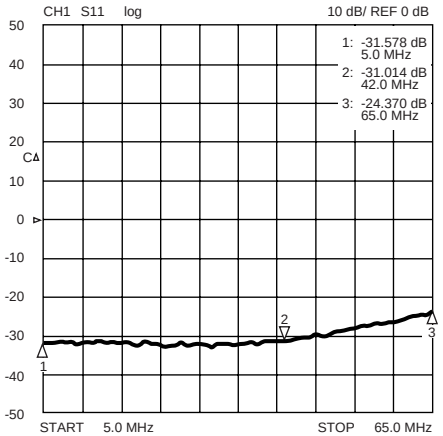
GAIN vs. FREQUENCY



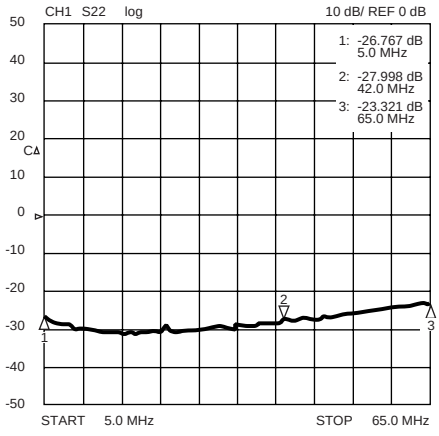
NOISE FIGURE



INPUT RETURN LOSS



OUTPUT RETURN LOSS



DATA SUBJECT TO CHANGE WITHOUT NOTICE