

ISG56531

5 TO 65 MHz SILICON CATV 31 dB HYBRID AMPLIFIER



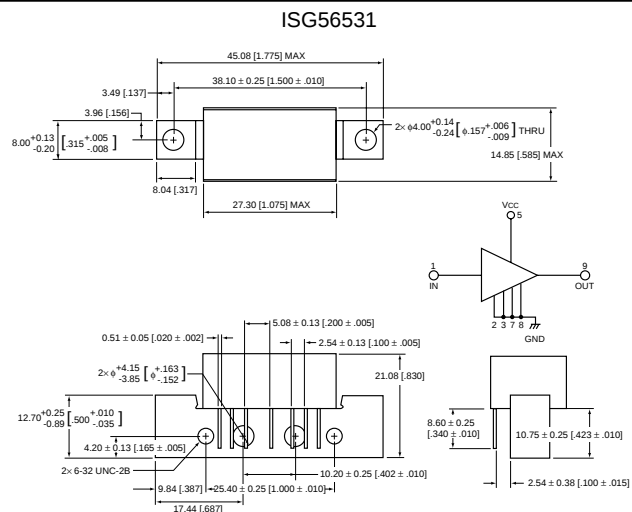
FEATURES

- **FLAT GAIN RESPONSE FROM 5 TO 65 MHz:**
 ± 0.2 dB
- **INPUT AND OUTPUT MATCHING TO 75 OHMS:**
 $R_L = > 20$ dB
- **LOW DISTORTION:**
 $P_{1dB} = 78$ dBmV
- **RUGGED SURFACE MOUNT CONSTRUCTION**
- **LOW NOISE:**
3.0 dB

DESCRIPTION

The ISG56531 is a hybrid amplifier module developed for digital return path applications in (HFC) CATV systems. 100% surface mount components are used in the construction of this amplifier. The active devices used are high performance NEC silicon transistors. The amplifiers are manufactured to ISO9002 standards 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		68
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	
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	
NF	Noise Figure	5-65 MHz NF	dB		3.0	
	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 100°C		mA	180		200
						220
Ω	Input & Output Impedance		ohms		75	

Note:

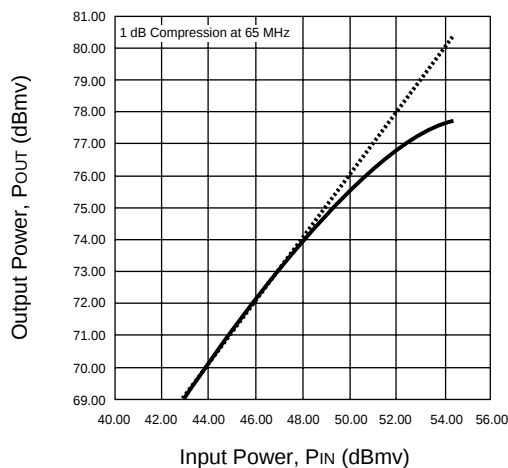
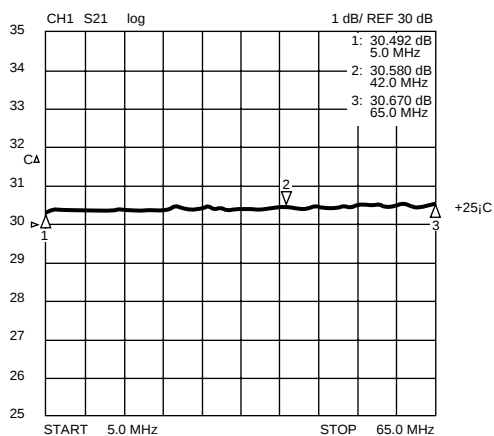
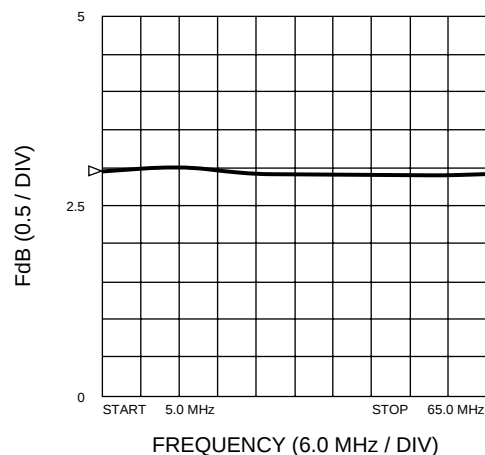
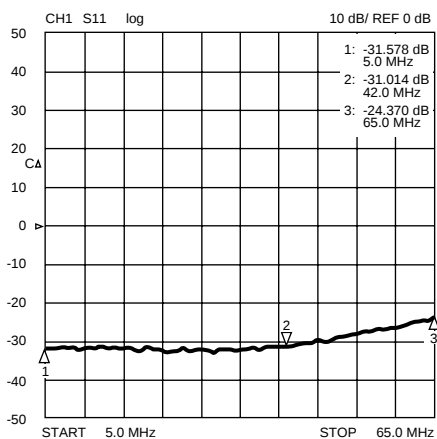
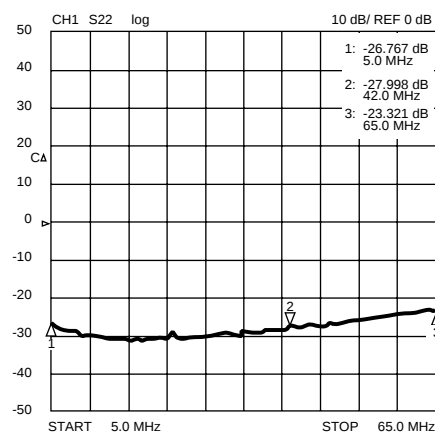
1. Composite Triple Beat, Cross Modulation, 2nd Order Distortion are all measured with 6 channels (T6 through T12) at 50 dBmV/ch output and at 25°C.

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:

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

TYPICAL PERFORMANCE CURVES (T_A = 25°C)**P1dB COMPRESSION AT 65 MHz****GAIN VS. FREQUENCY****NOISE FIGURE****INPUT RETURN LOSS****OUTPUT RETURN LOSS****ISG BROADBAND, Inc.**

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