# ISG56535

# 5 TO 65 MHz SILICON CATV 35 dB HYBRID AMPLIFIER



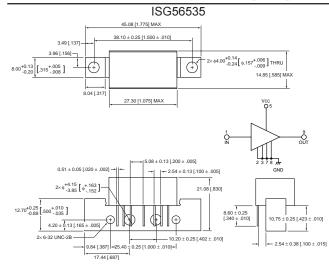
## **FEATURES**

- FLAT GAIN RESPONSE FROM 5 TO 65 MHz: f = ±0.2 dB
- INPUT AND OUTPUT MATCHING TO 75 OHMS: RL => 20 dB
- LOW DISTORTION: P1dB = 78 dBmV
- LOW NOISE: 4.1dB
- AUTOMATED SURFACE MOUNT CONSTRUCTION

## DESCRIPTION

The ISG56535 is a low noise, low distortion hybrid amplifier specified for use in return path HFC Cable TV applications. The ISG56535 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 (Vcc = 24 V, ± 10% TA = 25°C, 75 Ω System)

PART NUMBER				ISG56535		
SYMBOLS	PARAMETERS	CONDITIONS	UNITS	MIN	TYP	MAX
	Frequency Range	Min (fL) to Max (fH) +5%	MHz	5		65
G	Gain (S21)	FH = 65 MHz	dB	34.5	35.1	35.7
GF	Gain Flatness	FL to FH	dB		±0.2	
RLin	Input Return Loss (S11)	5-65 MHz	dB	20.0	25.0	
RLout	Output Return Loss	5-65 MHz	dB	20.0	25.0	
NF	Noise Figure	5-65 MHz NF	dB		4.1	4.5
	Reverse Isolation (S12)	RFOUT to RFIN, over FH to FL	dB	38	41	
СТВ	Composite Triple Beat	See Note 1	dBc		-78	-70
XM	Cross Modulation	See Note 1	dBc		-66	-62
CSO	Composite 2nd Order Distortion	See Note 1	dBc		-76	-70
	RFIN to DC and DC to RFOUT	0.3 MHz-5 MHz	dB			-10
P1dB	Output Level at 1 dB Gain Compression	Single tone at				
		any channel frequency	dBmV		78	
Vcc	Supply Voltage		V		24	
Іор	Operating Current		mA	160		200
Ω	Input & Output Impedance		ohms		75	

#### Note:

1. Composite Triple Beat, Cross Modulation, 2nd Order Distortion are all measured with 7 channels (T6 through T13) at 50 dBmV/ch output and at 25°C.

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

(Tc = 25 °C unless otherwise noted)

SYMBOLS	PARAMETERS	UNITS	RATINGS
Vcc	DC Supply	VDC	+28
Vin	RF Input Voltage (Single Tone)	dBmV	+65
Tc	Operating Case Temperature Range	°C	-20 to +100
Тѕтс	Storage Temperature Range	°C	-40 to +100

#### Note:

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

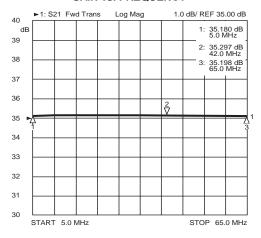
# 79.00 78.00 78.00 76.00

81.00

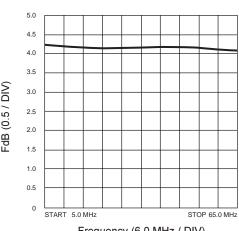
Power in vs power out @ 65 MHz

# TYPICAL PERFORMANCE CURVES (TA = 25°C)



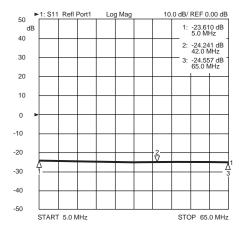


### **NOISE FIGURE**

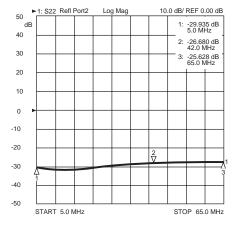


Frequency (6.0 MHz / DIV)

#### **INPUT RETURN LOSS**



## **OUTPUT RETURN LOSS**



DATA SUBJECT TO CHANGE WITHOUT NOTICE

REV. C