

# ISG56530

## 5 TO 65 MHz SILICON CATV 30 dB HYBRID AMPLIFIER



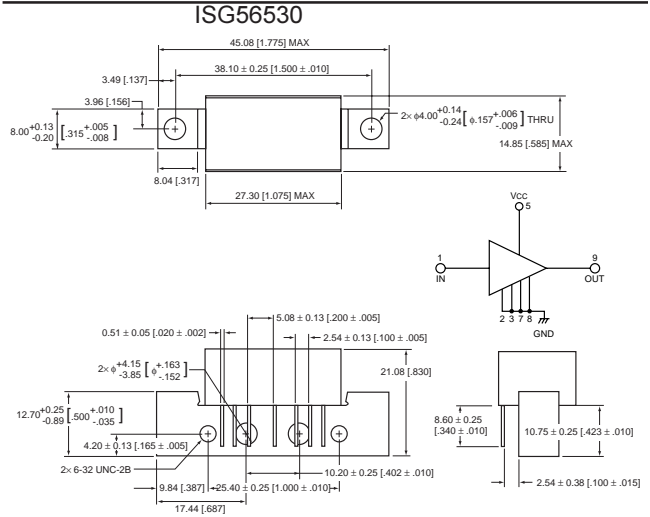
### FEATURES

- FLAT GAIN RESPONSE FROM 5 TO 65 MHz:  $f = \pm 0.2$  dB
- INPUT AND OUTPUT MATCHING TO 75 OHMS:  $R_L = \Rightarrow 18$  dB
- LOW DISTORTION:  $P_{1dB} = 78$  dBmV
- LOW NOISE: 3.1dB
- AUTOMATED SURFACE MOUNT CONSTRUCTION

### DESCRIPTION

The ISG56530 is a low noise, low distortion hybrid amplifier specified for use in return path HFC Cable TV applications. The ISG56530 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				ISG56530		
SYMBOLS	PARAMETERS	CONDITIONS	UNITS	MIN	TYP	MAX
GA	Gain		dB	29.5	30.2	31
$\Delta G$	Gain Flatness		dB			$\pm 0.2$
RLIN	Input Return Loss		dB	18	20	
RLOUT	Output Return Loss		dB	20	23	
NF	Noise Figure		dB		3.1	3.5
CTB	Composite Triple Beat (+50 dBmV/ch)	See Note 1	dBc		-62	-58
XM	Cross Modulation (+50 dBmV/ch)	See Note 1	dBc		-53	-51
CSO	Composite 2nd Order Distortion (+50 dBmV/ch)	See Note 1	dBc		-72	-68
$P_{1dB}$	Output Power at 1dB Gain Compression point		dBmV	75	76	
$V_{CC}$	Supply Voltage		V		24	
IOP	Operating Current		mA	110	125	135
BW	Bandwidth		MHz	5		65
$\Omega$	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 RATINGS<sup>1</sup>

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

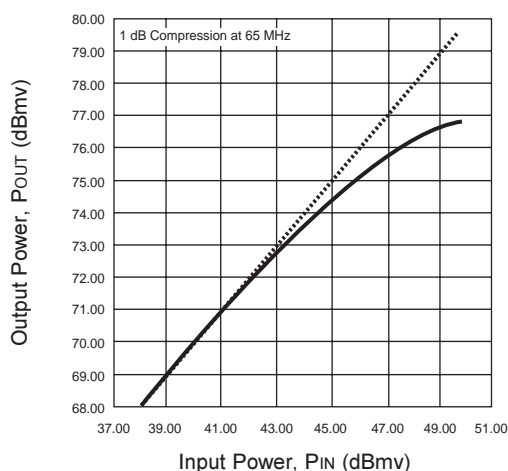
SYMBOLS	PARAMETERS	UNITS	RATINGS
V <sub>CC</sub>	DC Supply	V <sub>DC</sub>	+28
V <sub>IN</sub>	RF Input Voltage (Single Tone)	dBmV	+65
T <sub>c</sub>	Operating Case Temperature Range	°C	-20 to +100
T <sub>STG</sub>	Storage Temperature Range	°C	-40 to +100

Note:

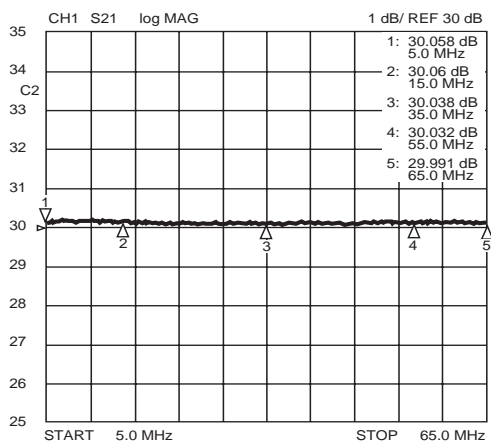
1. Operation in excess of any one of these parameters may result in permanent damage.

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

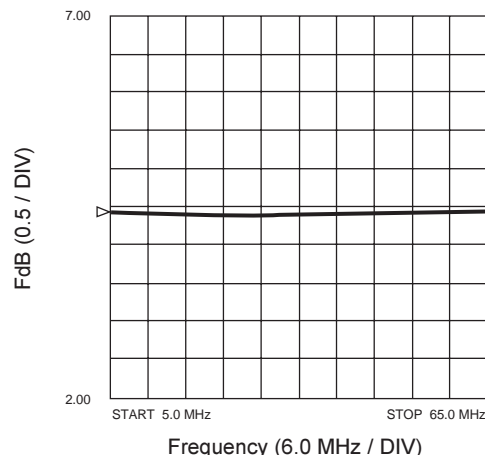
power in vs power out @ 65 MHz



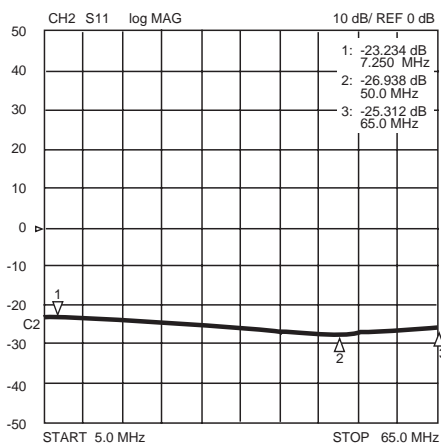
GAIN vs. FREQUENCY



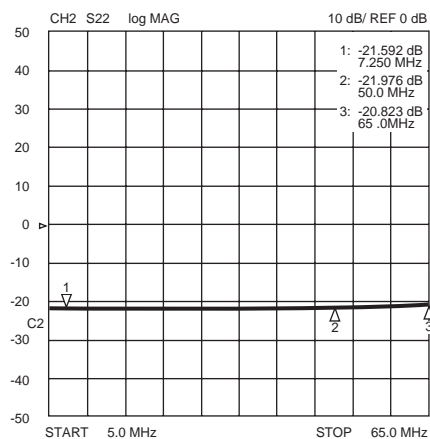
NOISE FIGURE



INPUT RETURN LOSS



OUTPUT RETURN LOSS



DATA SUBJECT TO CHANGE WITHOUT NOTICE