

# ISG52124

## 5 TO 210 MHz SILICON CATV 24 dB HYBRID AMPLIFIER



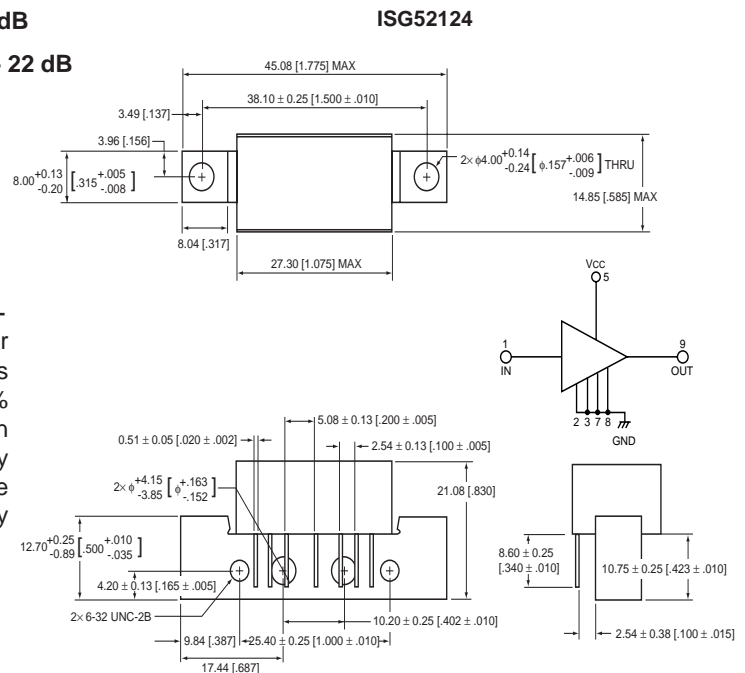
### FEATURES

- FLAT GAIN RESPONSE FROM 5 TO 210 MHz:  $f = \pm 0.2$  dB
- INPUT AND OUTPUT MATCHING TO 75 OHMS:  $R_L = > 22$  dB
- LOW DISTORTION: 78 dBmV
- AUTOMATED SURFACE MOUNT CONSTRUCTION

### DESCRIPTION

The ISG52124 is a low Distortion Broadband hybrid amplifier module developed for return path optical and RF applications in (HFC) CATV systems. The ISG52124 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 Ohm System)

PART NUMBER			ISG52124		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
$V_{CC}$	Supply Voltage	V		24	
$I_{OP}$	Operating Current	mA	185	193	200
BW	Bandwidth	MHz	5		210
GA	Gain at $f = 42$ MHz	dB	23.5	24	24.5
$\Delta G$	Gain Flatness	dB			$\pm 0.2$
$R_{LIN}$	Input Return Loss	dB	18	22	
$R_{LOUT}$	Output Return Loss	dB	18	22	
NF	Noise Figure at $f = 65$ MHz	dB		4.5	5
$P_{1dB}$	Output Power at 1 dB Gain Compression Point	dBmV	77	78	
CTB	Composite Triple Beat <sup>1</sup> (+50 dBmV/ch)	dBc		-70	-67
XM	Cross Modulation <sup>1</sup> (+50 dBmV/ch)	dBc		-62	-59
CSO	2nd Order Distortion <sup>1</sup> (+50 dBmV/ch)	dBc		-70	-67
	Characteristic Impedance	ohms		75	

Note:

1. Composite Triple Beat, Cross Modulation, 2nd Order Distortion are all measured with 22 channels (T7-T13,2-6,A-7) at 50 dBmV/ch output and at  $25^\circ\text{C}$ .

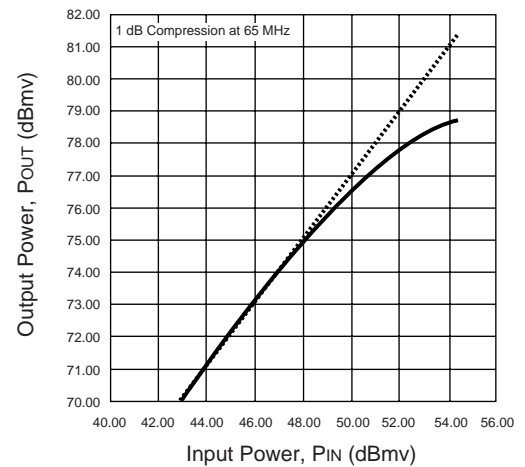
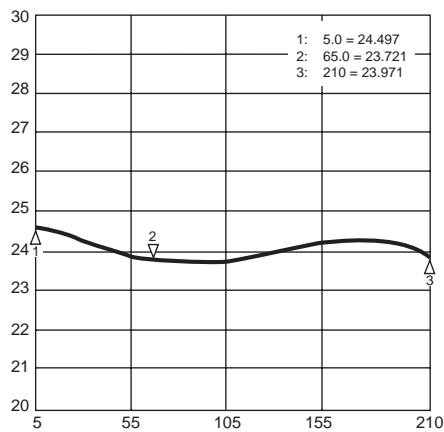
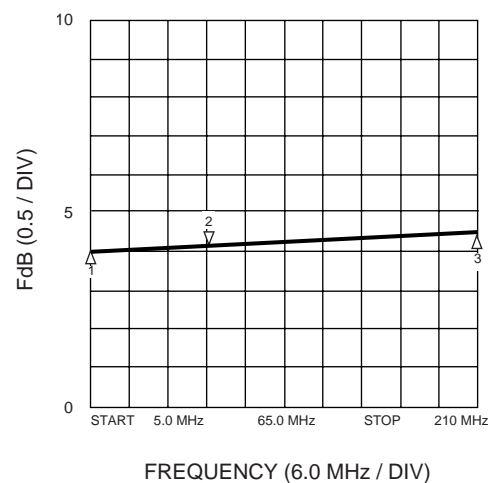
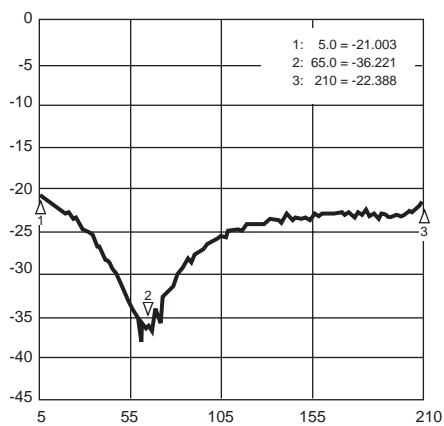
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**ABSOLUTE MAXIMUM RATINGS<sup>1</sup>**(T<sub>A</sub> = 25 °C unless otherwise noted)

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)**P1dB COMPRESSION AT 65 MHz****GAIN VS. FREQUENCY****NOISE FIGURE****INPUT RETURN LOSS****OUTPUT RETURN LOSS**