



Integrated Solutions Group

5 TO 65 MHz SILICON CATV 25 dB HYBRID AMPLIFIER

ISG56525A

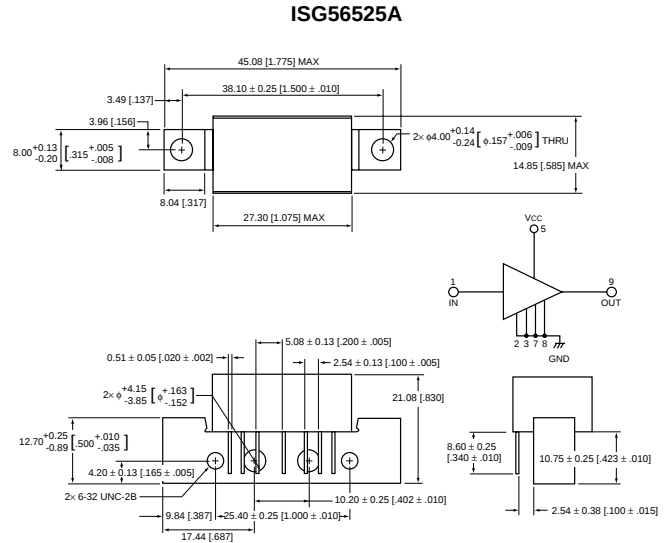
FEATURES

- FLAT GAIN RESPONSE FROM 5 TO 65 MHz (± 0.2 dB)
- EXCELLENT RETURN LOSS AND STABILITY OVER TEMPERATURE (RL = 20 dB)
- LOW DISTORTION ($P_{1dB} = 76$ dBmV)
- LOW CURRENT (135 mA MAX)
- RUGGED SURFACE MOUNT CONSTRUCTION (FULLY AUTOMATED)
- LOW NOISE (4.5 dB)

DESCRIPTION

The ISG56525A 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 Ohm System)

PART NUMBER				ISG56525A		
SYMBOLS	PARAMETERS	CONDITIONS	UNITS	MIN	TYP	MAX
GA	Gain		dB	24.5	25.2	26
ΔG	Gain Flatness		dB			± 0.2
RLIN	Input Return Loss		dB	20	25	
RLOUT	Output Return Loss		dB	18	21	
NF	Noise Figure		dB		4.3	4.5
CTB	Composite Triple Beat (+50 dBmV/ch)	See Note 1	dBc		-68	
XM	Cross Modulation (+50 dBmV/ch)	See Note 1	dBc		-62	
CSO	Composite 2nd Order Distortion(+50 dBmV/ch)	See Note 1	dBc		-70	
P_{1dB}	Output Power at 1 dB Gain Compression Point		dBmV	75	76	
V_{CC}	Supply Voltage		V		24	
I_{OP}	Operating Current		mA	110		135
BW	Bandwidth		MHz	5		65
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).

ABSOLUTE MAXIMUM RATINGS¹

(Tc = 25 °C unless otherwise noted)

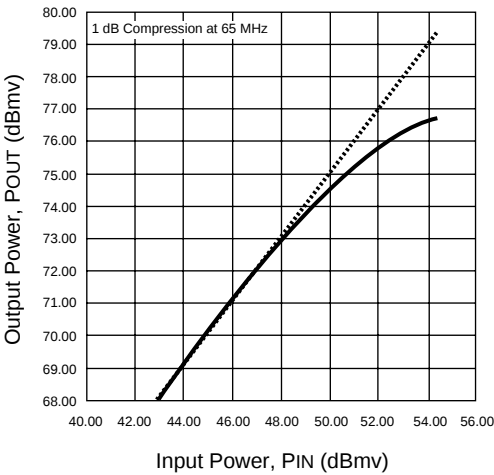
SYMBOLS	PARAMETERS	UNITS	RATINGS
VCC	DC Supply	VDC	+28
VIN	RF Input Voltage (Single Tone)	dBmV	+65
Tc	Operating Case Temperature Range	°C	-20 to +100
TSTG	Storage Temperature Range	°C	-40 to +100

Note:

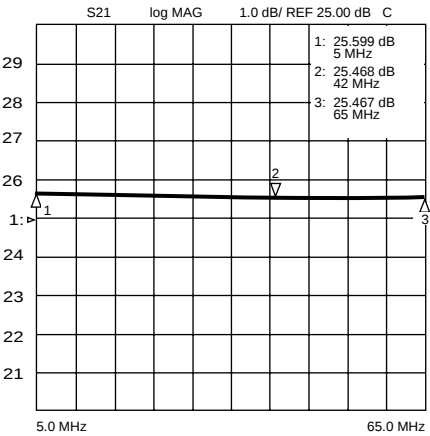
1. Operation in excess of any one of these parameters may result in permanent damage.

TYPICAL PERFORMANCE CURVES (TA = 25°C)

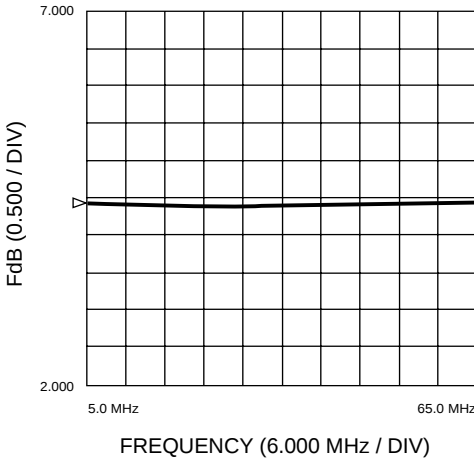
P1dB COMPRESSION AT 65 MHz



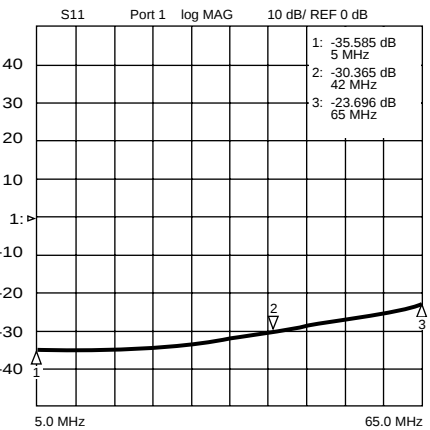
GAIN vs. FREQUENCY



NOISE FIGURE



INPUT RETURN LOSS



OUTPUT RETURN LOSS

