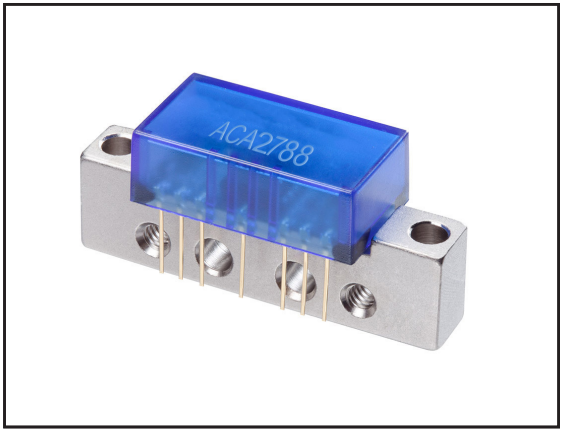
ACA2788

1 GHz, 28 dB Gain
CATV Power Doubler Amplifier
PRELIMINARY DATA SHEET

FEATURES

- 28 dB Gain
- 40 MHz to 1 GHz Operating Range
- 0.5 dB Gain Flatness
- 24 V Supply
- Supply Current: 430 mA (Typ.)
- Very Low Distortion & Noise
- Robust Design and Insensitive to Voltage Transients
- GaAs Monolithic IC-Based
- Standard SOT-115J Package
- Ruggedized design with integrated ring wave surge protection
- Superior ESD protection, >7kV



APPLICATIONS

- Distribution Nodes, System Amplifiers, and Line Extenders in CATV Systems

PRODUCT DESCRIPTION

The ACA2788 is a GaAs Hybrid Amplifier for CATV HFC distribution systems. It consists of two pairs of parallel amplifiers that are optimized for exceptionally low distortion and noise figure with input and output transient voltage protection. The ACA2788 is offered in a standard SOT-115J package.

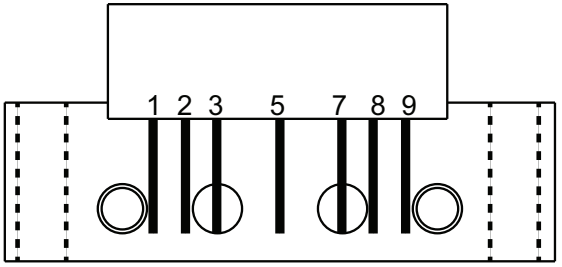


Figure 2: Hybrid Pinout

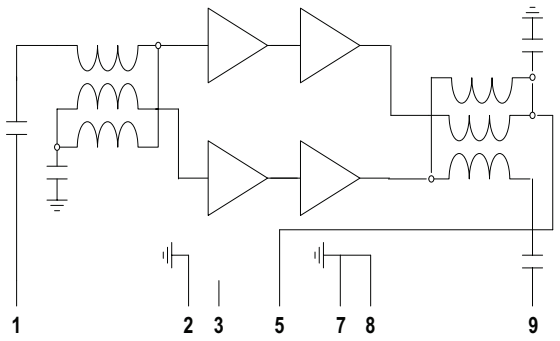


Figure 1: Simplified Hybrid Internal Arrangement

Table 1: SOT-115J Pinning

PIN	Description
1	RF Input
2	GND
3	GND or No Connection
5	24 V
7, 8	GND
9	RF Output

Table 2: Absolute Minimum and Maxium Ratings

	Symbol	Min	Typ	Max	Unit	Conditions
Supply Voltage	V_{DD}	-	+24	+28	V_{DC}	
RF Power at inputs	-	-	-	+70	dBmV	single tone
Operating mounting Base temperature	T_{MB}	-20	-	+100	°C	
Storage Temperature	T_{STG}	-40		+100	°C	

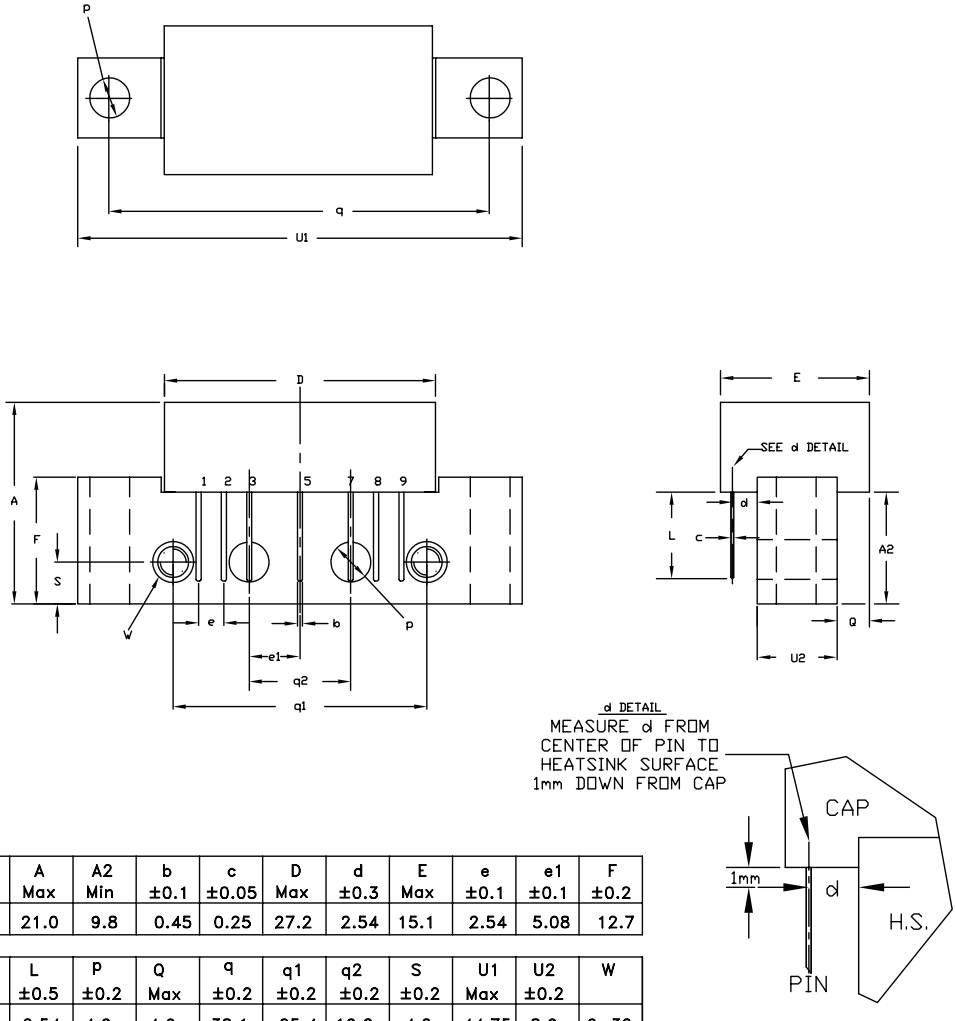
Table 3: Operating Ranges

	Symbol	Min	Typ	Max	Unit	Conditions
RF Frequency	-	40	-	1000	MHz	

Table 4: Electrical Characteristics
(Test condition: 40 to 1000 GHz, T_{MB} = 30°C, 75 Ω loading)

	Symbol	Min	Typ	Max	Unit	Conditions
Power Gain	G_P	26	28	29	dB	f = 1 GHz
Slope cable equivalent	SL	-	1.0	-	dB	47 MHz to 1 GHz
Gain Flatness	-	-	±0.5	-	dB	47 MHz to 1 GHz (peak to valley)
Input Return Loss	S_{11}	- -	- -	-19 -17	dB	40 - 500 MHz 500 - 1000 MHz
Output Return Loss	S_{22}	- -	- -	-18 -16	dB	40 - 500 MHz 500 - 1000 MHz
CTB	- -	- -	-70 -70	-65 -	dBc	See Note 1 See Note 2
CSO	- -	- -	-70 -70	-65 -	dBc	See Note 1 See Note 2
XMOD	-	-	-63	-	dBc	See Note 3
Noise Figure	-	-	3.5	5.0	dB	
Supply Current	-	-	430	445	mA	

Notes:
(1) 79 analog NTSC channels to 550 MHz + 75 digital QAM channels (at -6 dB offset) with 15.5 dB tilt referenced to +55 dBmV output power at 1GHz.
(2) 79 analog NTSC channels with flat output of +44 dBmV @ 550 MHz plus 53 digital channels to -6 dB offset to 1GHz.
(3) +58 dBmV Output (referenced to 1 GHz); 79 NTSC Analog Channels; 14 dB tilt at 1 GHz; plus 75 digital channels with QAM at -6 dB offset above 550 MHz.



UNITS	A Max	A2 Min	b ±0.1	c ±0.05	D Max	d ±0.3	E Max	e ±0.1	e1 ±0.1	F ±0.2
mm	21.0	9.8	0.45	0.25	27.2	2.54	15.1	2.54	5.08	12.7

UNITS	L ±0.5	P ±0.2	Q Max	q ±0.2	q1 ±0.2	q2 ±0.2	S ±0.2	U1 Max	U2 ±0.2	W
mm	2.54	4.0	4.0	38.1	25.4	10.2	4.2	44.75	8.0	6–32

Figure 3: Hybrid Line Amp Physical Outline

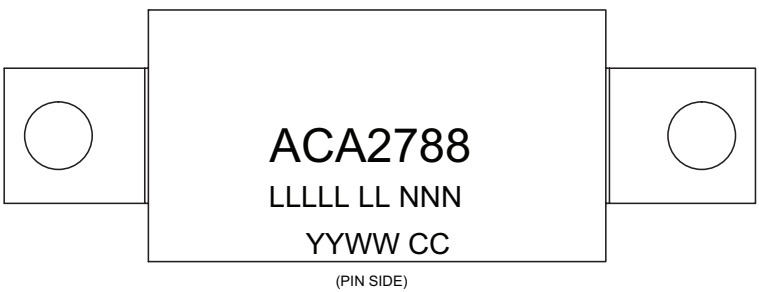


Figure 4: Branding Specification

ORDERING INFORMATION

ORDER NUMBER	TEMPERATURE RANGE	PACKAGE DESCRIPTION	COMPONENT PACKAGING
ACA2788V0	-20 °C to +100 °C	SOT-115J	100 Piece Box
ACA2788P9	-20 °C to +100 °C	SOT-115J	Special handling

NOTES

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