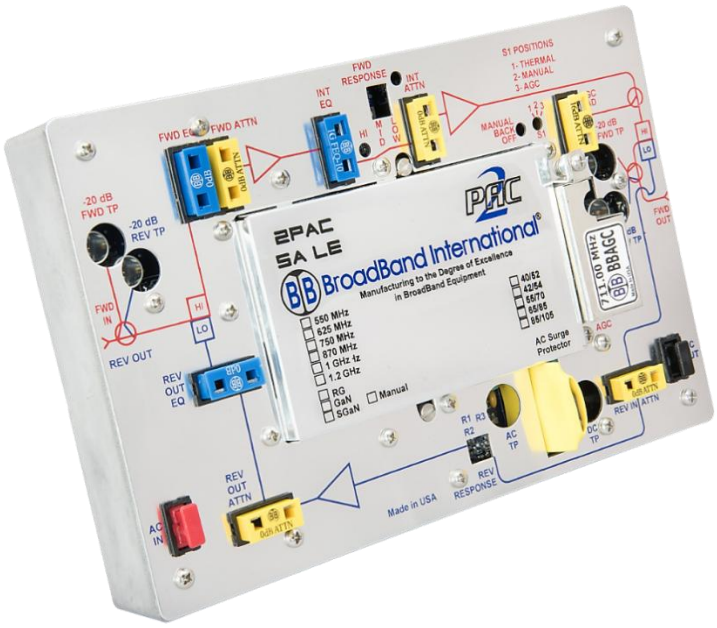
BroadBand International®
BROADBAND. AMPLIFIED.

1 GHz Line Extenders – 2PAC-S (SGaN)

Replaces/Upgrades Scientific Atlanta®/Cisco® 550/625/750/870/1000 MHz Systems



The 2PAC-S Super High Gain GaN enhanced amplifier module from Broadband International® is designed to drop into any existing Scientific Atlanta® I, II, III, or Cisco® GainMaker® line extender housing. The forward bandwidth is up to 1 GHz and may be optimized for any bandwidth from 550 to 1 GHz. This is accomplished by alignment of the interstage response network and by the type of cable equalizers utilized. Performance is optimized with GaN output hybrids to achieve peak performance at higher output levels.

The diplex filters are plug-in independent filters that can be changed in the field at a future date if a different reverse split is desired.

Numerous analog and QAM automatic gain control modules (plug-in) are available to meet your current and future system requirements.

Features:

- **Specified bandwidth performance from 550 MHz up to 1 GHz**
- **Utilizes FAST-PAC™ style plug-in equalizers and pads**
- **Multiple options for return path bandwidth with plug-in diplex filters**
- **GaN plug-in hybrid technology**
- **Multiple analog or QAM AGC options**
- **Super High Gain GaN**
- **Complete housings with Chromate Conversion or drop-in upgrade modules**
- **Compliance with the Build America, Buy America (BABA) requirements**

© BROADBAND INTERNATIONAL. ALL RIGHTS RESERVED.

Specifications - 42/54 MHz Split			
Pass Band	MHz	54-1002	5-42
Frequency Response (Flatness)	dB	+/- 0.75	+/- 0.5
Return Loss (note 8)	dB	16	16
Noise Figure (note 1,2)	dB	8	9
Operating Gain Manual Line Extender (notes 1,2)	dB	43	20
Operating Gain AGC Line Extender (note 1,2)	dB	38	20
Bode Control Range	dB	+/- 4	N/A
AC Hum Mod @ 10 Amperes 15 amps MAX	dBc	<-65	<-65
Reference Analog Output Level (1002/55 MHz) (note 3)	dBmV	55/41	35-40
Output Slope (typical) (note 3)	dB	14	N/A
Output Hybrid Technology	dB	GaN	Si PP
Test Points (note 5)	dB	20 +/-1 dB)	20 +/-1 dB)
Noise and Distortion Performance (note 6)	**Units**	**Forward**	**Reverse**
Composite Triple Beat	dB	72	N/A
Cross-Modulation (note 4)	dB	67	N/A
Composite Second Order	dB	76	N/A
Carrier to Intermodulation Noise (CIN)	dB	64	N/A
Dynamic Range at 50 dB NPR	dB	N/A	35
Amplifier Delay Characteristics			
Forward Chrominance to Luminance Delay ns/3.58 MHz		Reverse Group Delay 1.5 MHz	
Frequency (MHz)	Delay (ns)	Frequency (MHz)	Delay (ns)
55.25 to 58.83	37	5.0 to 6.5	65
61.25 to 64.83	13	6.5 to 8.0	25
67.25 to 70.83	8	39.0 to 40.5	18
77.25 to 80.83	4	40.5 to 42.0	31

Powering Data													
2PAC-S	**SGaN**		**AC Voltage**										
	I DC		**90**	**85**	**80**	**75**	**70**	**65**	**60**	**55**	**50**	**45**	**40**
Manual	0.84	AC current draw	0.47	0.49	0.51	0.53	0.56	0.6	0.64	0.68	0.75	0.81	0.85
AGC	0.94	AC current draw	0.53	0.55	0.57	0.6	0.64	0.68	0.72	0.78	0.84	0.92	0.94

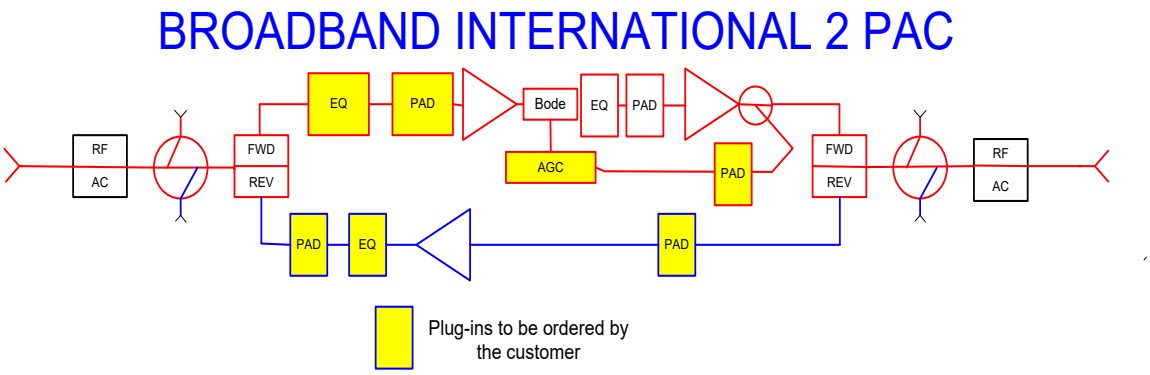
Notes

1. Forward Gain and Noise Figure measured with 0 dB input pad and EQ
2. Reverse Gain and Noise Figure measured with 0 dB reverse pads and EQ
3. Reference output tilt measured as "Linear" tilt from Matrix and CLGD
4. X-mod measured at 15.75 kHz specified using 100% synchronous modulation and 55-550 analog frequency
5. -20 dB Directional coupler RF test points for injectable sweep signals
6. 78 NTSC CW carriers from 55 to 550 MHz. "Digital" 558 to 1002 MHz loading with QAM carriers at -6 dB relative to analog
7. All specifications reflect typical performance and are referenced to 68°F (20°C).
8. Return loss > 16 dB from 10 -42 MHz /12-16 dB between 5-10 MHz – Return loss is typical but may be different depending on the OEM housing condition and model number housing

© BROADBAND INTERNATIONAL. ALL RIGHTS RESERVED.

2PAC-S (SGaN) Diagram

The following Required Accessories highlighted in yellow must be ordered separately (all other pads and equalizers are provided.



The Broadband International® 2PAC-S amplifiers can be configured in many different frequencies and options. Please consult your account representative for assistance with specific plug-in options.

Ordering Information

A-C	Product Family
23S	2PAC-S

E	Frequency Split
1	40/52
2	42/54
3	55/70
4	65/85
5	85/105

H	Frequency	Type
A	427.25	Analog
B	445.25	Analog
C	499.25	Analog
D	527.25	Analog
E	547.25	Analog
F	423	QAM
G	609	QAM
H	711	QAM
I	AGC Ready	
J	Manual	
K	Thermal	

J	Housing
1	No Housing
2	Housing

K	Kits
0	No Kit

A-C	D	E	F	G	H	I	J	K	L	M-O
23S			1			5		0	0	Future 000

D	Bandwidth
5	550 MHz
6	625 MHz
7	750 MHz
8	870 MHz
1	1 GHz

F	Port Configuration
1	LE Single Output

G	Tilt		Tilt
A	5 dB	I	13 dB
B	6 dB	J	14 dB
C	7 dB	K	15 dB
D	8 dB	L	16 dB
E	9 dB	M	17 dB
F	10 dB	N	18 dB
G	11 dB	O	19 dB
H	12 dB	P	20 dB

I	Gain Type
5	Super High Gain GaN

L	Power Supply
0	Standard PS

© BROADBAND INTERNATIONAL. ALL RIGHTS RESERVED.