ALGA MICROWAVE

PRODUCT GUIDE

Ku-Band SSPA

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
NJALKU-12-PA	12	10 W / 40 dBm	60	150	10 / 4.5	8.3 X 7.8 X 6.3 (FANLESS)
NJALKU-16-PA	16	12 W / 41 dBm	70	170	10 / 4.5	8.3 X 7.8 X 6.3 (FANLESS)
NJALKU-20-PA	20	16 W / 42 dBm	70	250	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-25-PA	25	20 W / 43 dBm	70	300	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-30-PA	30	25 W / 44 dBm	70	350	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-50-PA	50	40 W / 46 dBm	80	600	31 / 14	12.7 X 10.7 X 10.7
NJALKU-60-PA	60	50 W / 47 dBm	80	650	31 / 14	12.7 X 10.7 X 10.7
NJALKU-100-PA	100	80 W / 49 dBm	80	1200	82 / 37	16.2 X 16.0 X 7.3
NJALKU-200-PA	200	150 W / 52 dBm	80	2500	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics		Technical Specifications	
Output Frequency Range,	see options	14.00 – 14.50 GHz, (13.75 – 14.50 GHz optional)	
Input Frequency Range,	see options	14.00 – 14.50 GHz, (13.75 – 14.50 GHz optional)	
Input level		max level +10 dBm	
Gain flatness over any 40 MHz		+/-0.5 dB max at room temperature	
Gain flatness over full band		+/-1.0 dB max at room temperature	
Gain Variation		± 1.0 dB over operating temperature range	
Gain Adjustment Range		20 dB with 1 dB step size	
Input Return Loss		-17dB, max	
Output Return Loss		-17dB, max	
Noise Figure		12 dB @ maximum gain setting	
Spurious at rated power		-60 dBc max.	
Third order IMD (two equal tones 5Mhz apart)		-33dBc max. @ 7dB back off from rated P1dB, -25dBc max. @ 3dB back off from rated P1dB	
Group Delay		Linear	+/- 0.01 nsec / MHz max
		Parabolic	+/- 0.003 nsec / MHz(squared) max
		Ripple	1 nsec Peak to Peak

Power Requirements		
Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models

Mechanical Characteristics	
IF input (KU-Band) Interface	Type N Connector (Type F Connector Optional)
RF output (KU-Band) Interface	WR75 Grooved
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)				
	Output Frequency	(X) 13.75 - 14.5 GHz	(X) 13.75 - 14.25 GHz	(X) Other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) Other
	Input Connector	N-Type	(X) F-Type	(X) Other
	Output Connector	WR-75 Grooved	(X) N-Type	(X) Other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	(X) Other
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			

Note: The specifications are subject to change without notice.

Ku-Band BUC (L Band)

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
NJALKU-12	12	10 W / 40 dBm	60	150	10 / 4.5	8.3 X 7.8 X 6.3 (FANLESS)
NJALKU-16	16	12 W / 41 dBm	70	170	10 / 4.5	8.3 X 7.8 X 6.3 (FANLESS)
NJALKU-20	20	16 W / 42 dBm	70	250	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-25	25	20 W / 43 dBm	70	300	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-30	30	25 W / 44 dBm	70	350	11 / 5.0	8.3 X 7.8 X 7.85
NJALKU-50	50	40 W / 46 dBm	80	600	31 / 14	12.7 X 10.7 X 10.7
NJALKU-60	60	50 W / 47 dBm	80	650	31 / 14	12.7 X 10.7 X 10.7
NJALKU-100	100	80 W / 49 dBm	80	1200	62 / 28	16.2 X 16.0 X 7.3
NJALKU-200	200	150 W / 52 dBm	80	2500	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics		Technical Specifications	
Output Frequency Range,	see options	14.00 – 14.50 GHz, (13.75 – 14.50 GHz optional)	
Input Frequency Range,	see options	950 to 1450 MHz (950 to 1700 MHz, opt.) (LO 13.05 GHz, 12.8 GHz)	
Input 10 MHz ref. required, unless internal 10 MHz ref option is chosen	options XXX	10 MHz ref. level -5 to +5 dBm	
Gain flatness over any 40 MHz		+/-1.0 dB max at room temperature	
Gain flatness over full band		+/-2.5 dB max at room temperature	
Gain Variation		± 2.5 dB over operating temperature range	
Input VSWR (L-Band)		2.0 : 1, max	
Output Return Loss (Ku-Band)		-17dB, max	
Spurious at rated power		-50 dBc max.	
Third order IMD (two equal tones 5Mhz apart)		-33dBc max. @ 7dB back off from rated P1dB, -25dBc max. @ 3dB back off from rated P1dB	
Output Phase Noise		@ 1KHz	-70 dBc / Hz
		@ 10 KHz	-80 dBc /Hz
		@ 100 KHz	-90 dBc /Hz

Power Requirements		
Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models

Mechanical Characteristics	
IF input (L-Band) Interface	Type N Connector (Type F Connector Optional)
RF output (Ku-Band) Interface	WR75 Grooved
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)	Output Frequency	(X) 13.75 - 14.5 GHz	(X) 13.75 - 14.25 GHz	(X) Other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) Other
	Input Connector	N-Type	(X) F-Type	(X) Other
	Output Connector	WR-75 Grooved	(X) N-Type	(X) Other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	INTERNAL 10 MHz Reference
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			

Note: The specifications are subject to change without notice.

C-Band SSPA

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
NJALC-16-PA	16	12 W / 41 dBm	70	150	12 / 5.5	11 X 10 X 5.8 (FANLESS)
NJALC-25-PA	25	20 W / 43 dBm	70	300	12 / 5.5	11 X 10 X 5.8 (FANLESS)
NJALC-50-PA	50	40 W / 46 dBm	70	450	15 / 7	11 X 10 X 8
NJALC-80-PA	80	60 W / 47.8 dBm	70	550	31 / 14	11.5 X 11.2 X 11.3
NJALC-100-PA	100	80 W / 49 dBm	80	600	31 / 14	11.5 X 11.2 X 11.3
NJALC-125-PA	125	100 W / 50 dBm	80	750	31 / 14	11.5 X 11.2 X 11.3
NJALC-200-PA	200	150 W / 52 dBm	80	1000	65 / 29	21.3 X 18.3 X 10.2
NJALC-250-PA	250	200 W / 53 dBm	80	1200	65 / 29	21.3 X 18.3 X 10.2
NJALC-400-PA	400	300 W / 55 dBm	80	2000	88 / 40	24.3 X 18.3 X 11.9
NJALC-500-PA	500	400 W / 56 dBm	80	2500	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics — Technical Specifications

Output Frequency Range,	see options	5.85 - 6.425 GHz, (5.85 – 6.725 GHz optional)
Input Frequency Range,	see options	5.85 - 6.425 GHz, (5.85 – 6.725 GHz optional)
Input level		max level +10 dBm
Gain flatness over any 40 MHz		+/-0.5 dB max at room temperature
Gain flatness over full band		+/-1.0 dB max at room temperature
Gain Variation		± 1.0 dB over operating temperature range
Gain Adjustment Range		20 dB with 1 dB step size
Input Return Loss		-17dB, max
Output Return Loss		-17dB, max
Noise Figure		10 dB @ maximum gain setting
Spurious at rated power		-60 dBc max.
Third order IMD (two equal tones 5Mhz apart)		-34dBc max. @ 7dB back off from rated P1dB -26dBc max. @ 3dB back off from rated P1dB
Group Delay		Linear: +/- 0.01 nsec / MHz max Parabolic: +/- 0.003 nsec / MHz(squared) max Ripple: 1 nsec Peak to Peak

Power Requirements

Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models

Mechanical Characteristics

IF input (C-Band) Interface	Type N Connector
RF output (C-Band) Interface	CPR137 Grooved (Type N optional)
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)	Output Frequency	(X) 5.85 - 6.725 GHz	(X) 6.725 - 7.025 GHz	(X) other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) other
	Input Connector	N-Type	(X) F-Type	(X) other
	Output Connector	CPR137 Grooved	(X) N-Type	(X) other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	(X) other
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			

Note: The specifications are subject to change without notice.

C-Band BUC (L Band)

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
NJALC-16	16	12 W / 41 dBm	70	150	12 / 5.5	11 X 10 X 5.8 (FANLESS)
NJALC-25	25	20 W / 43 dBm	70	300	12 / 5.5	11 X 10 X 5.8 (FANLESS)
NJALC-50	50	40 W / 46 dBm	70	450	15 / 7	11 X 10 X 8
NJALC-80	80	60 W / 47.8 dBm	70	550	31 / 14	11.5 X 11.2 X 11.3
NJALC-100	100	80 W / 49 dBm	80	600	31 / 14	11.5 X 11.2 X 11.3
NJALC-125	125	100 W / 50 dBm	80	750	31 / 14	11.5 X 11.2 X 11.3
NJALC-200	200	150 W / 52 dBm	80	1000	65 / 29	21.3 X 18.3 X 10.2
NJALC-250	250	200 W / 53 dBm	80	1200	65 / 29	21.3 X 18.3 X 10.2
NJALC-400	400	300 W / 55 dBm	80	2000	88 / 40	24.3 X 18.3 X 11.9
NJALC-500	500	400 W / 56 dBm	80	2500	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics		Technical Specifications	
Output Frequency Range,	see options	5.85 - 6.425 GHz, (5.85 – 6.725 GHz optional)	
Input Frequency Range,	options XXX	950 to 1,525 MHz, (950 to 1825 MHz, optional) (LO 4.9 GHz)	
Input 10 MHz ref. required, unless internal 10 MHz ref option is chosen	options XXX	10 MHz ref. level -5 to +5 dBm	
Gain flatness over any 40 MHz		+/-1.0 dB max at room temperature	
Gain flatness over full band		+/-2.75 dB max at room temperature	
Gain Variation		± 2.5 dB over operating temperature range	
Input VSWR (L-Band)		2.0 : 1, max	
Output Return Loss		-17dB, max	
Spurious at rated power		-50 dBc max.	
Third order IMD (two equal tones 5Mhz apart)		-34dBc max. @ 7dB back off from rated P1dB, -26dBc max. @ 3dB back off from rated P1dB	
Output Phase Noise		@ 1KHz	-70 dBc / Hz
		@ 10 KHz	-80 dBc /Hz
		@ 100 KHz	-90 dBc /Hz

Power Requirements		
Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models

Mechanical Characteristics	
IF input (L-Band) Interface	Type N Connector (Type F Connector Optional)
RF output (C-Band) Interface	CPR137 Grooved (Type N optional)
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)	Output Frequency	(X) 5.85 - 6.725 GHz	(X) 6.725 - 7.025 GHz	(X) other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) other
	Input Connector	N-Type	(X) F-Type	(X) other
	Output Connector	CPR137 Grooved	(X) N-Type	(X) other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	INTERNAL 10 MHz Reference
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			

Note: The specifications are subject to change without notice.

X-Band SSPA

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
ALPAX-12-PA	12	10 W / 40 dBm	70	160	12 / 5.5	11 X 10 X 5.8 (FANLESS)
ALPAX-25-PA	25	20 W / 43 dBm	70	275	12 / 5.5	11 X 10 X 5.8 (FANLESS)
ALPAX-50-PA	50	40 W / 46 dBm	70	450	15 / 7	11 X 10 X 8
ALPAX-80-PA	80	60 W / 47.8 dBm	70	550	31 / 14	11.5 X 11.2 X 11.3
ALPAX-100-PA	100	80 W / 49 dBm	80	600	31 / 14	11.5 X 11.2 X 11.3
ALPAX-125-PA	125	100 W / 50 dBm	80	800	31 / 14	11.5 X 11.2 X 11.3
ALPAX-200-PA	200	150 W / 52 dBm	80	1000	65 / 29	21.3 X 18.3 X 10.2
ALPAX-250-PA	250	200 W / 53 dBm	80	1200	65 / 29	21.3 X 18.3 X 10.2
ALPAX-400-PA	400	300 W / 55 dBm	80	2200	88 / 40	24.3 X 18.3 X 11.9
ALPAX-500-PA	500	400 W / 56 dBm	80	2400	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics	Technical Specifications	
Output Frequency Range,	7.9 to 8.4 GHz,	
Input Frequency Range	7.9 to 8.4 GHz,	
Input level	max level +10 dBm	
Gain flatness over any 40 MHz	+/-1.0 dB max at room temperature	
Gain flatness over full band	+/-2.5 dB max at room temperature	
Gain Variation	± 2.5 dB over operating temperature range	
Input VSWR (L-Band)	2.0 : 1, max	
Output Return Loss (X-Band)	-17dB, max	
Spurious at rated power	-50 dBc max.	
Third order IMD (two equal tones 5Mhz apart)	-33dBc max. @ 7dB back off from rated P1dB -25dBc max. @ 3dB back off from rated P1dB	
Output Phase Noise	@ 1KHz	-70 dBc / Hz
	@ 10 KHz	-80 dBc /Hz
	@ 100 KHz	-90 dBc /Hz

Power Requirements		
Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models, 220 VAC only on some models

Mechanical Characteristics	
IF input (L-Band) Interface	Type N Connector
RF output (X-Band) Interface	CPR 112 Grooved
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)	Output Frequency	(X) Other	(X) Other	(X) Other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) Other
	Input Connector	N-Type	(X) F-Type	(X) Other
	Output Connector	WR-112 Grooved	(X) N-Type	(X) Other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	(X) Other
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			
Note: The specifications are subject to change without notice.				

X-Band BUC (L Band)

➢Features: Weatherproof Pressure tested up to 10 psi
Light weight & Compact
Redundancy option
Indoor Rack Mount also available

Model	Output Power at PSAT typ. [Watts]	Output Power at P1dB min [Watts] / [dBm]	GAIN, dB Min	Power Consumption [Watts]	Weight [lbs / kgs]	Size L X W X H [Inches]
ALPAX-12	12	10 W / 40 dBm	70	160	12 / 5.5	11 X 10 X 5.8 (FANLESS)
ALPAX-25	25	20 W / 43 dBm	70	275	12 / 5.5	11 X 10 X 5.8 (FANLESS)
ALPAX-50	50	40 W / 46 dBm	70	450	15 / 7	11 X 10 X 8
ALPAX-80	80	60 W / 47.8 dBm	70	550	31 / 14	11.5 X 11.2 X 11.3
ALPAX-100	100	80 W / 49 dBm	80	600	31 / 14	11.5 X 11.2 X 11.3
ALPAX-125	125	100 W / 50 dBm	80	800	31 / 14	11.5 X 11.2 X 11.3
ALPAX-200	200	150 W / 52 dBm	80	1000	65 / 29	21.3 X 18.3 X 10.2
ALPAX-250	250	200 W / 53 dBm	80	1200	65 / 29	21.3 X 18.3 X 10.2
ALPAX-400	400	300 W / 55 dBm	80	2200	88 / 40	24.3 X 18.3 X 11.9
ALPAX-500	500	400 W / 56 dBm	80	2400	88 / 40	24.3 X 18.3 X 11.9

Electrical Characteristics — Technical Specifications

Output Frequency Range,	7.9 to 8.4 GHz,	
Input Frequency Range	950 to 1450 MHz, (LO. @ 6.95 GHz)	
Input 10 MHz ref. required, unless internal 10 MHz ref option is chosen options XXX	10 MHz ref. level -5 to +5 dBm	
Gain flatness over any 40 MHz	+/-1.0 dB max at room temperature	
Gain flatness over full band	+/-2.5 dB max at room temperature	
Gain Variation	± 2.5 dB over operating temperature range	
Input VSWR (L-Band)	2.0 : 1, max	
Output Return Loss (X-Band)	-17dB, max	
Spurious at rated power	-50 dBc max.	
Third order IMD (two equal tones 5Mhz apart)	-33dBc max. @ 7dB back off from rated P1dB -25dBc max. @ 3dB back off from rated P1dB	
Output Phase Noise	@ 1KHz	-70 dBc / Hz
	@ 10 KHz	-80 dBc /Hz
	@ 100 KHz	-90 dBc /Hz

Power Requirements

Input supply voltage	see options	110/220 VAC ±15% (47-63 HZ) Auto Ranging 48 VDC optional for certain models, 220 VAC only on some models

Mechanical Characteristics

IF input (L-Band) Interface	Type N Connector
RF output (X-Band) Interface	CPR 112 Grooved
Power Input	MS3102R16-10P
M&C Interface	MS3102R20-29S
Redundant Interface	MS3102R18-1S
Temperature Operating	-40° C to +55°C
Storage	-55°C to +85°C
Humidity	100%, considering, rain 2" per hour
Altitude	10000' AMSL

Options (XXX)	Output Frequency	(X) Other	(X) Other	(X) Other
	Power Supply	110 / 220 VAC	(X) 48 VDC	(X) Other
	Input Connector	N-Type	(X) F-Type	(X) Other
	Output Connector	WR-112 Grooved	(X) N-Type	(X) Other
	M & C Interface	Analog (TTL)	(X) Digital (RS 232 or 485)	INTERNAL 10 MHz Reference
M & C functions	Output Level control, RF Power detection, Temperature Monitor & Mute Control, etc…			

Note: The specifications are subject to change without notice.

Alga Microwave, established in 2003, manufactures high quality, cost-effective active and passive RF/Microwave components used in Satellite, Radar, Mobile and Broadcasting communications systems and numerous other RF/Microwave applications. Our mission is to offer an unbeatable turnkey solution to meet needs of current and future wireless environments.

The following products are the key part of the offering:

High Power Solid State Power Amplifiers, BUC's, Transmitter, Transceiver systems for both Indoor and Outdoor Applications. The products cover all major frequency standards specifically:

S, C, X, Ku & Ka BANDS
2.0 to 31 GHz
1 W to 5 kW.

RF/Microwave Subsystems and Subassemblies

- **Indoor or Outdoor**
- **Modules or Complete assemblies**
- **Redundancy Systems**

Filters, Diplexers, Couplers, Adaptors, Combiners/Dividers, and Waveguide Assemblies. The products cover all major frequency standards from 100 MHz to 40 GHz.

Our products are designed and assembled at the company's manufacturing facility in Montreal, Canada.

Please contact us to learn more about our products.

Our Products (some examples)

Ku 40 - 60W BUC - SSPA

C 150 - 250W C BUC - SSPA

C 150 - 250W C BUC - SSPA

C 300 - 500W C BUC - SSPA