

Low Power Solid-State Power Amplifiers

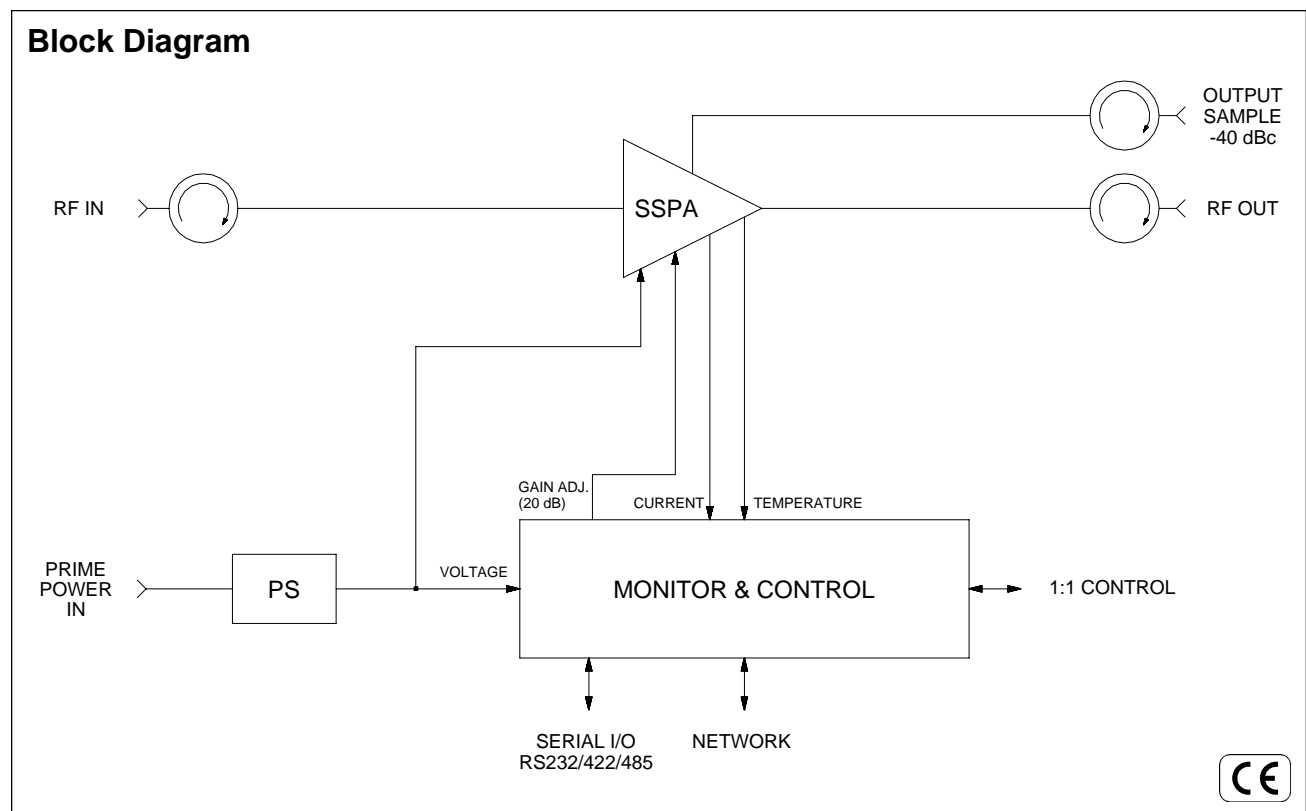
Using technology developed for VertexRSI's ModuMAX™ amplifiers, these rack-mount SSPAs offer output powers of up to 50 watts in C-, X-, and Ku-Band satellite uplink bands. The SSPAs incorporate a modular architecture that includes the RF modules, power supplies, logic, fans, and front panel assembly. The amplifiers are designed for reliable service in fixed and mobile applications.

Features

- 25, 35, and 50 W saturated output power
- Digital gain adjustment (20 dB range)
- Forward power monitoring
- Microprocessor-based monitor and control
- Serial interface (RS232/422/485) standard
- 10 Base-T Network interface (SNMP)
- Integral 1:1 redundancy control
- RF output sample port

Applications

- Single-thread SSPA
- Redundant systems
- Fixed installations
- Mobile terminals
- Government and Military systems



GENERAL DYNAMICS

SATCOM Technologies

Parameter	Notes	Min	Nom/Typt	Max	Units
Frequency Range	C-Band, Standard "D"	5.85		6.425	GHz
	C-Band, Extended "M"	5.85		6.725	GHz
	X-Band, Standard "B"	7.9		8.4	GHz
	Ku-Band, Standard "M"	14		14.5	GHz
	Ku-Band, Extended "O"	13.75		14.5	GHz
Gain, at Maximum Setting	C-, X-, & Ku-Bands	70		75	dB
Gain vs. Temperature	0 to 50 °C		±0.5	±0.75	dB
Gain Adjust Range	Digital, 0.1 dB steps	20			dB
Gain Flatness	Full Band			±0.75	dB
	Per 40 MHz			±0.30	dB
Saturated Power Output	50 W C-Band		+47 (50)		dBm (W)
	25 W C-Band		+44 (25)		dBm (W)
	50 W X-Band		+47 (50)		dBm (W)
	25 W X-Band		+44 (25)		dBm (W)
	35 W Ku-Band		+45.5 (35)		dBm (W)
	25 W Ku-Band		+44 (25)		dBm (W)
Power Output, at 1 dB Compression (P1dB)	50 W C-Band	+46.5 (45)			dBm (W)
	25 W C-Band	+43.5 (22)			dBm (W)
	50 W X-Band	+46.5 (45)			dBm (W)
	25 W X-Band	+43.5 (22)			dBm (W)
	35 W Ku-Band	+44.5 (28)			dBm (W)
	25 W Ku-Band	+43.0 (20)			dBm (W)
Two-Tone Intermodulation	At 3 dB backoff from P _{1dB}		-30	-25	dBc
Noise Figure			8		dB
Residual Noise	C-Band, 5.85-6.425 GHz			-70	dBW/4 kHz
	C-Band, 3.4-4.2 GHz			-150	dBW/4 kHz
	X-Band, 7.25-8.40 GHz			-70	dBW/4 kHz
	Ku-Band, 13.75-14.50 GHz			-70	dBW/4 kHz
	Ku-Band, 10.7-12.75 GHz			-120	dBW/4 kHz
Group Delay	Linear			0.03	ns/MHz
	Parabolic			0.003	ns/MHz ²
	Ripple			1	ns p-p
AM/PM Conversion	At P _{1dB}		2.5	3.5	°/dB
Second Harmonic	At P _{1dB}		-60		dBc
Spurious	At P _{1dB} , in-band			-70	dBc
VSWR	Input		1.2	1.3	:1
	Output		1.3	1.5	:1
Sample Ports	Output		-40		dBc

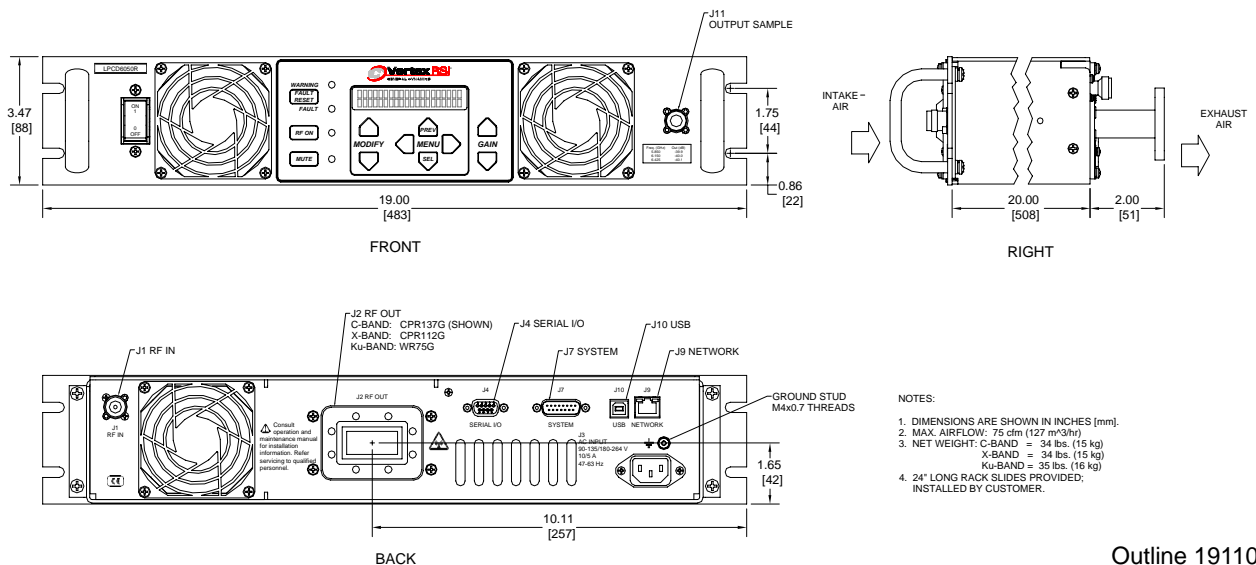
† When there is only one value on a line, this column is a nominal value. Otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

Parameter	Notes	Min	Nom/Typ†	Max	Units
Connectors	Input Output, C-Band Output, X-Band Output, Ku-Band Sample Port Serial I/O Power System Network		Type N Female CPR137G CPR112G WR75G Type N Female 9-pos D, Female IEC-320 15-pos D, Male RJ-45 jack		
Power Requirements	Voltage Frequency Power factor	100 47	0.98	240 63	Vac Hz
Power Consumption	50 W C-Band 25 W C-Band 50 W X-Band 25 W X-Band 35 W Ku-Band 25 W Ku-Band		275 225 325 250 300 275	375 ^A 325 ^A 400 ^A 350 ^A 350 ^A 325 ^A	W W W W W W
Cooling System			Forced Air		
Operating Temperature		0		50	°C
Altitude Derating	10,000 ft (3000 m) max.	Derate 2 °C per 1000 ft (300 m)			
Size	See outline	19.0 W x 3.50 H x 22.00 D 483 W x 89 H x 559 D			inches mm

† When there is only one value on a line, this column is a nominal value. Otherwise it is a typical value. Typical values are intended to illustrate typical performance, but are not guaranteed.

^A Cold start at 0 °C and Pout in saturation.

Outline Drawing, SSPA:



Outline 19110

Part Number/Ordering Information, SSPAs:

C-Band
LPC **6** **R**

5.850–6.425 GHz = D
5.850–6.725 GHz = M

25 watts = 025
50 watts = 050

X-Band
LPXB8 **R**

7.90–8.40 GHz = B

25 watts = 025
50 watts = 050

Ku-Band
LPK **14** **R**

14.00–14.50 GHz = M
13.75–14.50 GHz = O

25 watts = 025
35 watts = 035

Redundant Systems:

(Consists of 1:1 switching assembly, two SSPAs, and interconnecting cables.)

C-Band
LPRC1 **R**

5.850–6.425 GHz = D
5.850–6.725 GHz = M

25 watts = 025
50 watts = 050

X-Band
LPRX1B **R**

7.90–8.40 GHz = B

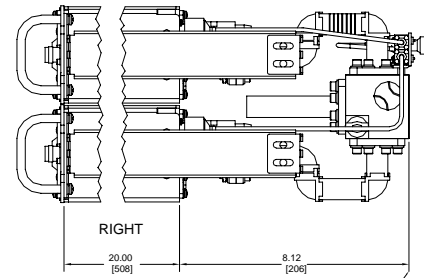
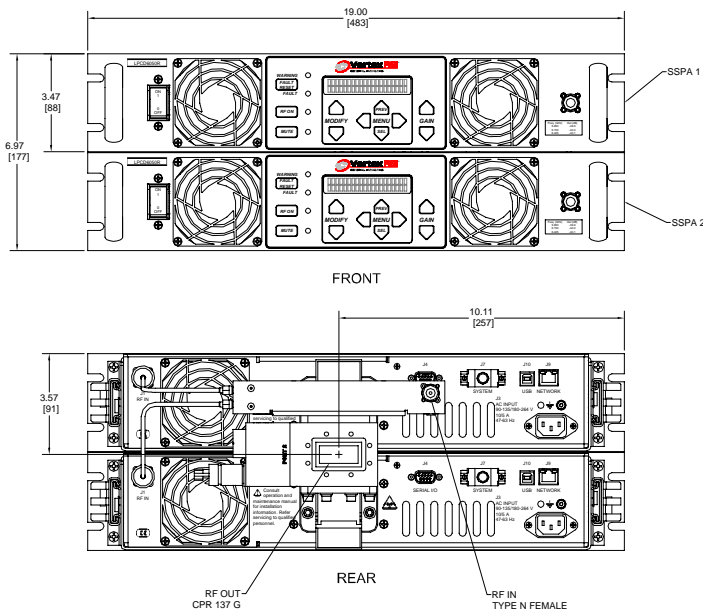
25 watts = 025
50 watts = 050

Ku-Band
LPRK1 **R**

14.00–14.50 GHz = M
13.75–14.50 GHz = O

25 watts = 025
35 watts = 035

Outline Drawing, 1:1 Redundant System:



NOTES:
1. DIMENSIONS ARE SHOWN IN INCHES [mm].
2. NET WEIGHT: 75 lbs. (34 kg)

Outline 20024