550 Watt Ka-Band Antenna Mount High Power Amplifiers

FEATURES

- *550 watt Ka-band, peak power*
- *Frequencies between 27.5 and 30.0 GHz*
- *Includes linearizer*
- *Rugged outdoor mountable*
- *Complete RS-232/422/485 ethernet interface*
- *-40°C to +60°C ambient*

The **XTD-550KaL** series are compact, self contained antenna mount power amplifiers designed for low cost installation and long life. The **XTD-550KaL** family features high RF efficiency which enables a smaller, lighter amplifier with the ability to operate at up to 60 deg C ambient temperatures.

Comtech Xicom has developed proprietary features to improve performance and life including an automatic bias control system which extends TWT life by maintaining constant beam current over time and a precise system for matching linearizer performance to a specific tube over a wide range of operating conditions maximizing useable linear power.

The amplifier is equipped with an internal 1:1 switch control capable of driving an input and output switch for redundancy. Rack mountable controllers are also available.

COMTECH XICOM TECHNOLOGY

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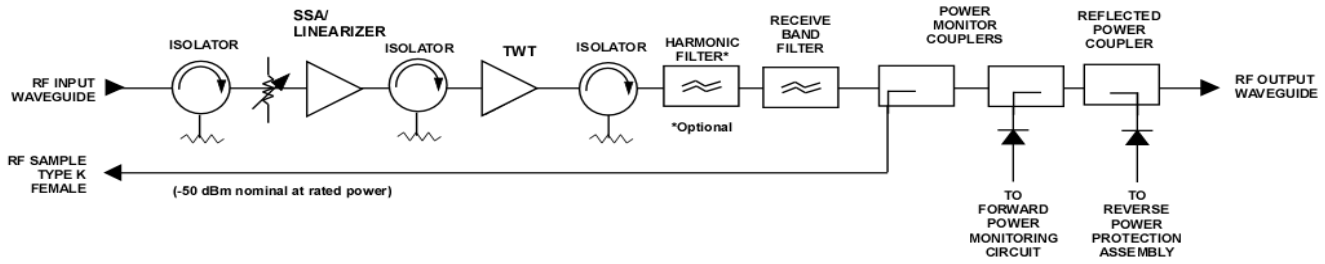
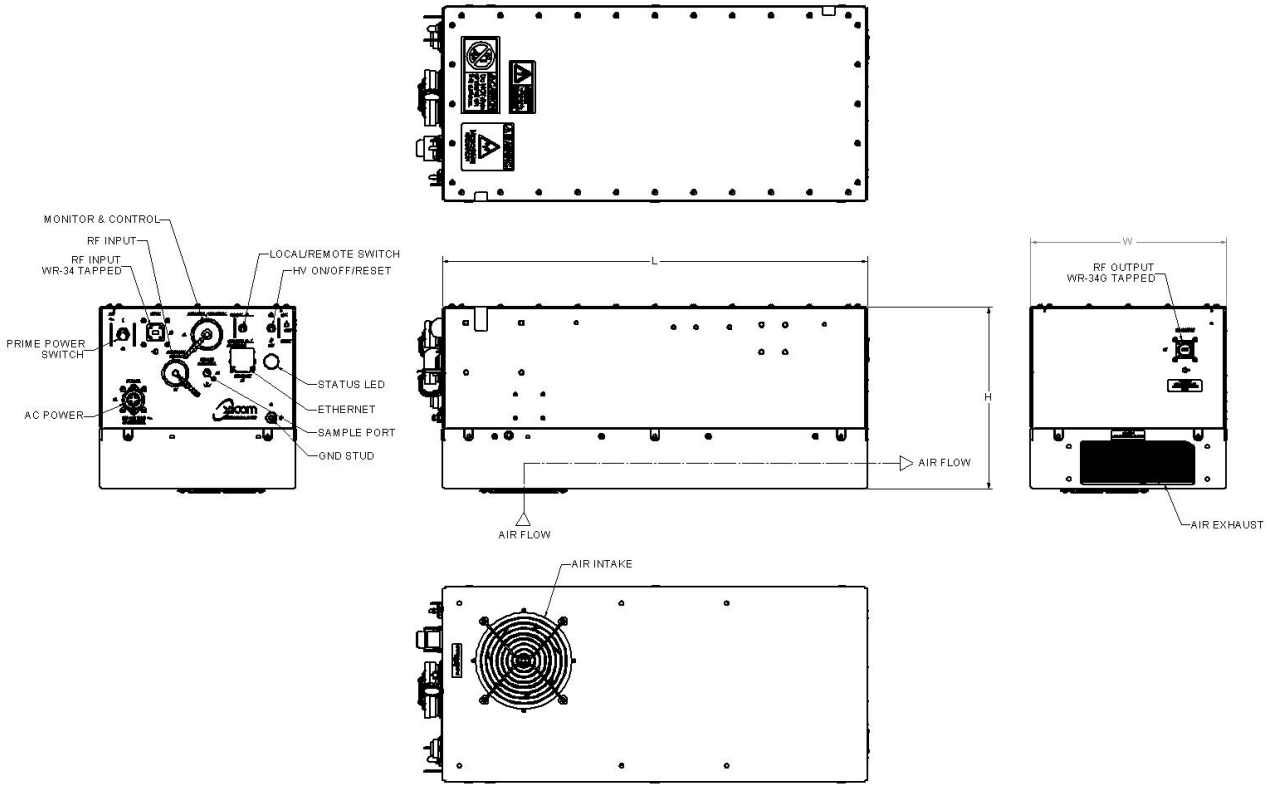
PERFORMANCE SPECIFICATION

Parameters	Peak Power XTD-550KaL
FREQUENCY RANGE	27.5 to 30.0 GHz
OUTPUT POWER	
Traveling Wave Tube	550W (57.4 dBm)
Maximum CW Power @ Amplifier Flange	240W (53.8 dBm)
Linear Power @ Amplifier Flange: -19 dB NPR	182W (52.6 dBm)
GAIN	
Large Signal (minimum)	70 dB
Small Signal (minimum)	70 dB
Attenuator range (0.1 dB steps)	30 dB
Maximum SSG Variation Over	
Any Narrow Band	1.2 dB per 250 MHz
Full Band	2.0 dB
Slope (maximum)	± 0.08 dB/MHz
Stability, 24 hr. (maximum)	± 0.25 dB
Stability, Temperature (maximum)	± 1.0 dB at any frequency
INTERMODULATION (maximum) with two equal carriers	-25 dBc at 230 W (53.6 dBm)
HARMONIC OUTPUT (maximum) with optional harmonic filter	-60 dBc
AM/PM Conversion (maximum)	2.0 deg/dB to maximum linear power
NOISE POWER (maximum)	
Transmit Band	-75 dBW/4 kHz
Receive Band	-150 dBW/4 kHz
GROUP DELAY (maximum)	
Bandwidth	Any 250 MHz
Linear	0.01 nS/MHz
Parabolic	0.001 nS/MHz^2
Ripple	0.25 nS/Pk-Pk
RESIDUAL AM NOISE (maximum)	-50 dBc to 10 kHz -20 (1.5 + logf) dBc 10 to 500 kHz -85 dBc above 500 kHz
SPURIOUS (In band) Linear	-60 dBc
PHASE NOISE (maximum)	10 Hz -42 dBc 100 Hz -72 dBc 1 kHz -82 dBc 10 kHz -92 dBc 100 kHz -102 dBc 1 MHz -112 dBc
VSWR	
Input (maximum)	1.3:1
Output (maximum)	1.3:1

BLOCK DIAGRAM



OUTLINE DRAWING



DIMENSIONS		
	INCHES	CENTIMETERS
L	22.25	56.52
H	9.50	24.13
W	10.25	26.04
Typical Weight = 58 lb (26.31 kg)		

PRIME POWER

100 to 264 Max.
47 to 66 Hz, single phase
1400 VA Typical
0.95 Min. Prime Power Factor

CE

ENVIRONMENT

NONOPERATING TEMPERATURE RANGE	-50°C to +70°C
OPERATING TEMPERATURE RANGE	-40°C to +60°C
HUMIDITY	Up to 100% Condensing
ALTITUDE	10,000 feet MSL max. with standard adiabatic derating
SHOCK AND VIBRATION	Normal Transportation
COOLING	Forced Air (self cooled)

INTERFACE

Type	Function	
LOCAL CONTROL	Prime Power ON/OFF	Local/Remote
	Power Supply ON/OFF	HV ON/OFF
LOCAL STATUS	Tri-Color LED:	
	Fault: Red	Standby: Continuous Amber
	HV ON: Green	FTD: Flashing Amber
REMOTE CONTROL	HV ON/OFF	RF Inhibit (HV OFF)
	RF Attenuation	Fault Reset
	Heater Standby	Constant Power
REMOTE STATUS	HV On	Heater/Beam Hours
	RF Output Power	Fault Identification
	Reflected Power	TWT Temperature
	Filament Time Delay	Helix Current
	Helix Voltage	
DISCRETE STATUS	Summary Fault (2X Form C Dry Contact Closure)	
RF MONITOR PORT	-40 dB Coupling Value (approx)	
INTERFACE	Serial RS-232/422/485 Ethernet	

OPTIONS

- Harmonic Filter
- WR-34 Waveguide Output or Input
- Alternate Frequency Coverage (27 to 31 GHz)
- Remote External Controller
- 1:1, 1:2, 1:N Redundancy
- Phase Combined
- Unlinearized

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Note: Technical specifications are subject to change without notice. Please contact Xicom Technology before using this information for system design.