CPI 250 Watt Peak TWTA

V-Band

CPI V-Band TWTA for Satellite Uplink Communications

Provides 80 watts of minimum power in a rugged and compact weatherproof package, digital ready, for wideband single- and multi-carrier satellite service over a 4.2 GHz bandwidth (5.2 GHz bandwidth optional) within the V-band frequency band. Ideal for fixed earth station applications.

CPI 250 W V-band TWTA, provides up to 80 watts of linear power at the flange

Cost Effective and Efficient
Mounting at the antenna improves performance by reducing IFL losses and saves cost in system design. Provides 80 W of linear power at the amplifier flange.

Rugged and Easy to Maintain
Built-in fault diagnostic capability via remote monitor and control. Easy access enclosure for improved serviceability. CAN-Bus architecture improves reliability and improves noise immunity. User-friendly microprocessor-controlled logic with integrated Ethernet computer interface.

Meets Global Requirements
Meets International Safety Standard EN-60215, Electromagnetic Compatibility 2014/30/EU and Harmonic Standard EN-61000-3-2 to satisfy worldwide requirements. CE certified. SNMP enabled.

Worldwide Support
Backed by over four decades of satellite communications experience, and CPI's worldwide 24-hour customer support network which includes more than 20 regional factory service centers.

FEATURES:

- Ethernet interface with integral web server for easy monitoring and control
- SNMP interface (v1, v2, or v3)
- EMC Directive 2014/30/EU
- Harmonic Standard EN-61000-3-2

OPTIONS:

- 5.2 GHz operation - from 47.2 to 52.4 GHz
- Remote control panel
- Integral linearizer
- Integral 1:1 switch control and drive
- Liquid cooling (please see CPI doc. MKT-492 for dimensions and specifications)
- Redundant systems
- Harmonic filter
  - standard on 52.4 GHz version
  - optional for 51.4 GHz version
- Serial interface (RS232/422)
- Uplink power control

Quality Management System - ISO 9001:2015

CE

CPI Communications & Power Industries

www.cpii.com/satcom

Specification		CPI Model TL02VO-A1 - 250 W Peak Power V-Band TWTA	
ELECTRICAL SPECIFICATIONS			
Output Frequency		47.2 to 51.4 GHz	47.2 to 52.4 GHz
Peak TWT Flange Power		250 W (53.97 dBm)	
Peak Amplifier Flange Power		200 W (53.00 dBm)	
Rated Linear Amplifier Flange Power		80 W (49.03 dBm)	
Intermodulation - with respect to the sum of two carriers		-28 dBc max. at total output power of 80 W with linearizer	
Intermodulation - with respect to each of 2 equal carriers		-25 dBc max. at total output power of 80 W with linearizer	
NPR (with linearizer option)		19 dB at 80 W output power (75 W with optional harmonic filter)	19 dB at 75 W output power
Spectral Regrowth		-30 dBc max. at rated CW power with linearizer	
Gain		60 dB min; 64 dB typ. at 3 dB backoff from rated CW power	
RF Level Adjust Range		0 to 30 dB (via PIN diode attenuator) typ, 0.1 dB steps	
Gain Stability		±0.25 dB/24-hour max, at constant drive and temperature, after 30-minute warmup	
Small Signal Gain Variation		4 dB pk-pk max. across the 4.2 GHz band	5 dB pk-pk max. across the 5.2 GHz band
		2.5 dB max. over any 1 GHz band; 1 dB pk-pk max. over any 250 MHz	3.0 dB max. over any 1 GHz band; 1.5 dB pk-pk max. over any 250 MHz
Input/Output VSWR		1.3:1 max.	
Load VSWR		2.0:1 max. operational; any value for operation without damage	
Phase Noise		-15 dB below IESS-308 continuous mask; -45 dBc AC fundamental; -50 dBc sum of all spurs	
AM/PM Conversion		2.5º/dB max. for a single-carrier up to 4 dB OBO from rated CW power (at rated CW power with linearizer)	
Harmonic Output		-60 dBc with harmonic filter option	-60 dBc
Noise Density		<-150 dBW/4 kHz below 31.4 GHz; <-150 dBW/4 kHz from 37.5 to 42.5 GHz; <-70 dBW/4 kHz max. in passband	
Group Delay (over 40 MHz)		0.01 ns/MHz linear max; 0.001 ns/MHz2 parabolic max; 0.5 ns pk-pk ripple max.	
Primary Power		Voltage: Single phase, 100-240 VAC ±10%; Frequency: 47-63 Hz	
Power Consumption		1100 VA max	
Power Factor		0.95 min; 0.99 typ.	
MECHANICAL SPECIFICATIONS			
Cooling		Forced air with integral blower	
Connections	RF input	WR22 cover flange waveguide (WR19 optional)	WR19 cover flange waveguide
	RF output	WR22 grooved flange waveguide (WR19 optional)	WR19 grooved flange waveguide
	RF output monitor	1.85 mm coaxial, female	
M&C Interface		Ethernet (serial interface optional - RS232/422)	
Dimensions, W x H x D		10.25 x 11.37 x 22.25 inches (261 x 289 x 566 mm)	
Weight		65 lbs (29.5 kg) nominal, with options	
ENVIRONMENTAL SPECIFICATIONS			
Ambient Temperature		-40ºC to +55ºC operating in direct sunlight (to +60ºC out of direct sunlight); -54ºC to +71ºC non-operating	
Relative Humidity		100% condensing	
Altitude		10,000 ft. with standard adiabatic derating of 2ºC/1000 ft. operating; 50,000 ft. non-operating	
Shock and Vibration		20 G, 11 ms 1/2 sine; 2.1 g_{rms}, 5 to 500 Hz (non-operational)	
Heat Dissipation		1000 W max.	
Acoustic noise		68 dBA as measured at 3 feet, nom.	

Communications & Power Industries

Power Electronics:
Amplifier Products
tel: +1 669-275-2744
email: satcommarketing@cpii.com
web: www.cpii.com/satcom

MKT-422 Revision 19 dated MAY 2024