ESSPx-Ku50 SSPA/SSPB Ku-Band 50W GaN



ESSPx-Ku50 R12K15

DESCRIPTION

The ESSPx is the outdoor solid-state power amplifiers (SSPAs) series designed and manufactured by Elber with GaN transistor technology, with output power from 50W up to 200W. Available also as SSPB with in-house designed upconverter, the ESSPA-Ku50 is the 50W Ku-band version. The ESSPx is an integrated unit, comprehensive of power supply and cooling system, housed in a weatherproof cabinet for safe outdoor installation and operation. Safe operation is preserved also through automatic software/hardware shutdown of final stages in case of overtemperature, over-current and high reflected power. The amplifier is equipped with precise forward and reflected power detection circuitry for correct configuration and monitoring of the amplifier. Combination of basic pallets is just mechanical through waveguide combiners, so that performances can be easily replicated for massive production. Management of the unit can be done either locally (with Hand-held controller) and remotely through serial RS-485/422 or Ethernet connection. A redundancy kit is also available, with autonomous management of 1:1 solution or optionally with external Master control unit, through Cleber platform (one control unit for 2 amplifiers).

FEATURES

- SSPA and SSPB
- GaN Technology
- Output power 50 W (P_{SAT})
- High Gain and Linearity
- Fully Outdoor Use
- Fully protected against over-temperature, over-current and high VSWR.
- Gain adjustment
- Output sample monitor port
- Autonomous 1+1 redundancy management
- Remote Monitor & Control through Serial and Ethernet ports

SPECIFICATIONS

General:

Frequency:	14.0-14.5 GHz (standard)
	13.75-14.5 GHz (extended)
Output Power:	+47.0 dBm P_{SAT}
	+43.0 dBm P_{LIN}
Gain (@ 0dB attenuation):	78 dB ± 2 dB
Gain adjustment:	15 dB in 0.1 dB steps
Gain flatness:	± 0.75 dB over any 40MHz band
Gain flatness:	±1.5 dB over full band
Spectral Regrowth:	<-30 dBc (@1.0 x SR QPSK/8PSK)
Spurious Emissions:	<-55 dBc @ P_{LIN}
AM/PM Conversion:	2.0°/dB (max) @ P_{LIN}
Group Delay Ripple:	< 1 ns_{p-p}
Input:	
Connector:	N (F)
Impedance:	50 ohms
VSWR :	1.3:1
Output:	
Flange:	WR75
Impedance:	50 ohms
VSWR:	1.23:1 with isolator
Output Sample:	
Connector:	N (F)
Impedance:	50 ohms
VSWR:	1.3:1

BUC (Optional):

L-Band frequency:	950-1450 MHz (standard)
	950-1700 MHz (extended)
Local Oscillator:	13.050 GHz (standard)
	12.800 GHz (extended)
AGC Range:	0 to -25 dBm
Input:	
Connector:	N (F)
Impedance:	50 ohms
VSWR:	1.4:1
Reference:	Internal and/or External

- Internal (Multiplexed on N(f) connector IF IN):
  - Frequency: 10 MHz
  - Aging/day: ± 2 x 10^{-10}
  - Aging/year: ± 5 x 10^{-8}
  - Stability: ± 2 x 10^{-8}
  - Phase Noise:
    - 53 dBc/Hz @ 10 Hz
    - 70 dBc/Hz @ 100 Hz
    - 90 dBc/Hz @ 1 kHz
    - -100 dBc/Hz @ 10 kHz
    - -103 dBc/Hz @ 100 kHz
- External:
  - Frequency: 10 MHz
  - Level: -15 to +5 dBm
  - Connector: BNC (F), 50 ohms
  - Phase Noise (min):
    - 120 dBc/Hz @ 10 Hz
    - 135 dBc/Hz @ 100 Hz
    - 150 dBc/Hz @ 1 kHz
    - 155 dBc/Hz @ 10 kHz
    - 160 dBc/Hz @ 100 kHz

Control:

- Stand-alone:
  - RS-485
  - RS-232
  - Ethernet (custom cable required)
- With M&C unit CLEBER:
  - Ethernet 10/100BaseT
  - Connector: Amphenol - PT07Y12-14P

Redundancy (Optional):

Configuration:	1:1
Control:	
	Autonomous via dedicated line. Remotely controlled by M&C unit CLEBER
Waveguide switch:	
Frequency Range:	10.0 - 15.0 GHz
Flange:	WR75
VSWR (MAX):	1.08 : 1 (1.05:1 TYP)
Insertion Loss (Max):	0.05 dB
Isolation (Min.):	60 dB
Switching Time:	50ms typical
Load:	
Typical Load:	400W
Flange:	WR75

Electrical:

Supply:	90-265 V~ 47-63 Hz
	40 to 60 V_{dc} (optional)
Connector:	HIRSCHMANN 932322100
Consumption:	230W @ P_{LIN}

Mechanical:

Dimensions:	
Width	250 mm
Height	240 mm
Depth	520 mm
Weight:	Kg

Environmental:

Operative temperature range:	-10 ÷ 55°C
Humidity:	100% condensing

CE Marking

** Elber reserves the right to make changes to specifications of products described in this datasheet at any time without notice and without obligation to notify any person of such changes.*

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