Ultra Compact 40W Troposcatter Block Up Converter

The NanoTropo 40W Troposcatter Block Up Converter is a groundbreaking solution in the telecommunications market, offering exceptional performance in an ultra-compact, lightweight, and fully ruggedized design.

The NanoTropo family delivers up to 40W of maximum output power in an ultra-compact design powered by advanced GaN technology. It boasts best-in-class RF performance and offers extensive monitoring and control capabilities through Ethernet, Serial, and Analog interfaces.

With low power consumption and innovative heat extraction technology, NanoTropo achieves a compact form factor while significantly reducing costs. Its exceptional thermal efficiency and small size make it the ideal solution for troposcatter communication, optimizing overall system performance and cost-effectiveness.

This product is designed for long-range, point-to-point communication, ideal for tactical military operations, disaster recovery, and emergency restoration, ensuring reliable communications in locations where traditional SATCOM is unavailable.

Options

- ALC
- Internal 10 MHz Reference clock
- Autosense 10 MHz Reference clock
- Integrated Modem-BUC configuration

Features

- Ultra-compact design and lightweight for up to 40W output power:

o 8 lbs (3.62 kg)

o 6.25"x7.5"x3.75" (160mm x 190mm x 95mm)

- Superior RF performance:

o Superior Phase Noise: 8 dB better than IESS308/309 recommendation

o Up to 20W Linear power

o Low Noise Power density below - 80dBm/Hz

o Wide range Gain Control

o Highest Linearity at small back-off

- Extensive M&C capability:

o Serial: RS 232 & RS 485

o Ethernet: embedded Web browser (HTTP) & SNMPv3 support

- Field upgradable software
- Status LED
- Analogue Interface
- Input and output power detection

NANOTROPO 40W BUC

RF Parameters		
Output Frequency		4.4 - 5.0 GHz
Input L Band Frequency		950-1550 MHz
Saturated Power Psat		46dBm (40W) typ.
Linear Power Plin		43dBm (+20W) min.
Conversion Gain, dB		68 minimum, 70 typical
Gain Flatness, dB		+/-1 typical over full band +/-0.4 maximum over any 40MHz
Gain Stability, dB		+/-1.5 maximum over full temperature range
Linearity at Pout=Plin:	2 tone IMD	-25dBc max
	Spectral Re-growth	-30dBc for QPSK at 1 x symbol rate
Input Impedance, Ohm		50 Ohm
Input/Output VSWR		1.4 : 1 / 1.3 : 1
Noise Power Density, dBm/Hz		-80 max in Transmit Band
Spurious Emission at Plin		Non-signal related: -60dBc Signal related: -55dBc
AM/PM conversion at Plinear, 0/dB		1.0 maximum
Group Delay		Ripple 1 nsec p-p max over any 40 MHz band
BUC Parameters		
LO Frequency		5.95GHz (single conversion; inverted)
Type of Conversion		Single conversion, inverting
External 10 MHz Frequency		Over IF L band cable with multiplexing
Internal 10 MHz LO stability (option)		Aging / day $\pm 2^{-10}$ Aging / year $\pm 5^{-8}$ Stability $\pm 2^{-8}$ over temp range
Phase Noise, dBc/Hz		-70 @ 100Hz; -80 @ 1kHz; -90 @ 10kHz; -95 @ 100kHz; -115 @ 1MHz
Power & Interfaces		
DC Voltage Range		36-75VDC isolated; other options available
DC Power Consumption		130W typical
Operating temperature / Relative Humidity		-40°C to +60°C / Up to 100% condensing
IF Input Connector		N – type female
RF Output Connector		WR187 Grooved
DC Power In		MS3112E12 – 3P
RS485 – Ethernet – SNMPv3		MS3112E14 – 19S
Mechanical & Environment		
Cooling		Forced Air
Size / Weight		6.25”x7.5”x3.75” (160x190x95mm) / 8lbs (3.62kg)

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.
Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

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