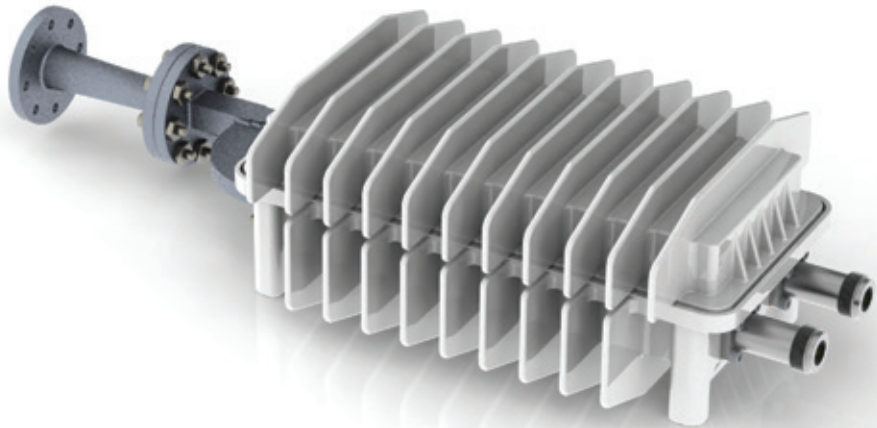


Ka Band 5 W Linear Transceiver



- **Industry's most compact and lightest 5 Watt Linear Ka Band Transceiver**
- **Directly mounts to Antenna Feed Arm**
- **Single model covers complete frequency band from 29 GHz to 30 GHz**
- **Solid State technology provides highest reliability and lowest power consumption**

The SAGE SatCom Ka Band Transceiver provides 5 W of linear power in the most compact package available in the industry. The integration of the SAGE SatCom 5W Ka Band BUC and Ka Band LNB results in a compact and light weight assembly that allows direct mounting to the antenna feed arm. Simplifying system planning and logistics, a single model covers the complete frequency band from 29 GHz to 30 GHz. The transceiver includes built-in M&C for remote and local monitoring and control via the IF.

Ka Band 5 W Linear Transceiver



Key Benefits

- Compact and energy efficient
- Solid State Reliability
- Frequency agile design covers complete frequency band
- Easy System Integration
- Thermally Efficient
- Low Thermal Noise
- Superior Harmonic and Spurious Suppression

Ka Band 5 W Linear Transceiver Specification

RF Characteristics	
Tx Frequency	29.0 - 30.0 GHz
Rx Frequency	19.2 - 20.2 GHz
Psat (Typical)	7 Watts
Output Power P-linear	5 Watts
Rx Noise Figure (Typical)	< 1.5 dB
IF Characteristics	
Tx Frequency Range	950-1950 MHz
Tx LO	28.05 GHz
Rx Frequency Range	950-1950 MHz
Rx LO	18.25GHz
Input/Output Tx /Rx VSWR	1.5:1 Max.
Rx-IF Output P1dB	> +5 dBm
External Reference	
Frequency	10 MHz
Transmitter Mute Condition	Absence of 10 MHz reference signal on Tx IFL
Reference Phase Noise	10 Hz = -120 dBc/Hz max. 100 Hz = -135 dBc/Hz Max. 1 KHz = -148 dBc/Hz Max. 10 KHz = -155 dBc/Hz Max. 100 KHz = -157 dBc/ Hz max.
Reference level	-5 to + 5 dBm
Tx Transfer Characteristics	
Type	Single Conversion
Tx frequency sense	Non- inversion
Tx gain	55 dB +/- 2dB
Tx gain flatness @ maximum gain	Over RF Output band +/- 2 dB Max. Over any 125 MHz segment +/- 1.0 dB Max. Over any 40 MHz segment +/- 0.5dB Max.
Tx gain adjustment	20 dB Min.
Tx mute isolation	-60 dB relative to P-linear
Gain variation over operational temp at any frequency	+/- 2.0 dB Max.
Tx gain step size	0.25 dB Max.
Third order IMD @ P- linear	With two output carriers @ 37 dBm total output power : -25 dBc referenced to total output power. Max.
Spectral regrowth	-30 dBc at P- linear, QPSK, 5 Ms/s, rolling factor = 30% at 1 x symbol rate away from the carrier.
Output noise density in Tx	-75 dBm/Hz
Output noise density in Rx	-137 dBm/Hz
Spurious (in Band)	-60 dBc Tx (28.9 to 30.1 GHz), Rx (950 -1950 MHz)
Tx Output VSWR	1.4:1 Max.
SSB Tx phase noise	10 Hz = -32 dBc/Hz Max. 100 Hz = -63 dBc/Hz Max. 1 KHz = -72 dBc/Hz Max. 10 KHz = -82 dBc/Hz Max. 100 KHz = -92 dBc/ Hz max. 1 MHz = -112 dBc/Hz Max. 10 MHz = -122 dBc/Hz Max.

Ka Band 5 W Linear Transceiver



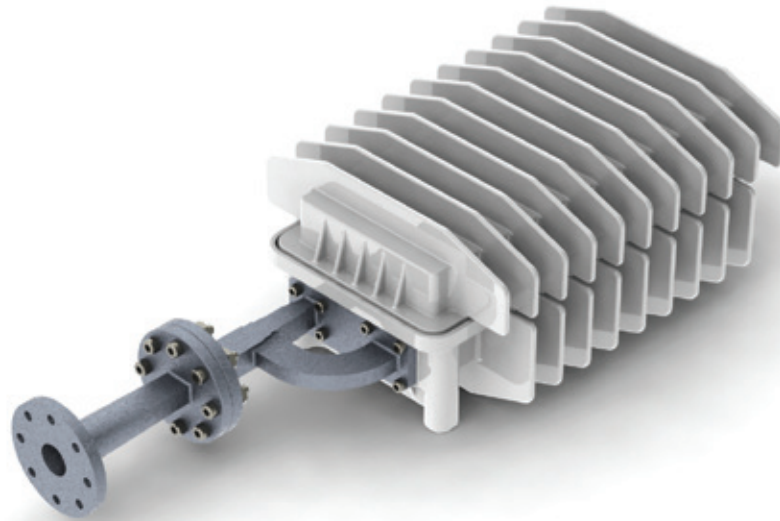
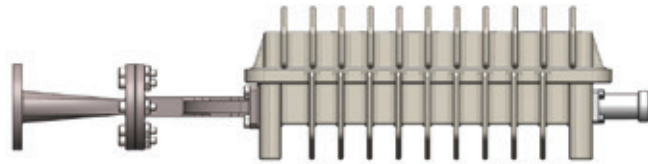
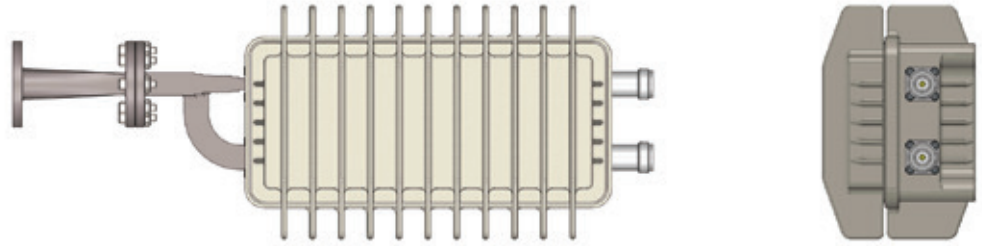
Ka Band 5 W Linear Transceiver Specification (continued)

Rx Transfer Characteristics	
Rx gain	60 dB +/- 2 dB
Tx to Rx isolation	70 dB (Typical)
Gain flatness over freq	+/- 0.5 dB over 40 MHz, +/- 1.5 dB over 1 GHz
Gain variation over temp	+/- 1.5 dB
Gain stability (24 hrs)	< 0.5 dB
Output P1dB	> +5 dBm
Spurious In-Band	< -60 dBc @ Pout = 0 dBm
IP3	TBD
Image Rejection	45 dB
Input VSWR	1.5:1 Max.
SSB Rx phase noise	10 Hz = -45 dBc/Hz Max. 100 Hz = -65 dBc/Hz Max. 1 KHz = -74 dBc/Hz Max. 10 KHz = -84 dBc/Hz Max. 100 KHz = -95 dBc/Hz Max. 1 MHz = -107 dBc/Hz Max. 10 MHz = -115 dBc/Hz Max.
Rx LO drift	< +/- 15 ppm
Interface	
IF-Tx Input	Type N- Female (50 Ohm)
IF- Rx Output	Type N-Female (50 Ohm)
Reference input	Multiplexed with Tx-IF input
Tx RF output	WR-28
Rx RF input	WR-42
Monitor & Control I/O	RS-485 or Ethernet (SNMP/HTTP)
Ethernet Connector	Weatherproof RJ-45
Serial Monitor & Control Connector	Mil-Circ- Bayonet
Power Connector	Mil-Circ- Bayonet
Power Requirement	
Input voltage on Power Connector	+48 +/- %10VDC (prime), +28 +/- %5VDC (option), Powers up the up converter/ transmitter section
Input Voltage, multiplexed @ Rx-IF input	12 -18 VDC, powers up the down converter section
Transceiver power consumption (typical)	50 W
Environmental	
Operating Temperature Range	-40°C to +60°C
Storage Temperature Range	-40°C to + 85°C
Humidity	100% Condensing
Altitude	10K ft.
Vibration	IEC 60721-3-4 Class 4M4
Shock	IEC 60068-2-27 Method Ea
Regulatory	Meets IEC EN61000-4-5, ETSI EN 301489-1, EN60950, EN301459 & FCC 25.138
Physical	
Size	TBD
Weight	TBD

Ka Band 5 W Linear Transceiver

Ka Band 5 W Linear Transceiver Drawing

Dimensions shown are in imperial units.



SAGE SatCom is a unique supplier of integrated RF, microwave and millimeter wave solutions for the commercial and military satellite communications market. The SAGE SatCom team has vast experience in design and integration of RF products including wideband frequency up/down converters, wideband low and high solid state power amplifiers, transceivers, LNBS, wideband driver modules, line driver modules, low power BUCs for TWTA drive, and various waveguide power combining technologies.

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Doc 040-54114 Rev 3