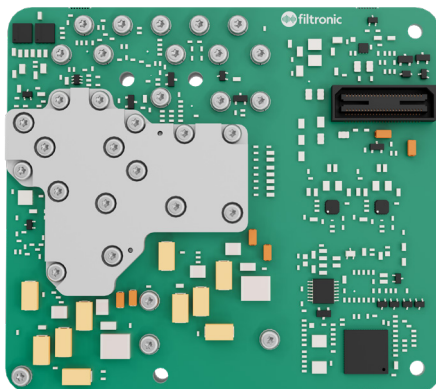


Morpheus X2

Morpheus X2 E-band transceiver modules provide a turnkey solution for carrier grade mobile XHaul applications. Each module contains all the transmit and receive functions necessary for the RF section of an E-band link and provides a simple connection to a high data rate full duplex modem.

Features

- Fully integrated 71-76 to 81-86 GHz TRx modules
- Supports linear Tx output power in excess of 24dBm
- Supports >2GHz channel bandwidth
- Low phase noise -112dBc/Hz at 1MHz
- Supports up to 512QAM modulation
- Integrated Diplexer
- Single T/R port for antenna interface
- Single connector for modem interface
- 100% calibrated & tested
- Compact low mass form factor



TA446 Outline Specification

Function	Parameter	Min	Typ	Max	Units
Transmitter	Tx Frequency	71		76	GHz
	Tx Power control range	0		27	dBm
	Output IP3 @ 24dBm		37		dBm
	P _{SAT}		30		dBm
	Tx ALC accuracy	-2		2	dB
	Tx LO Cancellation		-30		dBc
	Tx Sideband suppression		-40	-20	dBc
	Tx Baseband input power	-12.5		-2	dBm
	I/Q Gain imbalance	-3		+3	dB
	I/Q Phase imbalance	-7		+7	degrees
Receiver	I/Q impedance - differential		100		Ohms
	Rx Frequency	81		86	GHz
	Rx Noise Figure (High gain mode)		8	10	dB
	Rx Gain in High gain mode	22	25	28	dB
	Rx Gain in Low gain mode	14.5	17.5	20.5	dB
	Rx Gain accuracy reported over SPI	-1.5		+1.5	dB
	RF input power			-23	dBm
	Input IP3 in Low gain mode	-10	-7		dBm
	I/Q Gain imbalance	-3		+3	dB
	I/Q Phase imbalance	-10		+10	degrees
Both	Phase Noise @ 100KHz			-89	dBc/Hz
	Phase Noise @ 1MHz			-112	dBc/Hz
	LO frequency step	31.25			MHz

Over Baseplate operating temperature -33 to +75C. All RF parameters referenced to antenna port (inclusive of diplexer loss)

Power Supplies

Voltage (V)	Max Current (mA)	Tolerance (±)	Abs' max voltage (V)
5.1	4100	2%	5.5
3.3	160	2%	3.6
2.8	310	2%	3.0
18	25	2%	20
-5	50	2%	-5.5

TA447 Outline Specification

Function	Parameter	Min	Typ	Max	Units
Transmitter	Tx Frequency	81		86	GHz
	Tx Power control range	0		27	dBm
	Output IP3 @ 24dBm		36		dBm
	P _{sat}		29		dBm
	Tx ALC accuracy	-2		2	dB
	Tx LO Cancellation		-30		dBc
	Tx Sideband suppression		-40	-20	dBc
	Tx Baseband input power	-12.5		-2	dBm
	I/Q Gain imbalance	-3		+3	dB
	I/Q Phase imbalance	-7		+7	degrees
	I/Q impedance - differential		100		Ohms
Receiver	Rx Frequency	71		76	GHz
	Rx Noise Figure (High gain mode)		7	10	dB
	Rx Gain in High gain mode	22	25	28	dB
	Rx Gain in Low gain mode	14.5	17.5	20.5	dB
	Rx Gain accuracy reported over SPI	-1.5		+1.5	dB
	RF input power			-23	dBm
	Input IP3 in Low gain mode	-10	-7		dBm
	I/Q Gain imbalance	-3		+3	dB
	I/Q Phase imbalance	-10		+10	degrees
Both	Phase Noise @ 100KHz			-89	dBc/Hz
	Phase Noise @ 1MHz			-112	dBc/Hz
	LO frequency step	31.25			MHz

Over Baseplate operating temperature -33 to +75C. All RF parameters referenced to antenna port (inclusive of diplexer loss)

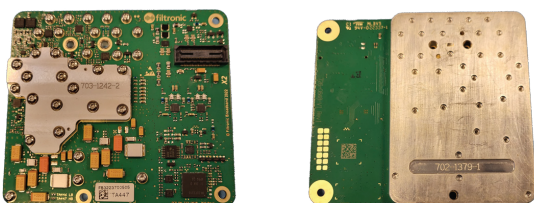
Power Supplies

Voltage (V)	Max Current (mA)	Tolerance ($\pm$)	Abs' max voltage (V)
5.1	4100	2%	5.5
3.3	160	2%	3.6
2.8	310	2%	3.0
18	25	2%	20
-5	50	2%	-5.5

Environmental

Parameter	Voltage (V)
Operating Temperature	-33 to 75 °C
Storage Temperature	-45 to +80 °C
Storage Humidity Range	60% RH maximum
Storage Duration	< Warranty Period
Mechanical shock and vibration	ETS 300 019-2-4 Class 4M3
MTBF	>1,000,000 Hours (per Bellcore TR-332 with ambient temperature of +40oC)
ROHS & REACH	COC for ROHS & REACH Compliance available

The interface between the Filtronic E-band Module and the customer modem is a single 50-way connector. This connector is used for all communication between the module and modem; DC power, baseband data and control signals.



Other hardware configurations also available.
Custom adapters can be provided for all popular antennas.
OMT and Polariser options for XPIC applications may also be provided.

Mechanical Outline

