



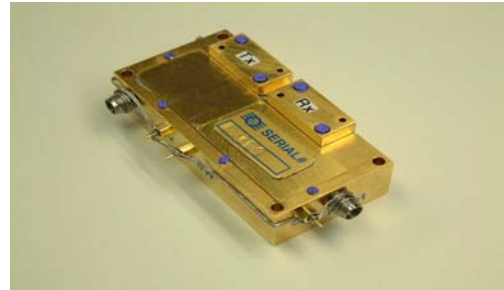
TLC77xs

TLC 76.5 GHz Transceiver

Description The TLC77xs is a 76.5 GHz, MMIC based, transceiver. The TLC77xs provides over 12 dBm RF output from the transmitter and conversion gain from the receiver. The high transmitting power, conversion gain, and low noise figure of the TLC77xs makes it an excellent candidate for use in advanced radar or communication systems.

Features

- ❑ Tx Power > 12 dBm
- ❑ Low Tx Phase Noise
- ❑ Rx Conversion Gain
- ❑ Module Dimensions:
2.6 x 1.3 x 1 in. with internal VCO
- ❑ External VCO Dimensions:
2.1 x 3.1 x 1.3 in. (optional)
- ❑ Optional Mounting Hole



Maximum Ratings

Symbol	Parameter	Rating	Units
V _D	Positive Supply Voltages	5	V
V _G	Negative Supply Voltage	- 5	V
I _D	Positive Supply Current	500	mA
I _G	Negative Supply Current	500	mA
T _C	Operating Temperature	- 30 to -180	° C
T _{STG}	Storage Temperature	- 65 to -150	° C

Performance Summary

(At 25 C, 50 ohm system)	Min	Typ	Max	Units
Frequency Out	75	77	88	GHz
Power Output Received	10	14	17	dBm
Input Frequency	75	77	88	GHz
Rx PIN	-80		-10	dBm
IF Out	DC		200	MHz
Conversion Gain*	0	3	6	dB
Drain Supply Voltage		5		V
Gate Supply Voltage		-5		V
Drain Supply Current	300		550	mA
Gate Supply Current	150		450	mA

* Additional gain available via additional LNAs by request.

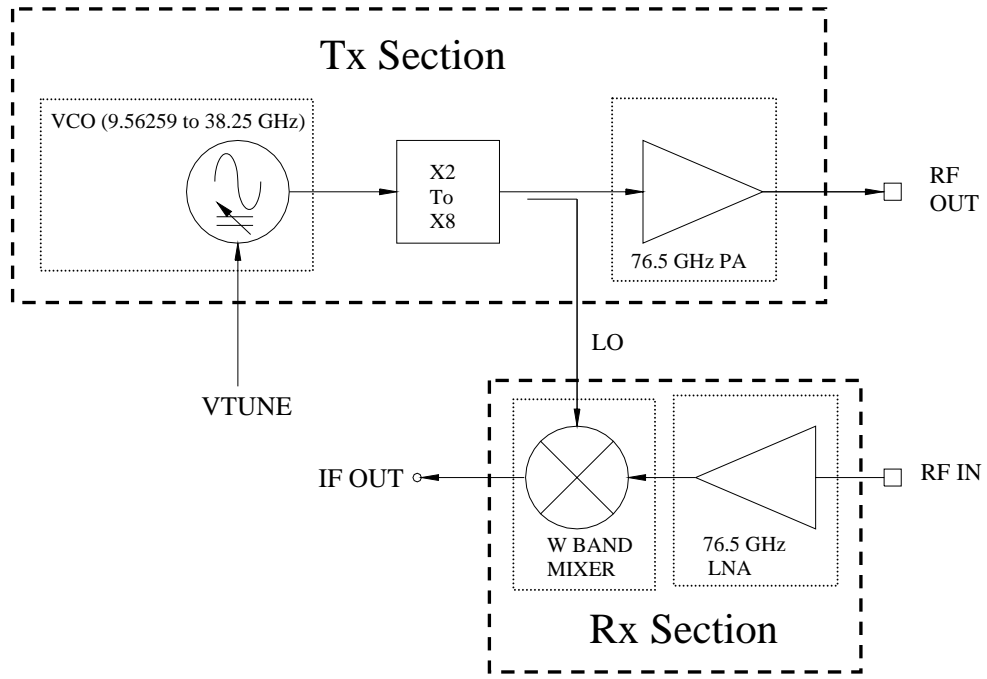
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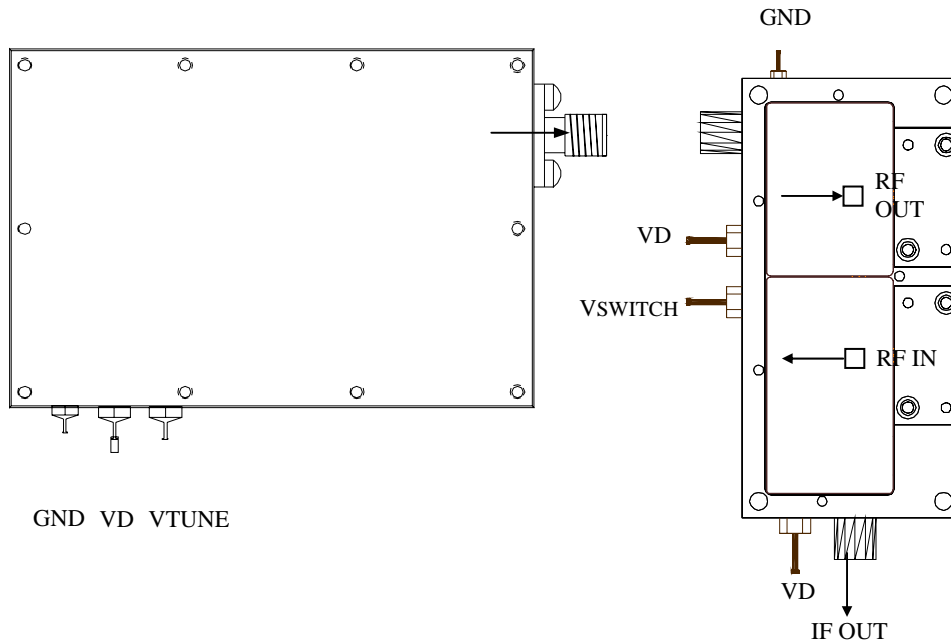
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Schematic



Optional External VCO Outline



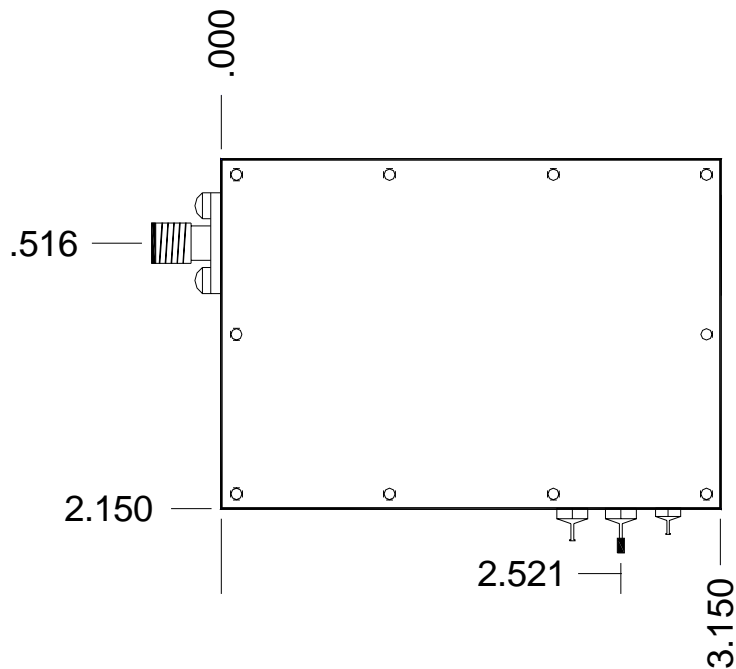
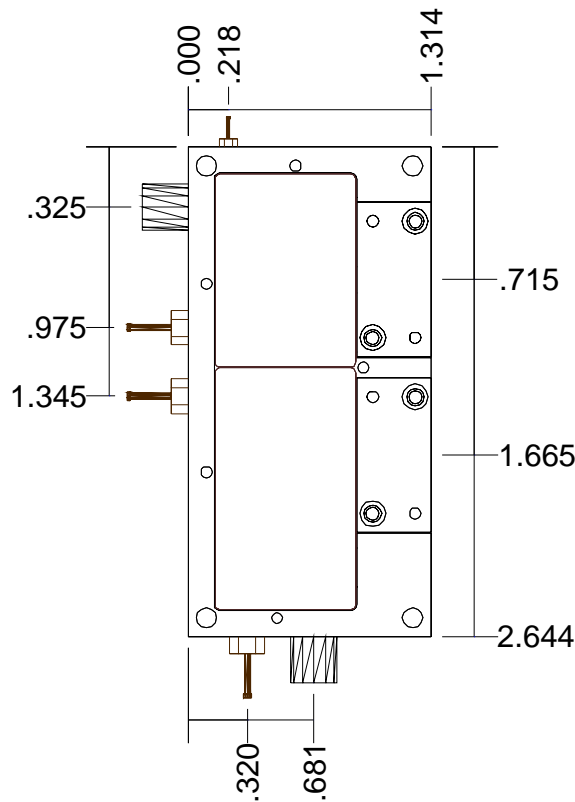
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Module and VCO Layout



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TLC77xS

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Detailed Specifications

<u>VCO</u>	<u>External VCO</u>	<u>OR Internal VCO</u>
Output Center Freq:	9562.5 MHz	25 to 38.56 GHz
Stability:	±0.1%(-20 to 70°C)	±0.5%(-20 to 70°)
Freq Tuning:	±30 MHz(0-8V)	Upto 2 GHz
D.C. Supply:	+15V @ 250 mA	7V @ 150mA
Phase Noise :	-110 dBc/Hz @ 100 kHz	< - 80dBc/Hz @100KHz
Linearity :	< 0.5% over band	< 0.5% over band
<u>Transceiver</u>		
Tx Output Freq :	76.5 GHz ± 500 MHz	76.5 ± 1 GHz
Tx Output Power:	> +12 dBm	> +12 dBm
Tx/Rx Isolation:	70 dB	> 70 dB
Rx Input Freq:	76.5 GHz ± 500 MHz	76.5 ± 1 GHz
IF Output Freq:	20KHz – 200 MHz	20KHz – 200 MHz
Conversion Gain:	> 0 dB	> 0 dB
Gain Flatness:	± 0.5 dB over 200 MHz	± 0.5 dB over 200 MHz
Noise Figure:	16 dB Max.	16 dB Max.
DC Voltage:	+ 5V, 450mA / -5, 300 mA	+ 5V, 450mA / -5, 300 mA
Interface :	WR-10 or W-12 for Tx, Rx	WR-10 or W-12 for Tx, Rx
	K conn. Female for IF, LO	K conn. Female for IF, LO
Operating Temp:	- 30 to 80°C	

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