

ARCOM, Inc.

Millimeter-wave Wireless Products



Components for Digital Radios

Power Amplifiers

Low Noise Amplifiers

Down-Converters

Multipliers

Low Phase Noise Sources

12 to 40 GHz

Standard Communication Power Amplifiers

Notes :

- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Temperature Compensation available.
- Other gain, power and package options available upon request.

Model Number	Frequency (GHz)	Linear Gain (dB) MIN	Gain Flatness (+/-dB) MAX	P1dB (dBm) MIN	Psat (dBm) MIN	IP3 (dBm) Typ.	VSWR I/O MAX	DC Input 12Vdc (mA)	Case
12PA001	12.5-13.5	25	1.0	18	19	26	2:1	150	AR4
12PA002	12.5-13.5	31	1.0	21	22	29	2:1	250	AR4
12PA003	12.5-13.5	29	1.0	23	24	31	2:1	300	AR4
12PA004	12.5-13.5	27	1.0	25	26	33	2:1	500	AR4
12PA005	12.5-13.5	34	1.0	27	28	35	2:1	750	AR4
15PA001	14.5-15.5	23	1.0	18	19	26	2:1	150	AR4
15PA002	14.5-15.5	29	1.0	21	22	29	2:1	250	AR4
15PA003	14.5-15.5	27	1.0	23	24	31	2:1	300	AR4
15PA004	14.5-15.5	25	1.0	25	26	33	2:1	500	AR4
15PA005	14.5-15.5	32	1.0	27	28	35	2:1	750	AR4
18PA001	17.5-19.8	21	1.0	18	19	26	2:1	150	AR4
18PA002	17.5-19.8	27	1.0	21	22	29	2:1	250	AR4
18PA003	17.5-19.8	25	1.0	23	24	31	2:1	300	AR4
18PA004	17.5-19.8	23	1.0	25	26	33	2:1	500	AR4
18PA005	17.5-19.8	30	1.0	27	28	35	2:1	750	AR6
23PA001	21.2-23.6	19	1.0	18	19	26	2:1	150	KR4
23PA002	21.2-23.6	25	1.0	21	22	29	2:1	250	KR4
230A003	21.2-23.6	23	1.0	23	24	31	2:1	300	KR4
26PA001	25.5-27.5	25	1.0	18	19	26	2:1	200	KR4
26PA002	25.5-27.5	23	1.0	21	22	29	2:1	300	KR4
26PA003	25.5-27.5	21	1.0	23	24	31	2:1	350	KR4
28PA002	27.7-29.5	24	1.0	18	19	26	2:1	200	KR4
28PA003	27.7-29.5	22	1.0	21	22	29	2:1	300	KR4
28PA004	27.7-29.5	20	1.0	23	24	31	2:1	350	KR4
38PA001	37-40	20	1.0	16	17	24	2:1	300	WR4
38PA002	37-40	20	1.0	18	19	26	2:1	350	WR4
38PA003	37-40	20	1.0	20	21	28	2:1	400	WR4

Specifications subject to change without notice

June 1995



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12 to 40 GHz

Standard Communication Low Noise Amplifiers

Notes :

- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Temperature Compensation available.
- Other gain and package options available upon request.

Model Number	Frequency (GHz)	Linear Gain (dB, MIN)	Gain Flatness (+/-dB) MAX	NF (dB) MAX	P1dB (dBm) MIN	IP3 (dBm) Typ.	VSWR I/O MAX	DC Input 12Vdc (mA)	Case
12LN001	12.5-13.5	20	0.5	1.5	10	18	2:1	50	AR4
12LN002	12.5-13.5	29	0.75	1.5	10	18	2:1	75	AR4
12LN003	12.5-13.5	38	1.0	1.5	10	18	2:1	100	AR4
15LN001	14.5-15.5	18	0.5	2.0	8	16	2:1	50	AR4
15LN002	14.5-15.5	27	0.5	2.0	8	16	2:1	75	AR4
15LN003	14.5-15.5	35	1.0	2.0	8	16	2:1	125	AR4
18LN001	17.5-19.8	16	0.5	2.5	8	16	2:1	75	AR4
18LN002	17.5-19.8	23	0.75	2.5	8	16	2:1	100	AR4
18LN003	17.5-19.8	30	1.0	2.5	8	16	2:1	125	AR4
23LN001	21.2-23.6	14	0.5	3.0	7	15	2:1	75	KR4
23LN002	21.2-23.6	21	0.5	3.0	7	15	2:1	100	KR4
23LN003	21.2-23.6	28	0.75	3.0	7	15	2:1	125	KR4
26LN001	25.5-27.5	13	0.5	3.5	6	14	2:1	75	KR4
26LN002	25.5-27.5	20	0.5	3.5	6	14	2:1	100	KR4
26LN003	25.5-27.5	27	0.75	3.5	6	14	2:1	125	KR4
28LN002	27.7-29.5	13	0.5	3.8	6	14	2:1	75	KR4
28LN003	27.7-29.5	19	0.5	3.8	6	14	2:1	100	KR4
28LN004	27.7-29.5	25	0.75	3.8	6	14	2:1	125	KR4
38LN001	37-40	12	0.5	4.5	5	13	2:1	200	WR4
38LN002	37-40	15	0.75	4.5	5	13	2:1	200	WR4
38LN003	37-40	20	0.75	4.5	5	13	2:1	300	WR4

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Standard MMW Communication Down Converters

Notes :

- Low Noise PHEMT LNA Input.
- Image Reject Design.
- LO buffer amplifier available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

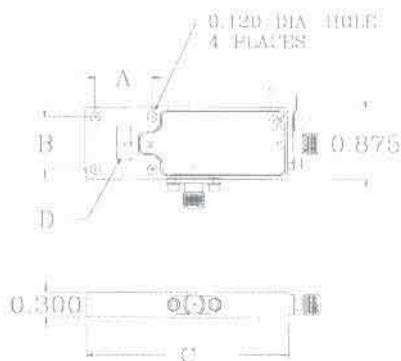
Specifications :

Model Number	Frequency (GHz)			Conversion Gain (dB) MIN	SSB NF (dB) MIN	VSWR RF/LO MAX	DC nput 12Vdc (mA)	Case
	RF	LO	IF					
18RX001	17.5-19.8	16.0-18.3	1.5	15	3.5	2:1	200	DC1
23RX001	21.2-23.6	9.85-11.0	1.5	15	4.0	2:1	200	DC1
26RX001	25.5-27.5	12.0-13.0	1.5	15	4.0	2:1	250	DC2
28RX001	27.5-29.5	13.0-14.0	1.5	15	4.5	2:1	300	DC2
38RX001	37-40	11.8-12.8	1.5	15	5.0	2:1	350	DC3

Specifications subject to change without notice

June 1995

Outline Drawings



CASE	DIMENSIONS			
	A	B	C	D
DC1	0.67	0.64	2.38	WR42
DC2	0.58	0.50	2.22	WR28



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4 to 50 GHz

Standard Communication Active Multipliers

Notes :

- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Temperature Compensation available.
- Other options available upon request.

Model Number	Input Frequency (GHz)	Output Frequency (GHz)	Pin (dBm) MIN	Pout (dBm) MIN	Signal Purity (dBC) MIN	VSWR I/O MAX	DC Input 12Vdc (mA)	Case
Standard Active Doublers								
04X2MU001	3.6-4.1	7.2-8.2	10	10	20	2 : 1	200	AM3
04X2MU002	3.6-4.1	7.2-8.2	10	20	20	2 : 1	300	AM3
08X2MU001	8.7-10	17.4-20	10	10	20	2 : 1	300	AM4
08X2MU002	8.7-10	17.4-20	10	20	20	2 : 1	400	AM4
12X2MU001	10.6-11.8	21.2-23.6	10	20	20	2 : 1	450	AM4
20X2MU001	18.5-20	37-40	10	16	20	2 : 1	450	AM6
20X2MU002	18.5-20	37-40	10	20	20	2 : 1	500	AM6
24X2MU001	23-24	46-48	10	13	20	2 : 1	450	AM6
Standard Active Triplers								
13X3MU001	12.3-13.3	37-40	10	10	20	2 : 1	100	AM7
13X3MU003	12.3-13.3	37-40	10	20	20	2 : 1	400	AM7
14X3MU004	13.3-14.3	40-43	10	15	20	2 : 1	500	AM7
Standard Active Quadruplers								
10X4MU001	9.2-10	37-40	10	10	20	2 : 1	400	AM7
10X4MU002	9.2-10	37-40	10	18	20	2 : 1	450	AM7
10X4MU003	9.2-10	37-40	10	20	20	2 : 1	500	AM7
Standard Active X6 Multipliers								
06X6MU001	6.1-6.6	37-40	10	10	20	2 : 1	500	AM7
06X6MU002	6.1-6.6	37-40	10	18	20	2 : 1	575	AM7
06X6MU003	6.1-6.6	37-40	10	20	20	2 : 1	600	AM7

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23 GHz MMIC Multipliers for Digital Radio Transmitters with Power Adjust

ARCOM P/N : 23TX003

Features :

- Single Side-band Upconversion
- Output Power Adjust
- High Output Power > +20 dBm
- Other LO Multiplication factors and IF Frequencies available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

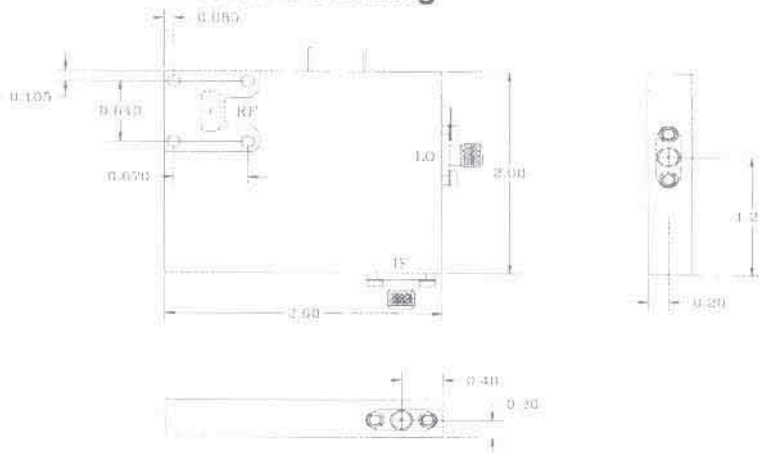
Specifications :

RF Output Frequency:	21.3 to 23.6 GHz
LO Input Frequency:	9 to 14 GHz
IF Input Frequency:	1500 to 3000 MHz
LO Input Power:	8 dBm min.
IF Input Power:	< 0 dBm typ
IF to RF conversion Gain:	20 dB typ.
Output Power:	> 20 dBm
Power Adjust:	>30 dB
VSWR RF Port:	2.0:1
VSWR LO Port:	2.0:1
VSWR IF Port:	2.0:1
Bias(typ.)	150 mA typ. @ 8V 300 mA typ. 0 - 7 V (V Control)

Description :

ARCOM's 23TX003 21 - 24 GHz planar transmitter features a X2 LO multiplier chain, a balanced up-converter, image filtering and MMIC PHEMT based balanced driver and power amplifiers. The RF input is WR 42, but a coax version is also available.

Outline Drawing



Specifications subject to change without notice

July 1996



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23 GHz MMIC Down Converters for Digital Radio Receivers with Multiplied LO Chain

ARCOM P/N : 23RX005

Features :

- Low Noise MMIC PHEMT LNA Input.
- Image Reject Design.
- Other LO Multiplication factors and IF Frequencies available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

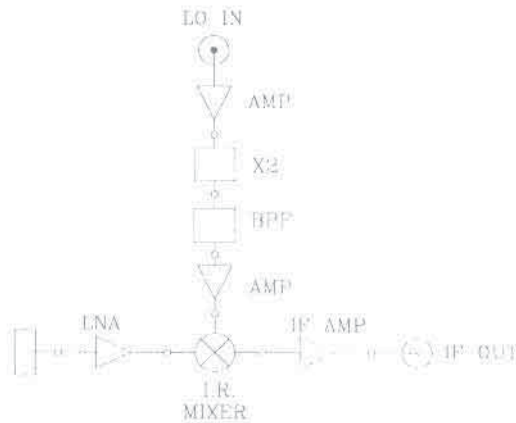
Specifications :

Input RF Frequency :	21.3 to 23.6 GHz
Input LO :	9.15 to 10.3 GHz
Output IF Frequency :	1.5 GHz +/- 100 KHz
Input LO Power :	8 dBm
RF to IF Conversion Gain :	15 dB MIN
LO to RF Leakage :	-25 dBm MAX
Noise Figure :	5 dB MAX
VSWR LO Port :	2.0 : 1
VSWR RF Port :	2.5 : 1
VSWR IF Port :	1.8 : 1
Bias :	300 mA MAX @ 12 V

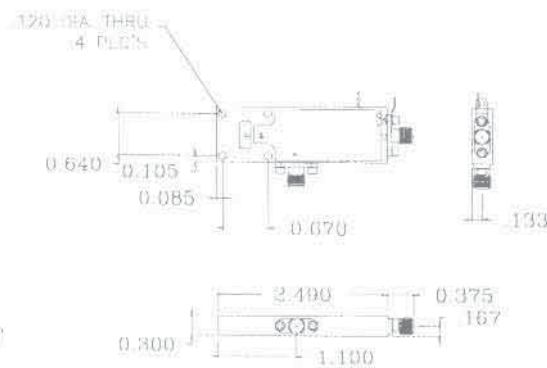
Description :

ARCOM's 23RX005 consists of a 21 to 24 GHz PLANAR receiver for digital radio applications. The design includes a X2 LO multiplier chain, a monolithic LNA and image filtering. The RF input is WR-28, but a coax version is also available.

Block Diagram



Outline Drawings



Specifications subject to change without notice

October 1995



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26 GHz MMIC Down Converters for Digital Radio Receivers with multiplied LO chain

ARCOM P/N : 26RX003

Features :

- Low Noise MMIC PHEMT LNA Input.
- Image Reject Design.
- Other LO Multiplication factors and IF Frequencies available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

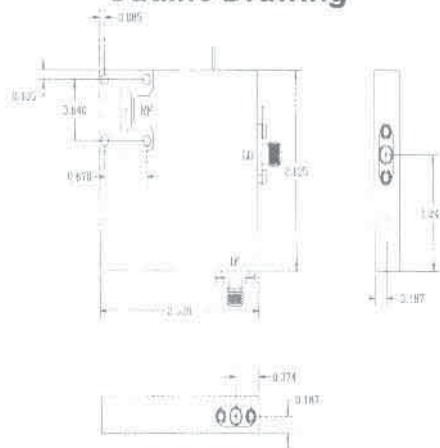
Specifications :

RF Input Frequency:	24.5 to 26.5 GHz
LO Input Frequency:	10 to 15 GHz
IF Output Frequency:	1500 to 3000 MHz
LO Input Power:	8 dBm min.
RF to IF conversion Gain:	20 dB typ.
N*LO to RF Leakage:	-20 dBm
Noise Figure:	5 dB max.
VSWR RF Port:	2.0:1
VSWR LO Port:	2.0:1
VSWR IF Port:	2.0:1
Bias:	150 mA typ. @ 8V 20 mA typ. @ -5V

Description :

ARCOM's 26RX003 24 - 27 GHz PLANAR receiver features a X2 sub-harmonic mixer, a monolithic LNA, image filtering and an IF buffer amp. The RF input is WR 42, but a coax version is also available.

Outline Drawing



Specifications subject to change without notice

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38 GHz MMIC Down Converters for Digital Radio Receivers with Multiplied LO Chain

ARCOM P/N : 38RX005

Features :

- Low Noise MMIC PHEMT LNA Input.
- Image Reject Design.
- Other LO Multiplication factors and IF Frequencies available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

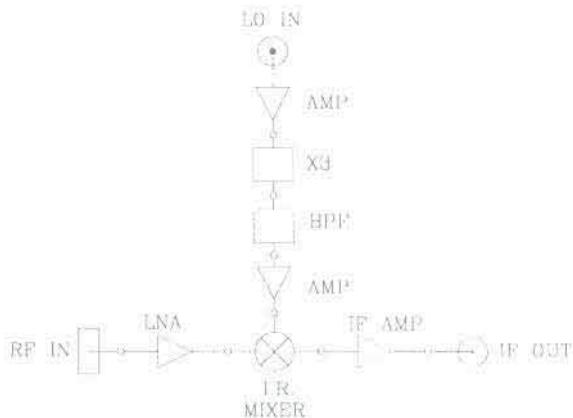
Specifications :

Input RF Frequency :	37 to 40 GHz
Input LO :	10.83 to 11.83 GHz
Output IF Frequency :	1.5 GHz +/- 100 KHz
Input LO Power :	8 dBm
RF to IF Conversion Gain :	15 dB MIN
LO to RF Leakage :	-25 dBm MAX
Noise Figure :	7 dB MAX
VSWR LO Port :	2.0 : 1
VSWR RF Port :	2.5 : 1
VSWR IF Port :	1.8 : 1
Bias :	300 mA MAX @ 12 V

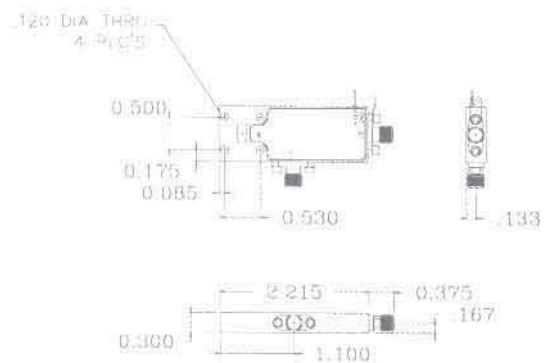
Description :

ARCOM's 38RX005 consists of a 37 to 40 GHz PLANAR receiver for digital radio applications. The design includes a X3 LO multiplier chain, a monolithic LNA and image filtering. The RF input is WR-28, but a coax version is also available.

Block Diagram



Outline Drawings



Specifications subject to change without notice

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38 GHz MMIC Multipliers with Output Power Adjust for Digital Radio Transmitters

ARCOM P/N : 38TX005

Features :

- MMIC PHEMT Power Amplifier.
- Other Multiplication factors available.
- Specifications guaranteed @ 25 °C.
- Internal Voltage Regulator with reverse voltage protection included.
- Other options available upon request.

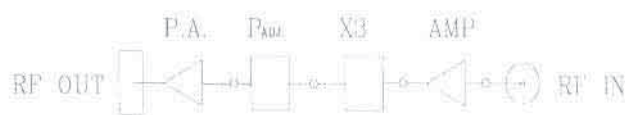
Specifications :

Input RF Frequency :	12.3 to 13.3 GHz
Output RF Frequency :	37 to 40 GHz
Output Power :	18 dBm MIN
Input Power :	8 dBm MIN
Output Power Adjust :	40 dB MIN
Power Adjust Control :	0 to 9 VDC
Harmonics :	20 dBC MIN
Spurious :	60 dBC MIN
VSWR Input/Output :	2 : 1
Bias :	400 mA MAX @ 12 V

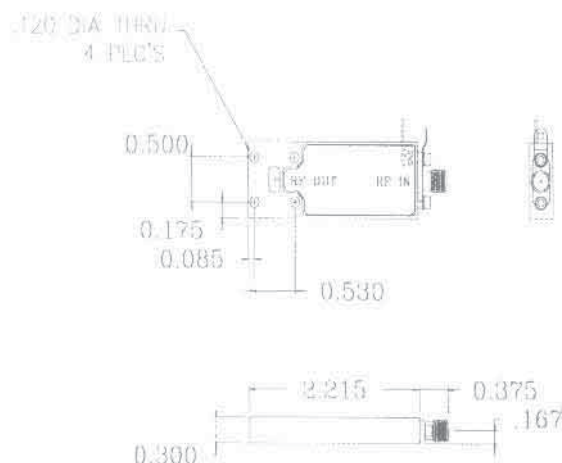
Description :

ARCOM's 38TX005 consists of a 37 to 40 GHz planar multiplier chain for digital radio transmitters. An electronic power adjust controls the output power in a 40 dB range. The RF output is in WR-28, but a coax version is also available.

Block Diagram



Outline Drawings



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