High IP3

Frequency Mixer

LAVI-17VH+

Level 21 (LO Power +21 dBm) 470 to 1730 MHz

CASE STYLE: CK605

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Maximum Ratings

Operating Temperature	-45°C to 85°C
Storage Temperature	-55°C to 100°C
LO Power	+24 dBm
RF Power	+21 dBm

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

LO	10
RF	2
IF	14
GROUND	1,3,4,5,6,7,8,9,11,12,13,15,16

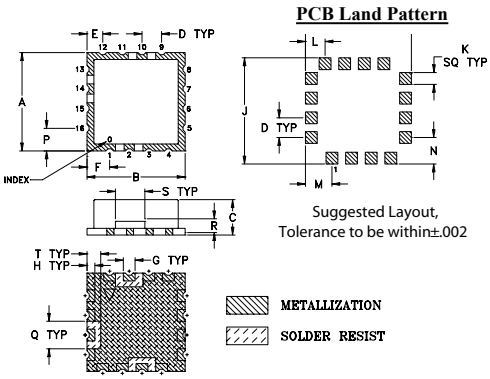
Features

- very high IP3, 32 dBm typ.
- wideband, 470 to 1730 MHz
- excellent L-R isolation, 52 dB typ. and L-I isolation, 50 dB typ.
- high 1 dB compression, 20 dBm typ.
- shielded metal cover
- aqueous washable
- protected by US Patent 6,807,407

Applications

- satellite communication
- UHF receivers, transmitters
- GPS
- cellular
- defense communication

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K
.500	.500	.180	.100	.080	.115	.060	.040	.540	.060
12.7	12.7	4.572	2.54	2.032	2.921	1.524	1.016	13.72	1.524

L	M	N	P	Q	R	S	T	wt.
.100	.135	.135	.115	.140	.070	.150	.070	grams
2.54	3.429	3.429	2.921	3.556	1.778	3.81	1.778	1.0

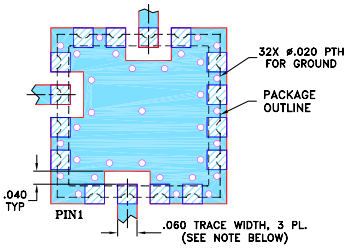
Electrical Specifications (T_{AMB}=25°C)

FREQUENCY (MHz)			CONVERSION LOSS (dB)			RF in at 1dB Compr (dBm)	IP3 (dBm)	LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)	
RF	LO	IF	Typ.	σ	Max.	Typ.	Typ.	Typ.	Min.	Typ.	Min.
470-1730	600-1800	70-1000	6.8	0.2	8.9	+20	32	52	38	50	36

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)	IF Freq. (MHz)	VSWR IF (:1)
RF	LO	LO +21dBm	LO +21dBm	LO +21dBm	LO +21dBm	LO +21dBm	LO +21dBm		LO +21dBm
430.10	564.90	6.11	50.26	60.35	1.57	4.42	30.29	70.00	1.95
470.10	600.10	6.54	52.88	58.91	1.57	4.24	29.54	100.00	1.80
570.90	696.10	6.52	55.33	52.96	1.68	4.10	29.38	120.00	1.81
671.70	792.10	6.47	53.24	49.22	1.81	3.87	30.88	140.00	1.78
772.50	888.10	6.41	49.96	48.12	1.91	3.58	32.01	160.00	1.73
873.30	984.10	6.32	46.96	47.11	1.98	3.21	33.60	180.00	1.71
1074.90	1176.10	6.38	43.21	44.31	1.92	2.44	33.09	200.00	1.70
1175.70	1272.10	6.47	43.47	42.45	1.84	2.22	31.68	300.00	1.57
1276.50	1368.10	6.61	45.03	42.04	1.75	2.20	31.26	400.00	1.42
1377.30	1464.10	6.84	46.98	42.95	1.67	2.46	31.39	500.00	1.29
1478.10	1560.10	7.10	48.08	45.58	1.60	2.91	30.48	600.00	1.17
1578.90	1656.10	7.38	51.04	50.04	1.53	3.38	31.09	700.00	1.13
1679.70	1752.10	7.59	57.31	57.60	1.49	3.73	31.52	750.00	1.13
1730.10	1800.10	7.65	60.39	53.90	1.45	4.07	30.32	800.00	1.13
1770.10	1835.30	7.57	55.84	48.95	1.45	3.75	31.57	1000.00	1.12

Demo Board MCL P/N: TB-433+
Suggested PCB Layout (PL-012)

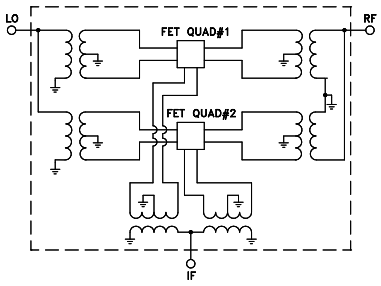


NOTES: 1. TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Schematic



Notes

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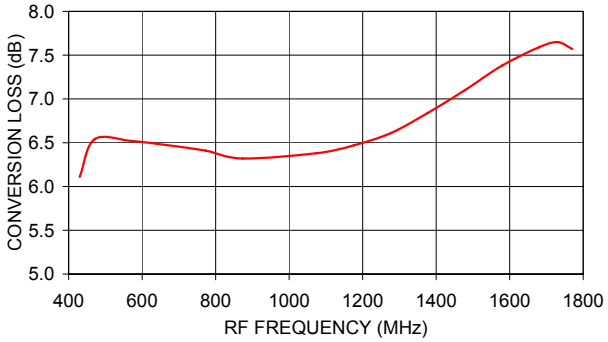
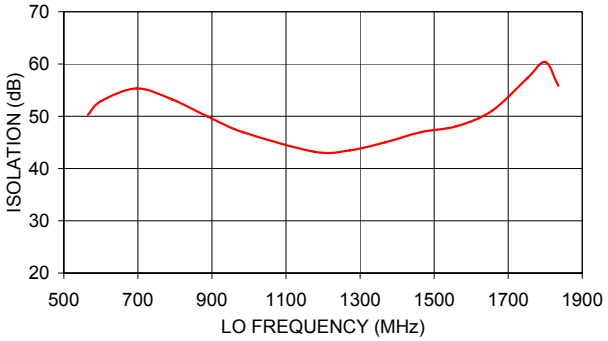
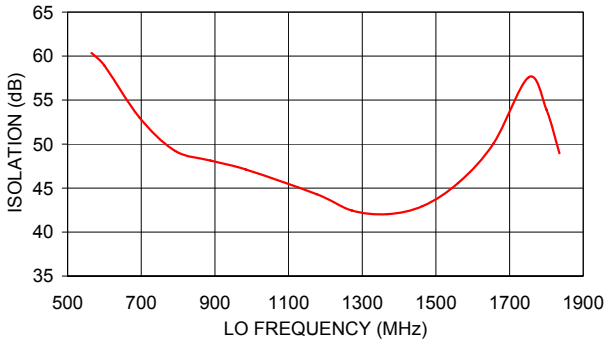
LAVI-17VH+
CONVERSION LOSS



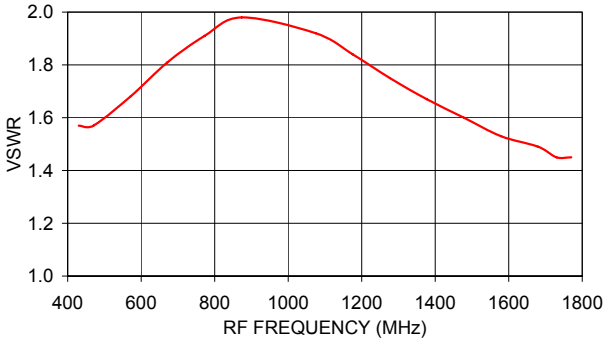
LAVI-17VH+
L-R ISOLATION



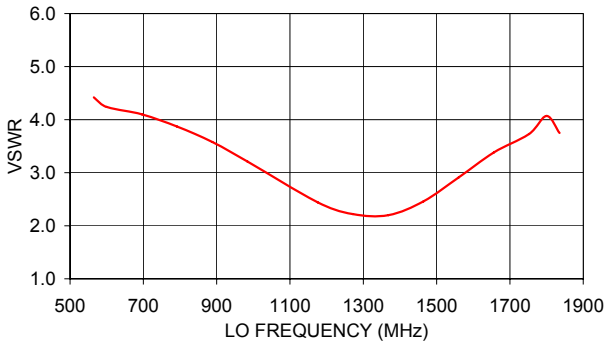
LAVI-17VH+
L-I ISOLATION



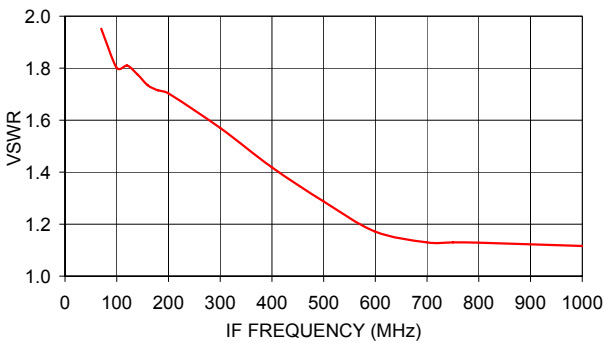
LAVI-17VH+
RF VSWR



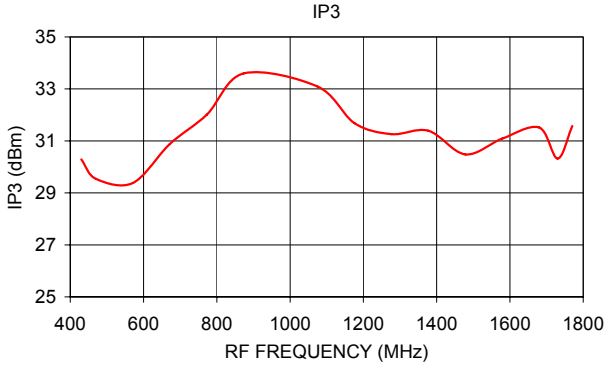
LAVI-17VH+
LO VSWR



LAVI-17VH+
IF VSWR



LAVI-17VH+
IP3



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Harmonic Table (T_{AMB}= 25°C)

(Relative to desired IF output)

RF HARMONICS ORDER	RF CAL (-dBc)	0	1	2	3	4	5	6	7	8	9	10
0	-	-	22	27	26	25	36	40	45	52	52	46
1	-	28	0	39	18	41	36	58	50	55	43	66
2	90	69	66	55	66	59	71	59	81	72	83	70
3	93	103	79	86	75	87	82	97	86	100	95	101
4	96	102	100	97	94	94	94	100	100	102	100	101
5	94	102	101	99	97	95	95	97	100	101	103	104
6	96	104	102	100	96	96	94	93	97	97	101	102
7	91	100	102	104	98	97	96	92	96	98	99	102
8	94	102	100	101	101	100	100	93	94	93	96	99
9	93	92	102	95	99	85	102	79	90	75	90	79
10	94	92	73	83	70	80	59	71	59	67	54	67

LO HARMONICS ORDER

Test conditions:

RF IN:	1100 MHz, 0 dBm.
LO IN:	1200 MHz, 21 dBm.
IF OUT:	100 MHz.
C. LOSS:	7.13 dB.