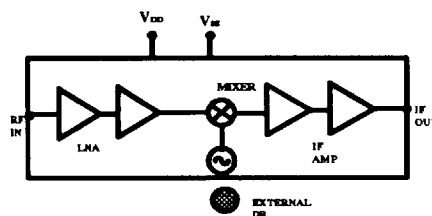


- Integrated Monolithic Downconverter
- 6 dB Noise Figure
- 35 dB Conversion Gain
- Small Size
- Low Cost
- High Reliability



The ANADIGICS Ku-Band MMIC Downconverter is a low-cost, high volume GaAs MMIC which is intended for use in consumer electronics . The AKD12000 offers a high degree of functionality in a very small and user friendly configuration. The MMIC provides LNB manufacturers the ability to produce in high volume LNBs with low component count, high reliability, and exceptional price performance ratios.

ABSOLUTE MAXIMUM RATINGS

VDD	0	+8.0	V
VSS	0	-8.0	V
VLO	-5	+0.5	V
VRF/VIF	-10	+10.0	V
Case Temperature	-55	+85.0	°C
Storage Temperature	-55	+100.0	°C
Soldering Temperature	-55	+260.0*	°C
Soldering Time		+15.0	Sec.
Input Power RF		+10.0	dBm
Input power LO		+17.0	dBm

OPERATING RANGES

Frequency				
RF	10.95		11.7	GHz
IF	950		1700	MHz
LO	9.5	10	13.5	GHz
Power Supplies				
VDD	+5.0	+6.0	+7.0	V
VSS	- 3.5	-5.0	-6.0	V
Case Temperature	-55.0	+25.0	+ 85.0	°C
Input Power RF	-80.0	-50.0	- 30.0	dBm
Input Impedance		50.0		Ω
Output Impedance		75.0		Ω

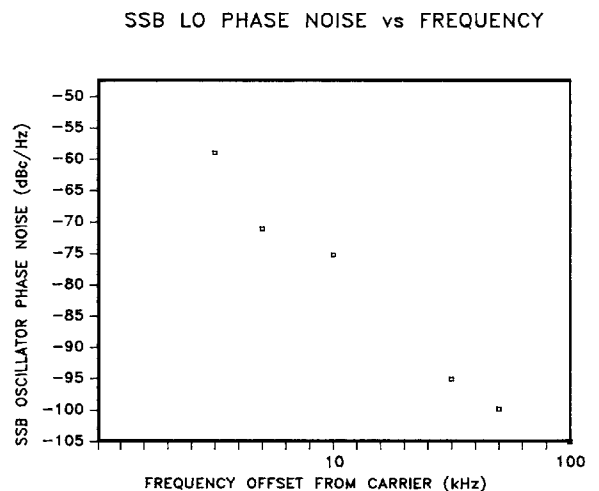
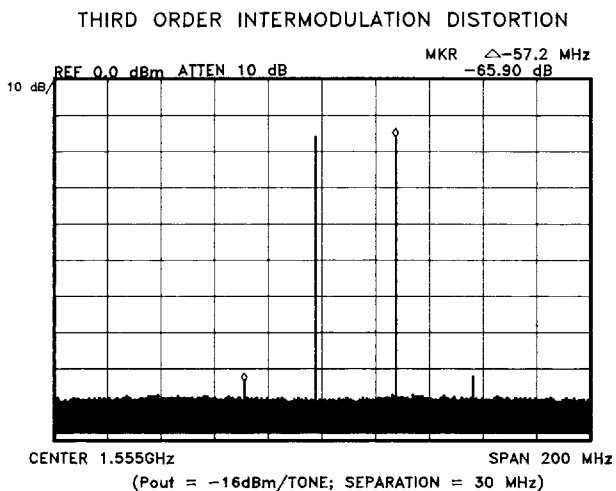
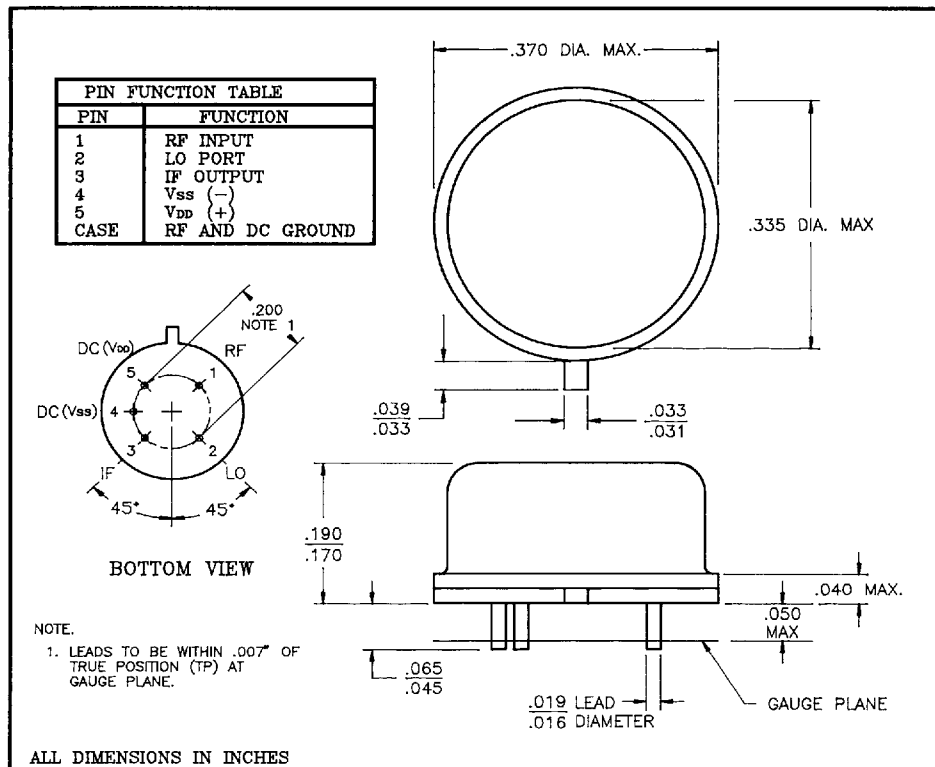
* The device may be held at a Temperature of 230°C for 3 minutes.

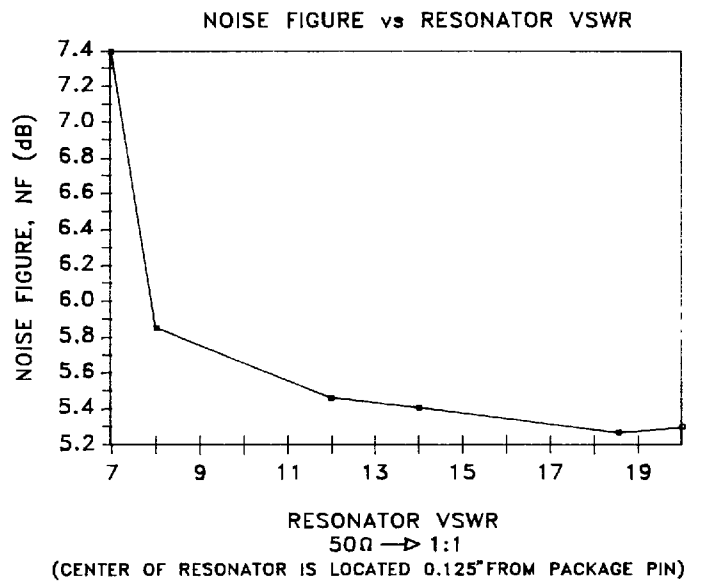
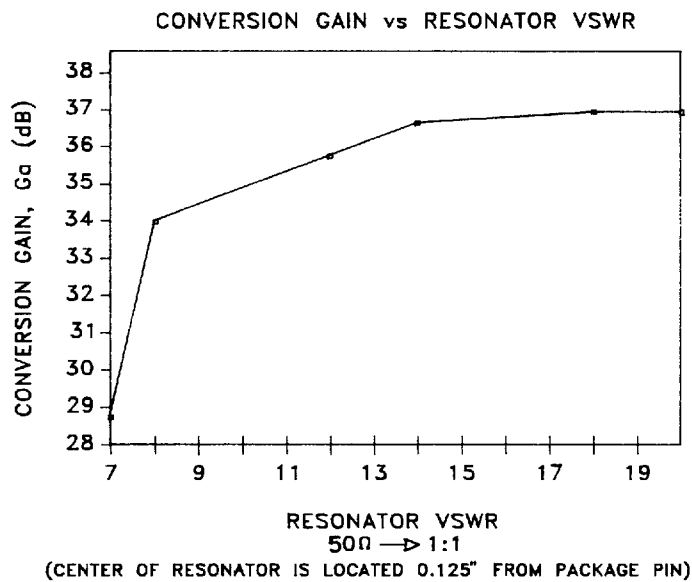
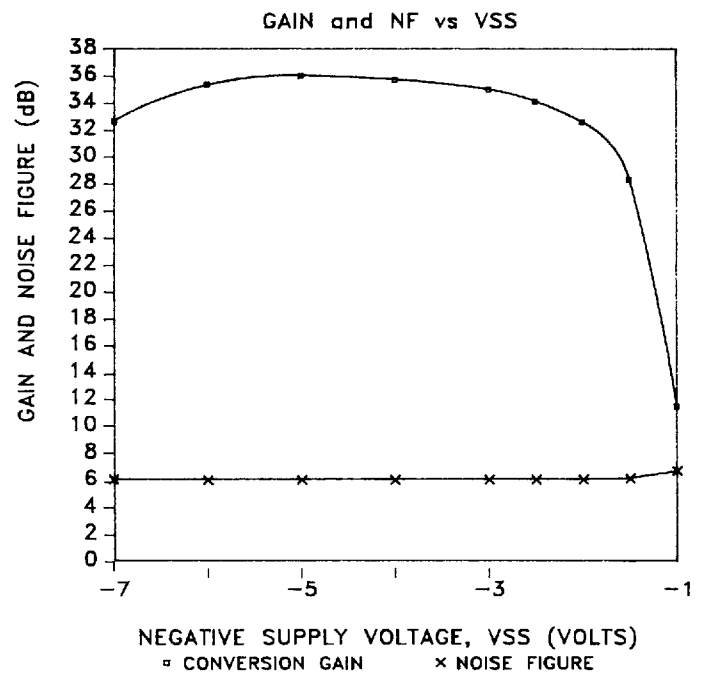
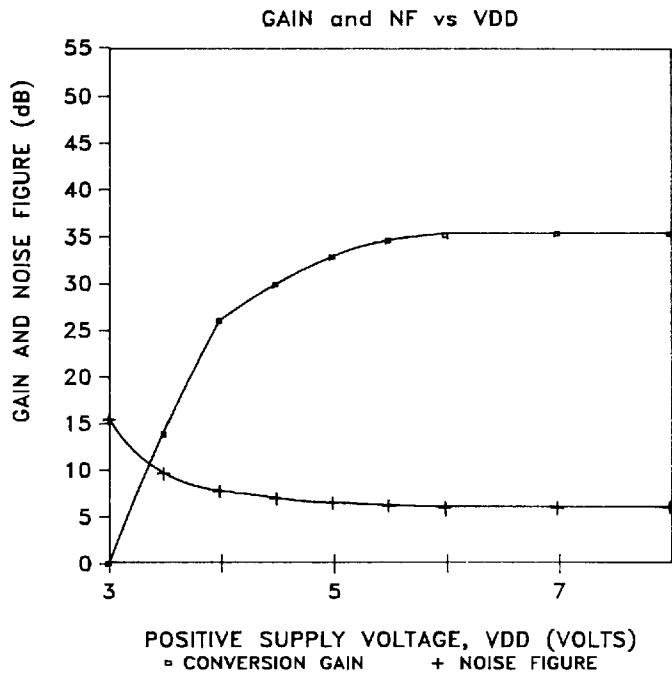
ELECTRICAL SPECIFICATIONS(Packaged unit $T_A = 25^{\circ}\text{C}$, $V_{DD} = +6\text{V}$, $V_{SS} = -5\text{V}$) LO Port Terminated in 50Ω .⁴

PARAMETER	MIN.	TYP.	MAX.	UNITS
Conversion Gain ¹				
F_{RF}	31.75	35		dB
F_{RF}	31.75	35		dB
SSB Noise Figure ¹				
F_{RF}		6.0	6.75	dB
F_{RF}		6.0	6.75	dB
Gain Flatness ¹		± 1.5	± 2.0	dB
Gain Ripple over any 27 MHz band		<0.25		dB
LO -RF Leakage		-25.0	- 10.0	dBm
LO - IF Leakage		- 5.0	0.0	dBm
LO Phase Noise ²				
10 KHz Offset		- 70.0	- 50.0	dBc/Hz
100 KHz Offset		- 100.0	- 70.0	dBc/Hz
Temperature Stability ³ of LO		± 1.5		MHz
Image Rejection	0	5.0		dB
Output power @ 1dB Gain Compression	0	+ 6		dBm
Output Third Order IP	+ 10	+ 16		dBm
Power Supply Current				
I_{DD}	75	120	150	mA
I_{SS}	1	3.5	4	mA
Spurious Output any Band (non-harmonic)			- 60.0	dBm
Input VSWR with Respect to 50Ω Over Rf Band		2:1		
Output VSWR with Respect to 75Ω over IF Band		1.5:1		

NOTES:

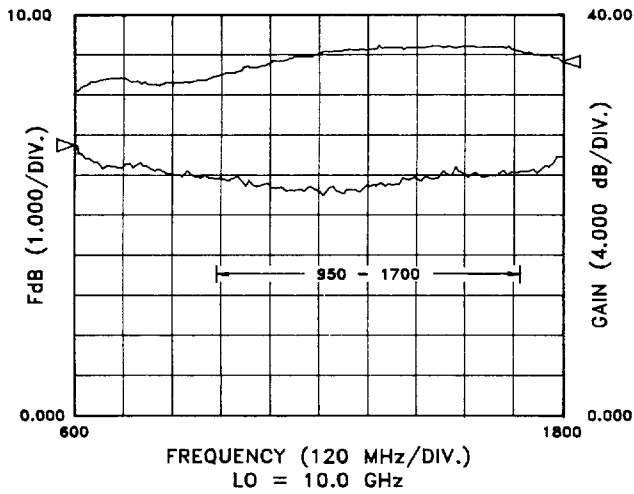
- As measured in ANADIGICS test fixture, $F_{LO} = 10\text{ GHz}$. (Test procedure available upon request.)
- Using an appropriate dielectric resonator and spacer
- Variation of LO frequency with temperature is largely a function of the dielectric resonator and its coupling.
- LO port must be terminated with 50Ω DC coupled resistor.



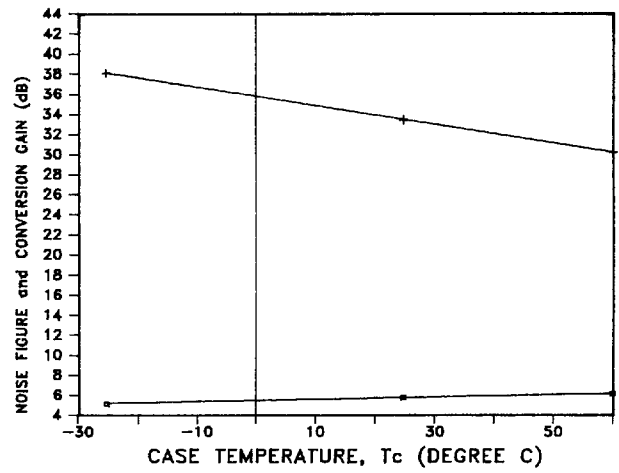




NOISE FIGURE and GAIN vs FREQUENCY

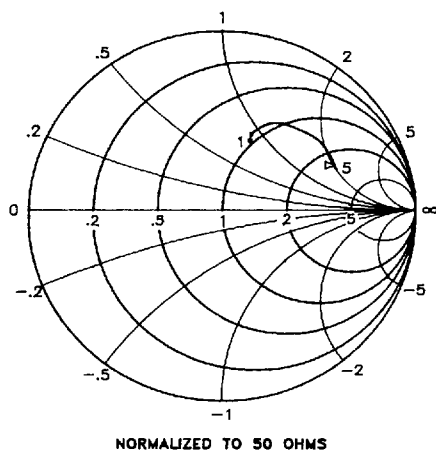


GAIN and NOISE FIGURE vs TEMPERATURE



INPUT IMPEDANCE

START: 10.95 GHz
STOP: 12.75 GHz



OUTPUT IMPEDANCE

START: 0.95 GHz
STOP: 2.00 GHz

