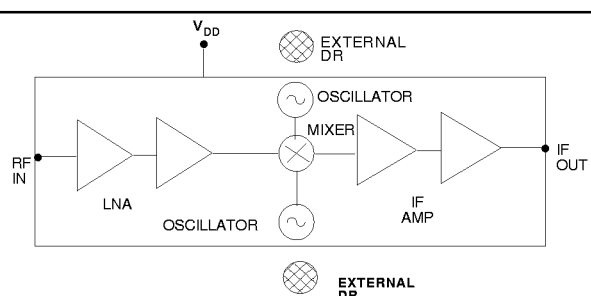


FEATURES	FUNCTIONAL BLOCK DIAGRAM
<ul style="list-style-type: none"> <li>■ Integrated Monolithic Downconverter</li> <li>■ Covers both FSS &amp; DBS Bands</li> <li>■ Band Switching Capability</li> <li>■ Surface Mount Package</li> <li>■ 6 dB Noise Figure</li> <li>■ 34 dB Conversion Gain</li> <li>■ Single + 6 Volt Supply</li> <li>■ Small Size</li> <li>■ Low Cost</li> <li>■ High Reliability</li> </ul>	 <p style="text-align: center;">PATENT PENDING</p>

The ANADIGICS Ku-Band MMIC Downconverter is a low-cost, high volume GaAs MMIC which is suitable for use in Ku-Band DBS systems. The AKD2806 incorporates a switching oscillator which can be used in LNB's where band switching is necessary (Astra Universal, Primestar, Etc.)

The AKD2806 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

PARAMETER	MIN.	MAX.	UNITS
VDD	0	+ 8	V
VLO <sub>1</sub> , VLO <sub>2</sub>	- 5	+ 1.0	V
VRF	-10	+10	V
VIF	0	+ 8	V
Case Temperature	- 55	+ 85	°C
Storage Temperature	- 55	+100	°C
Soldering Temperature		+250 *	°C
Soldering Time		15	Sec.
Input Power RF		+10	dBm
Input Power LO		+17	dBm

#### OPERATING RANGES

PARAMETER	MIN.	NOMINAL	MAX.	UNITS
Frequency				
RF	10.7		12.75	GHz
IF	950		2150	MHz
LO <sub>1</sub> , LO <sub>2</sub>	9		12	GHz
Power Supply				
VDD	+ 5	+ 6	+ 7	V
VLO <sub>1</sub> , VLO <sub>2</sub> **		- 2.0, 0		V
Case Temperature	- 55	+ 25	+ 85	°C
Input RF Power	- 80	- 50	- 30	dBm
Input Impedance		50		Ω
Output Impedance		75		Ω

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

\*\* - 2.0 volts turns the oscillator "OFF", 0 Volts turns the oscillator "ON"; both oscillators must not be at 0 Volts simultaneously

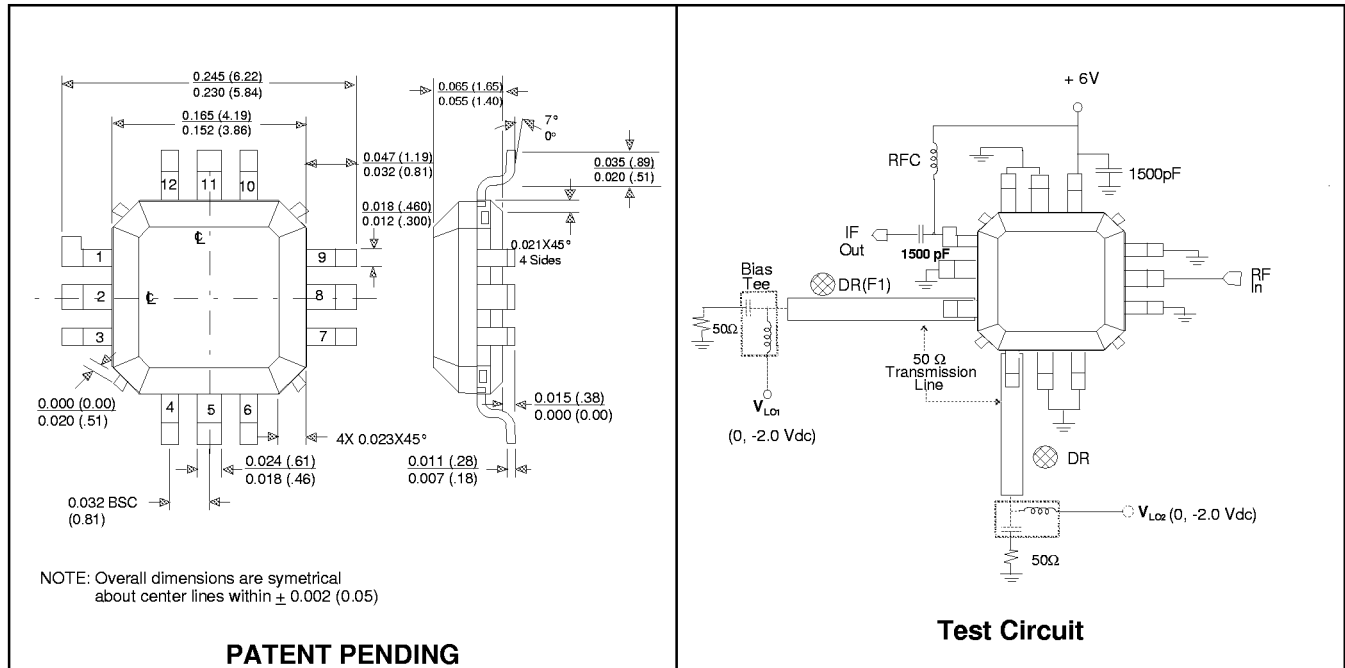
## ELECTRICAL SPECIFICATIONS

(Packaged unit TA = 25°C, VDD= +6V) LO Port Terminated in 50Ω.<sup>4</sup>

PARAMETER	MIN.	TYP.	MAX.	UNITS
Conversion Gain <sup>1</sup>	30	34	45	dB
SSB Noise Figure <sup>1</sup>		6	9	dB
Gain Flatness <sup>1</sup>		± 1.0	± 2.0	dB
Gain Ripple over any 27 MHz band		< 0.2	0.6	dB
LO - RF Leakage <sup>5</sup>		- 27	- 23	dBm
LO - IF Leakage <sup>5</sup>		- 5	0	dBm
LO Phase Noise <sup>2</sup>				
10 KHz Offset		- 83	- 80	dBc/Hz
100 KHz Offset		- 105	- 100	dBc/Hz
Temperature Stability of LO <sup>3</sup>		± 1.5		MHz
Image Rejection	0	6		dB
Output power @ 1dB Gain Compression(75 Ω)	+ 2	+ 5		dBm
Output Third Order IP (75Ω)	+ 12	+ 15		dBm
Power Supply Current IDD		120	150	mA
Spurious Output any Band			- 60	dBm
V <sub>LO1</sub> , V <sub>LO2</sub> (OFF)	- 3.0	- 2.0	- 1.25	Vdc
V <sub>LO1</sub> , V <sub>LO2</sub> (ON)	- 0.5	0	+ 0.5	Vdc
I <sub>LO1</sub> , I <sub>LO2</sub> (ON/OFF)		1.5	2	μA
I <sub>IF</sub>		15		mA

### NOTES:

1. As measured in ANADIGICS test set-up with F<sub>LO1</sub> = 10.6 GHz and F<sub>LO2</sub> = 9.75 GHz
2. Using an appropriate dielectric resonator, spacer & cavity.
3. Variation of LO frequency with temperature is largely a function of the dielectric resonator and its coupling.
4. Both LO ports must be terminated with a DC coupled resistor.
5. Lo = 10.6 GHz; Includes coupling through the test fixture.



Dimensions Shown Inches (Millimeters)

PIN	FUNCTION
1	IF OUT
2	GROUND
3	LO <sub>1</sub> , 10.6 GHz
4	LO <sub>2</sub> , 9.75 GHz
5	GROUND
6	GROUND
7	GROUND
8	RF INPUT
9	GROUND
10	V <sub>DD</sub>
11	GROUND
12	GROUND