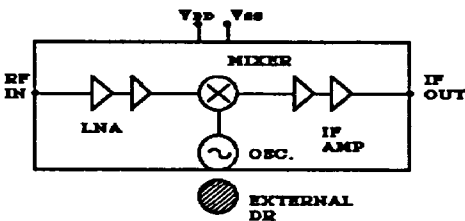


FEATURES	FUNCTIONAL BLOCK DIAGRAM
<ul style="list-style-type: none"> <li>• Integrated Monolithic Downconverter</li> <li>• 6 dB Noise Figure</li> <li>• 35 dB Conversion Gain</li> <li>• Small Size</li> <li>• Low Cost</li> <li>• High Reliability</li> </ul>	

The ANADIGICS Ku-Band MMIC Downconverter is a low-cost, high-volume GaAs MMIC which is suitable for use in the field of consumer electronics.

AKD12575 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 a low component count, high reliability, and exceptional price performance ratios. The AKD12575 is specifically suitable for France Telecom Band LNB's.

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN.	MAX.	UNITS
VDD	0	+ 8	V
VSS	0	- 8	V
VLO	- 5	+ 0.5	V
V <sub>RF</sub> /V <sub>IF</sub>	- 10	+ 10	V
Case Temperature	- 55	+ 85	° C
Storage Temperature	- 55	+ 100	° C
Soldering Temperature		+ 260 *	° C
Soldering Time		15	Sec.
Input Power RF		+ 10	dBm
Input Power LO		+ 17	dBm

### OPERATING RANGES

PARAMETER	MIN	NOMINAL	MAX	UNITS
Frequency				
RF	12.5		12.75	GHz
IF	1025		1275	MHz
LO		11.475		GHz
Power Supplies				
VDD	5	6	7	V
VSS	- 3.5	- 5	- 6	V
Case Temperature	- 55	25	85	° C
Input Power RF	- 80	- 50	- 30	dBm
Input Impedance		50		ohms
Output Impedance		75		ohms

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

Anadigics reserves the right to make changes in specifications without notice.

## **ELECTRICAL SPECIFICATIONS**

( Packaged unit, TA = 25 °C, V<sub>DD</sub> = + 6V, V<sub>SS</sub> = - 5V) LO Port Terminated in 50 ohms.<sup>4</sup>

PARAMETER	MIN.	TYP.	MAX.	UNITS
Conversion Gain <sup>1</sup>				
F <sub>RF</sub> = 12.5 GHz	30	35		dB
F <sub>RF</sub> = 12.75 GHz	30	35		dB
SSB Noise Figure <sup>1</sup>				
F <sub>RF</sub> = 12.5 GHz		6.0	8.5	dB
F <sub>RF</sub> = 12.75 GHz		6.0	8.5	dB
Gain Flatness <sup>1</sup>		± 2	± 2.5	dB
Gain Ripple over any 27 MHz band		<0.2	0.6	dB
LO - RF Leakage		- 25	- 10	dBm
LO - IF Leakage		- 5	0	dBm
LO Phase Noise <sup>2</sup>				
10 KHz Offset		- 70	- 50	dBc/Hz
100 KHz Offset		- 100	- 70	dBc/Hz
Temperature Stability <sup>3</sup> of LO		± 1.5		MHz
Image Rejection	0	5		dB
Output power @ 1dB Gain Compression	0	+ 6		dBm
Output Third Order IP	+ 10	+ 16		dBm
Power Supply Current				
I <sub>DD</sub>	75	120	150	mA
I <sub>SS</sub>	1	3.5	4	mA
Spurious Output any Band			- 60	dBm
Input VSWR with Respect to 50 ohms Over RF Band		2:1		
Output VSWR with Respect to 75 ohms over IF Band		1.5:1		

### **NOTES:**

1. As measured in ANADIGICS test fixture , F<sub>LO</sub> = 11.475 GHz  
( Test procedure available upon request)
2. Using an appropriate dielectric resonator and spacer.
3. Variation of LO frequency with temperature is largely a function of the dielectric resonator and its coupling.
4. LO port must be terminated with 50 ohms DC coupled resistor.

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