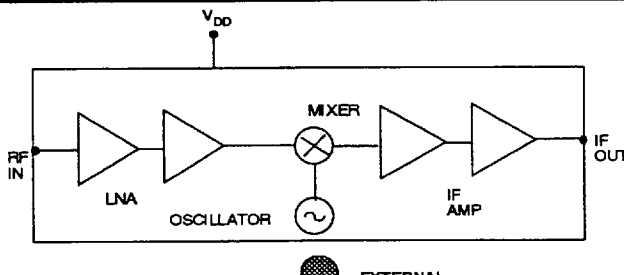


AKD2030
Ku-Band DBS MMIC Downconverter
PRELIMINARY
Rev 4

FEATURES	FUNCTIONAL BLOCK DIAGRAM
■ Integrated Monolithic Downconverter ■ Surface Mount Package ■ 6 dB Noise Figure ■ 35 dB Conversion Gain ■ Single + 6 Volt Supply ■ Small Size ■ Low Cost ■ High Reliability	

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 AKD2030 is specifically suited for the Japanese BS market. The AKD2030 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	- 5	+0.5	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	11.7		12.01	GHz
IF	1022		1332	MHz
LO		10.678		GHz
Power Supply				
VDD	+ 5	+ 6	+ 7	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.

ELECTRICAL SPECIFICATIONS

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

PARAMETER	MIN.	TYP.	MAX.	UNITS
Conversion Gain ¹	30	35		dB
SSB Noise Figure ¹		6	9	dB
Gain Flatness ¹		± 1.5	± 3	dB
Gain Ripple over any 27 MHz band		< 0.2	0.6	dB
LO - RF Leakage ⁵		- 10	- 5	dBm
LO - IF Leakage ⁵		- 5	0	dBm
LO Phase Noise ²				
10 KHz Offset		- 78	- 50	dBc/Hz
100 KHz Offset		- 100	- 70	dBc/Hz
Temperature Stability of LO ³		± 1.5		MHz
Image Rejection	0	6		dB
Output power @ 1dB Gain Compression (75 Ω)	0	+ 5		dBm
Output Third Order IP (75Ω)	+ 10	+ 15		dBm
Power Supply Current IDD		120	150	mA
Spurious Output any Band			- 60	dBm
Input Impedance (Normalized to 50Ω)		See Smith Charts		
Output Impedance (Normalized to 50 Ω)		See Smith Charts		

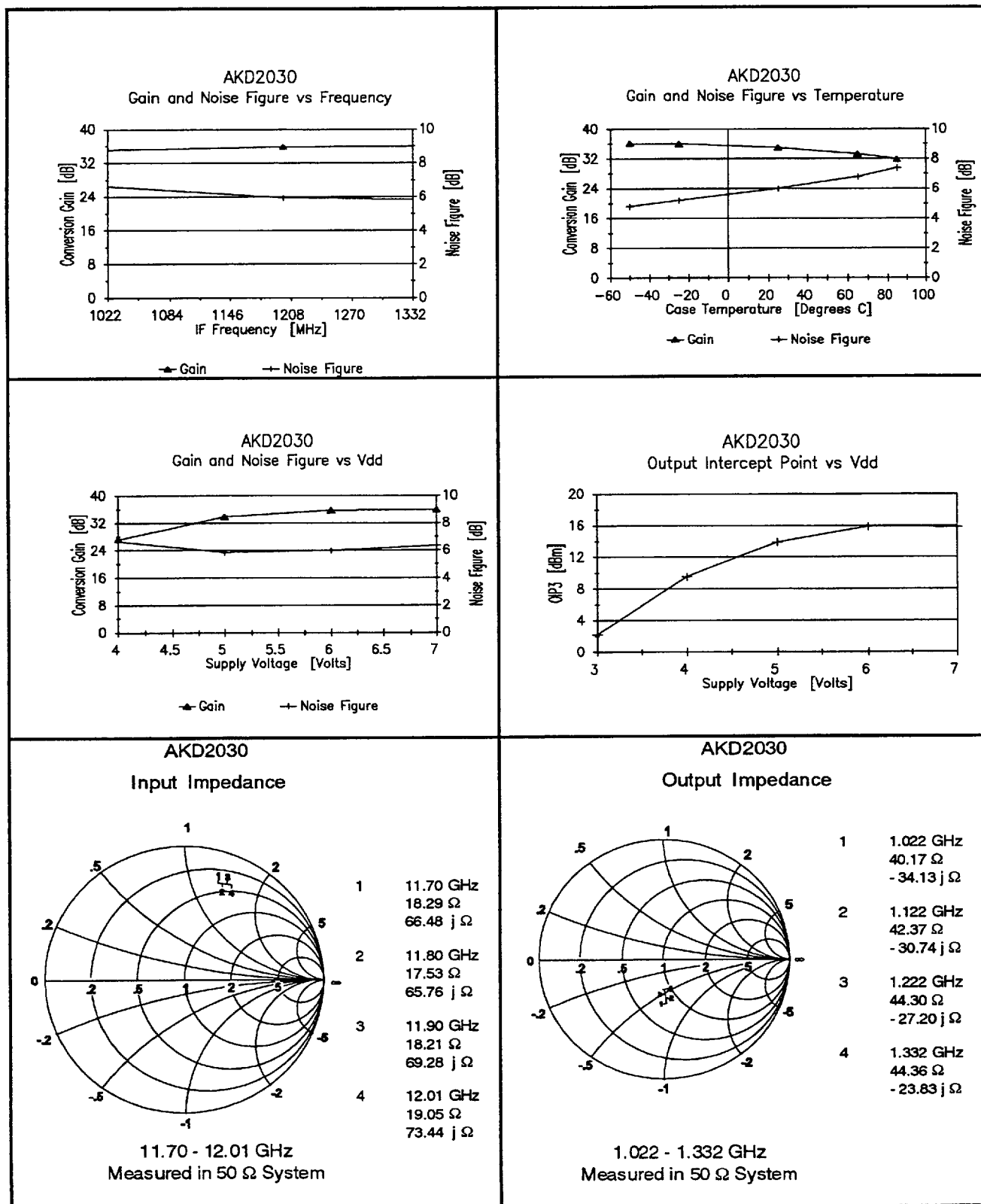
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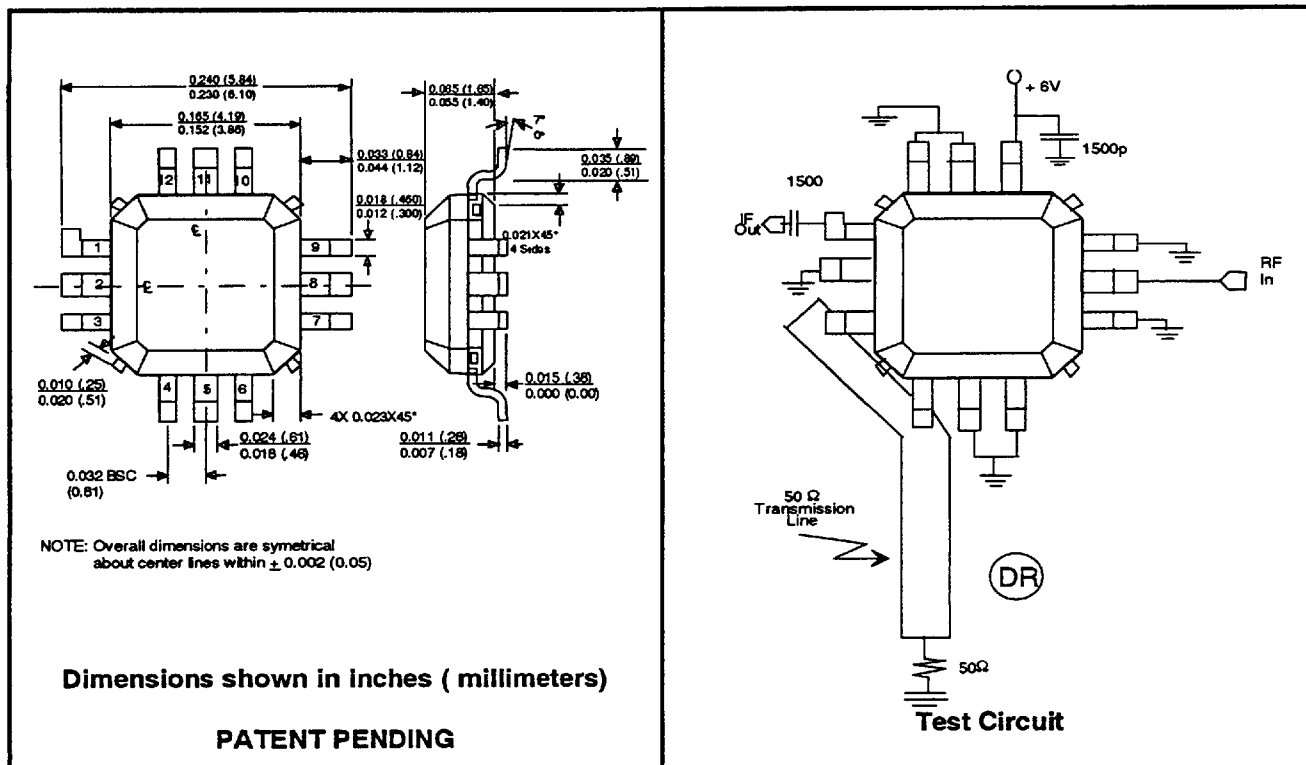
1. As measured in ANADIGICS test set-up, FLO = 10.678 GHz (Test procedure available upon request)
2. Using an appropriate dielectric resonator, spacer & cavity.
3. Variation of LO frequency with temperature is largely a function of the dielectric resonator and its coupling.
4. LO port must be terminated with 50Ω DC coupled resistor.
5. Includes coupling through the test fixture.

7/11/94

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PIN	FUNCTION
1	IF OUT
2	GROUND
3	LO
4	LO
5	GROUND
6	GROUND
7	GROUND
8	RF INPUT
9	GROUND
10	VDD
11	GROUND
12	GROUND