



2209HSDF

2000 Single Band Ku-Band PLL LNB (0.9 dB)

Frequency: D: 10.70 - 11.80 GHz

L.O. Stability: +/- 25 kHz

Output Connector: F: 75 Ohm



KEY SPECIFICATIONS

Band	Ku-Band
Duty Cycle	50% $\pm$ 10%
Input Frequency Band 1	10.70 - 11.80 GHz
LO Frequency 1	9.75 GHz
LO Stability	$\pm$ 25 kHz
LO Type	PLL
Noise Figure Max	1.0 dB
Noise Figure Typ	0.9 dB
Number Of Onboard Los	Single-Band
Output Frequency Band 1	950 - 2050 MHz

RF SPECIFICATIONS

Conversion Gain Max	65 dB
Conversion Gain Min	55 dB
Conversion Gain Typ	60 dB
Gain Flatness (over Full Band)	$\leq$ 6 dB p-p
Input VSWR	2.3 : 1 max.
Output P1db	+ 5 dBm min.
Output VSWR	2.2 : 1 max.
Phase Noise 0.1khz Offset Max	-65 dBc/Hz
Phase Noise 1khz Offset Max	-75 dBc/Hz
Phase Noise 10khz Offset Max	-80 dBc/Hz
Phase Noise 100khz Offset Max	-93 dBc/Hz



ELECTRICAL SPECIFICATIONS

Current Consumption	350 mA max
Power Requirements	+12 to +24V DC

INTERFACE SPECIFICATIONS

IF Connector	F-Connector
RF Input Connector	WR-75 waveguide grooved

ENVIRONMENTAL SPECIFICATIONS

Humidity	0 - 95%
IP Rating	IP 66
Temperature Operational	-40°C to +70°C
Temperature Storage	-50 to +80°C

PHYSICAL SPECIFICATIONS

Product Height	1.70 in
Product Length	4.46 in
Product Weight	0.255 kg
Product Width	1.72 in

LOGISTICS SPECIFICATIONS

HS Code	Country of Origin	Ex Works	ECCN Number	Unit Package
8517690000	Made in Canada	Richmond, BC, Canada	EAR99	135 x 68 x 48 mm 0.335 kg

HOW TO ORDER



MECHANICAL DIAGRAMS



FREQUENCY BANDS

Single Band					Dual Band								
Band	RF freq (GHz)	L.O freq (GHz)	Output freq		Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone				
A	11.7 - 12.20	10.75	950 - 1450 MHz			A	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		
B	12.25 - 12.75	11.3	950 - 1450 MHz				B	Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V	
C	10.95 - 11.70	10	950 - 1700 MHz			C		Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	
D	10.70-11.80	9.75	950 - 2050 MHz		D		Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V		
Triple Band						Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone			
A	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		A	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz			B	Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V				C	Band 1	10.95 - 11.70	10	950 - 1700 MHz
B	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V	D	Band 2	12.25 - 12.75		11.3	950 - 1450 MHz	18 V	
	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	13 V / 22 kHz		D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			E	Band 2	11.70 - 12.75	10.6	1100 - 2150 MHz	18 V
C	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	Quad Band							
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz	Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone			
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V		A	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V	
D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			B	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
	Band 2	11.70 - 12.25	10.75	950-1500 MHz	13 V / 22 kHz				C	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950-1450 MHz	18 V	D				Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
E	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V		E			Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz	13 V / 22 kHz			F		Band 2	10.95 - 11.70	10	950 - 1700 MHz
	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz	18 V				G	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
F	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz	13 V	H				Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
	Band 2	10.95 - 12.10	10	950 - 2100 MHz	13 V / 22 kHz		I			Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz	18 V			J		Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
G	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				K	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	L				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		M			Band 1	10.95 - 11.45	10	950 - 1450 MHz
H	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			N		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				O	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	P				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
I	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		Q			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			R		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				S	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
J	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	T				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		U			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			V		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
K	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				W	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	X				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		Y			Band 1	10.95 - 11.45	10	950 - 1450 MHz
L	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			Z		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				AA	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	AB				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
M	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		AC			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			AD		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				AE	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
N	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	AF				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		AG			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			AH		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
O	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				AI	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	AJ				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		AK			Band 1	10.95 - 11.45	10	950 - 1450 MHz
P	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			AL		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				AM	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	AN				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
Q	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		AO			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			AP		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				AQ	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
R	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	AR				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		AS			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			AT		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
S	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				AU	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	AV				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		AW			Band 1	10.95 - 11.45	10	950 - 1450 MHz
T	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			AX		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				AY	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	AZ				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
U	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		BA			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			BB		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				BC	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
V	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	BD				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		BE			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			BF		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
W	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				BG	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	BH				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		BI			Band 1	10.95 - 11.45	10	950 - 1450 MHz
X	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			BJ		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				BK	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	BL				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
Y	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		BM			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			BN		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				BO	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
Z	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	BP				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz		BQ			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V			BR		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AA	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V				BS	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz	BT				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V		BU			Band 1	10.95 - 11.45	10	950 - 1450 MHz
AB	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V			BV		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz				BW	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V	BX				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AC	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V		BY			Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz			BZ		Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V				CA	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
AD	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V	CB				Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
	Band 2												