



2209HSDN

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

Frequency: D: 10.70 - 11.80 GHz

L.O. Stability: +/- 25 kHz

Output Connector: N: 50 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	N-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

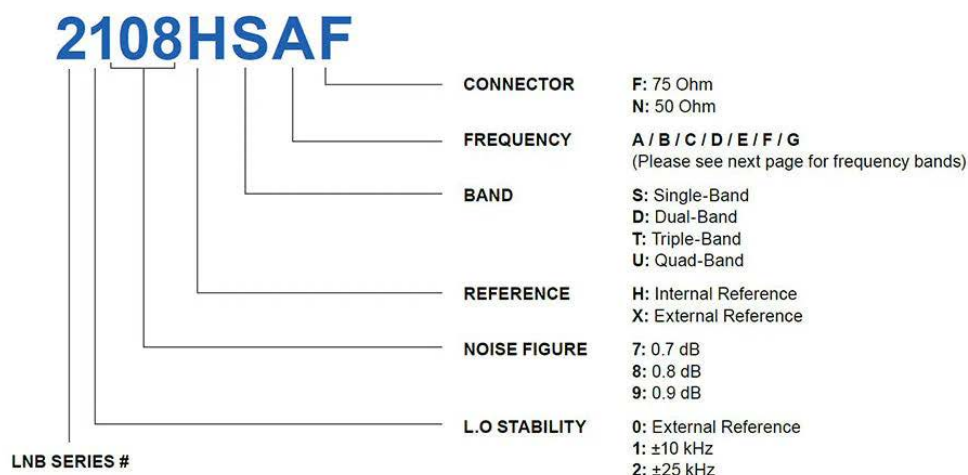
PHYSICAL SPECIFICATIONS

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

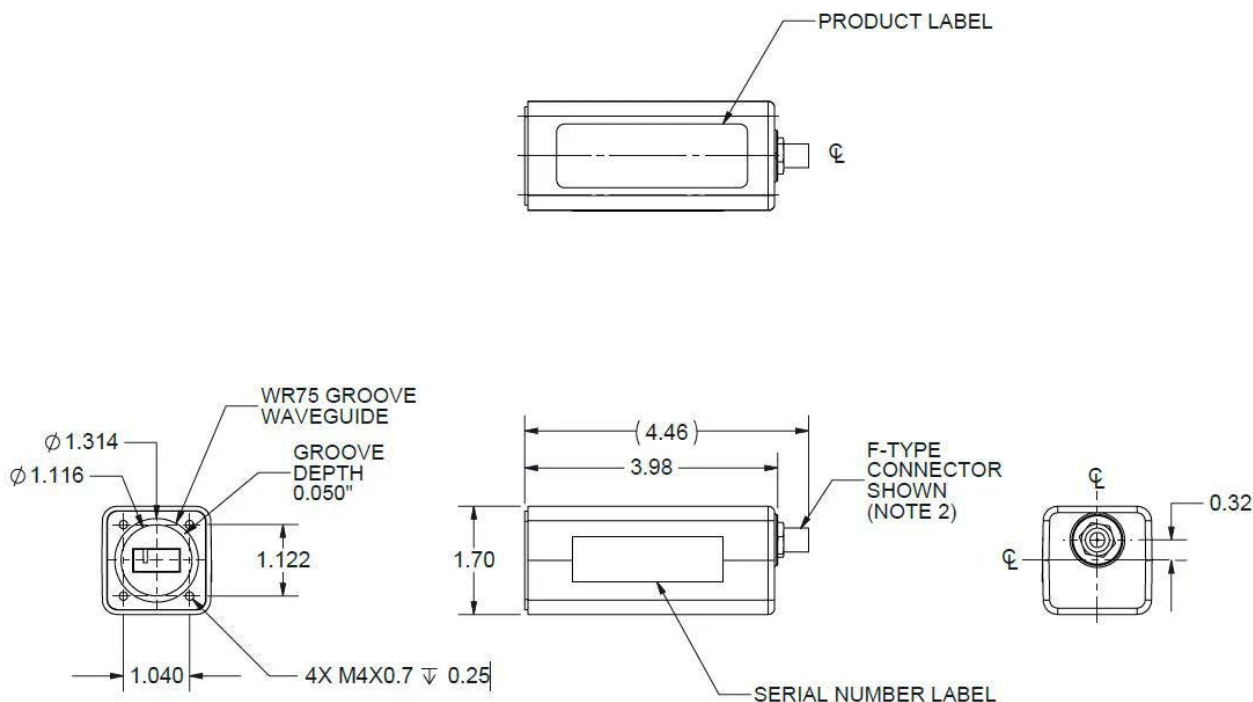
LOGISTICS SPECIFICATIONS

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	
B	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	
C	10.95 - 11.70	10	950 - 1700 MHz		B	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
D	10.70-11.80	9.75	950 - 2050 MHz			Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	
Triple Band					C	Band 1	10.95 - 11.70	10	950 - 1700 MHz	
Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone		Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	
A	Band 1	10.95 - 11.70	10	950 - 1700 MHz	D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		Band 2	11.70 - 12.75	10.6	1100 - 2150 MHz	
B	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	Quad Band					
	Band 1	10.95 - 11.70	10	950 - 1700 MHz	Band	RF freq (GHz)	L.O freq (GHz)	Output freq	Voltage/Tone	
C	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	A	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz		Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	
D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz		Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz		Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	
E	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	B	Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	
	Band 1	10.95 - 11.70	10	950 - 1700 MHz		Band 2	10.95 - 11.70	10	950 - 1700 MHz	
F	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz		C	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
G	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz	D		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	10.95 - 12.10	10	950 - 2100 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
H	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz		E	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
I	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	F		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
J	Band 1	10.95 - 11.70	10	950 - 1700 MHz		G	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
K	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	H		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
L	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		I	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
M	Band 1	10.95 - 11.70	10	950 - 1700 MHz	J		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
N	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		K	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
O	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	L		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
P	Band 1	10.95 - 11.70	10	950 - 1700 MHz		M	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
Q	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	N		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
R	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		O	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
S	Band 1	10.95 - 11.70	10	950 - 1700 MHz	P		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
T	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		Q	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
U	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	R		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
V	Band 1	10.95 - 11.70	10	950 - 1700 MHz		S	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
W	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	T		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
X	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		U	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
Y	Band 1	10.95 - 11.70	10	950 - 1700 MHz	V		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
Z	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		W	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AA	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	X		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AB	Band 1	10.95 - 11.70	10	950 - 1700 MHz		Y	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AC	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	Z		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
AD	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		AA	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
AE	Band 1	10.95 - 11.70	10	950 - 1700 MHz	AB		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
AF	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		AC	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AG	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	AD		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AH	Band 1	10.95 - 11.70	10	950 - 1700 MHz		AE	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AI	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	AF		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
AJ	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		AG	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
AK	Band 1	10.95 - 11.70	10	950 - 1700 MHz	AH		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
AL	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		AI	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AM	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	AJ		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AN	Band 1	10.95 - 11.70	10	950 - 1700 MHz		AK	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AO	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	AL		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
AP	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		AM	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
AQ	Band 1	10.95 - 11.70	10	950 - 1700 MHz	AN		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
AR	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		AO	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AS	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	AP		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AT	Band 1	10.95 - 11.70	10	950 - 1700 MHz		AQ	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AU	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	AR		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.95 - 11.70	10	950 - 1700 MHz
AV	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz		AS	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 4	12.25 - 12.75	11.3	950 - 1450 MHz
AW	Band 1	10.95 - 11.70	10	950 - 1700 MHz	AT		Band 1	10.70 - 11.20	9.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 2	11.20 - 11.70	10.25	950 - 1450 MHz
AX	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz		AU	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
AY	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	AV		Band 1	10.95 - 11.45	10	950 - 1450 MHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz			Band 2	11.45 - 11.95	10.5	950 - 1450 MHz
AZ	Band 1	10.95 - 11.70	10	950 - 1700 MHz		AW	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz			Band 4	12.20 - 12.75	11.25	950 - 1500 MHz
BA	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	AX		Band 1	10.70 - 10.95	9.75	950 - 1200 MHz
	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz			Band 2	10.9		