Norsat International Inc.

Innovative Communication Solutions

2209HUBN

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

Frequency: B: 10.70 - 10.95 GHz | 10.95 - 11.70 GHz | 11.70 - 12.25 GHz | 12.25 - 12.75 GHz

L.O. Stability: +/- 25 kHz

Output Connector: N: 50 Ohm

CE REACH

KEY SPECIFICATIONS

Band	Ku-Band
Input Frequency Band 1	10.70 - 10.95 GHz
Input Frequency Band 2	10.95 - 11.70 GHz
Input Frequency Band 3	11.70 - 12.25 GHz
Input Frequency Band 4	12.25 - 12.75 GHz
LO Frequency 1	9.75 GHz
LO Frequency 2	10.00 GHz
LO Frequency 3	10.75 GHz
LO Frequency 4	11.30 GHz
LO Stability	±25 kHz
LO Type	PLL
Noise Figure Max	1.0 dB
Noise Figure Typ	0.9 dB
Number Of Onboard Los	Quad-Band
Output Frequency Band 1	950 - 1200 MHz
Output Frequency Band 2	950 - 1700 MHz
Output Frequency Band 3	950 - 1500 MHz
Output Frequency Band 4	950 - 1450 MHz
Tone Frequency	22 kHz ± 4 kHz

RF SPECIFICATIONS

Control Signal 1	13V / No Tone
Control Signal 2	13V / 22kHz Tone

Control Signal 3	18V / No Tone
Control Signal 4	18V / 22kHz Tone
Conversion Gain Max	65 dB
Conversion Gain Min	55 dB
Conversion Gain Typ	60 dB
Gain Flatness (over Full Band)	≤ 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	-125 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

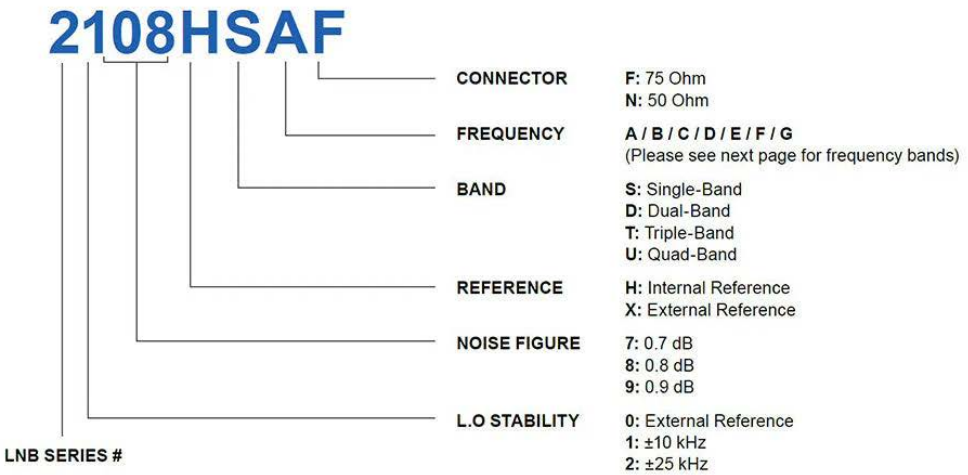
PHYSICAL SPECIFICATIONS

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

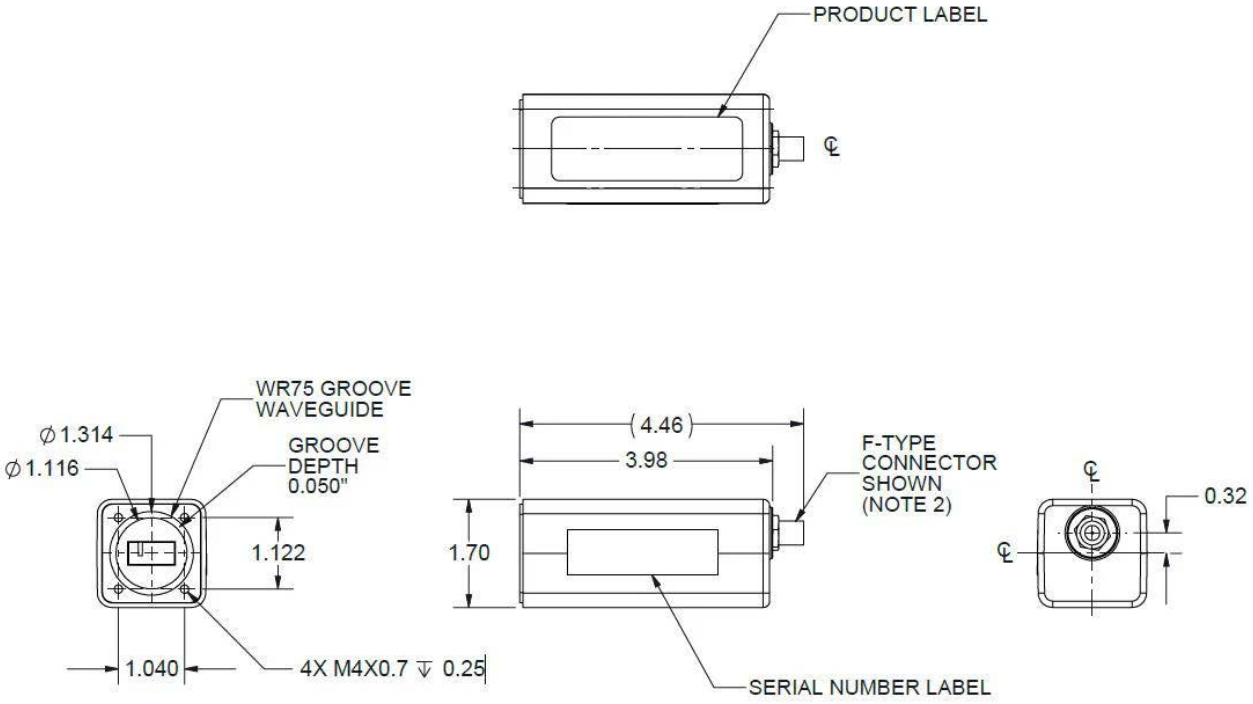
LOGISTICS SPECIFICATIONS

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

HOW TO ORDER



MECHANICAL DIAGRAMS



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FREQUENCY BANDS

Single Band				
Band	RF freq (GHz)	L.O freq (GHz)	Output freq	
A	11.7 - 12.20	10.75	950 - 1450 MHz	
B	12.25 - 12.75	11.3	950 - 1450 MHz	
C	10.95 - 11.70	10	950 - 1700 MHz	
D	10.70-11.80	9.75	950 - 2050 MHz	

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
	Band 2	11.70 - 12.20	10.75	950 - 1450 MHz	13 V / 22 kHz
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V
B	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V
	Band 2	11.70 - 12.25	10.75	950 - 1500 MHz	13 V / 22 kHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V
C	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
	Band 3	12.20 - 12.75	11.25	950 - 1500 MHz	18 V
D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
	Band 2	11.70 - 12.25	10.75	950-1500 MHz	13 V / 22 kHz
	Band 3	12.25 - 12.75	11.3	950-1450 MHz	18 V
E	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V
	Band 2	11.55 - 12.25	10.6	950 - 1650 MHz	13 V / 22 kHz
	Band 3	12.20 - 12.70	11.25	950 - 1450 MHz	18 V
F	Band 1	10.70 - 11.80	9.75	950 - 2050 MHz	13 V
	Band 2	10.95 - 12.10	10	950 - 2100 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
G	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
	Band 2	11.70 - 12.70	10.75	950 - 1950 MHz	13 V / 22 kHz
	Band 3	12.25 - 12.75	11.3	950 - 1450 MHz	18 V

Dual 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
	Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
B	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
	Band 2	11.70 - 12.75	10.75	950 - 2000 MHz	18 V
C	Band 1	10.95 - 11.70	10	950 - 1700 MHz	13 V
	Band 2	12.25 - 12.75	11.3	950 - 1450 MHz	18 V
D	Band 1	10.70 - 11.70	9.75	950 - 1950 MHz	13 V
	Band 2	11.70 - 12.75	10.6	1100 - 2150 MHz	18 V

Quad Band					
Band	RF freq (GHz)		L.O freq (GHz)	Output freq	Voltage/Tone
A	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V
	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	18 V
	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz
B	Band 1	10.70 - 10.95	9.75	950 - 1200 MHz	13 V
	Band 2	10.95 - 11.70	10	950 - 1700 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.25	10.75	950 - 1500 MHz	18 V
	Band 4	12.25 - 12.75	11.3	950 - 1450 MHz	18 V / 22kHz
C	Band 1	10.70 - 11.20	9.75	950 - 1450 MHz	13 V
	Band 2	11.20 - 11.70	10.25	950 - 1450 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V
	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz
D	Band 1	10.95 - 11.45	10	950 - 1450 MHz	13 V
	Band 2	11.45 - 11.95	10.5	950 - 1450 MHz	13 V / 22 kHz
	Band 3	11.70 - 12.20	10.75	950 - 1450 MHz	18 V
	Band 4	12.20 - 12.75	11.25	950 - 1500 MHz	18 V / 22kHz