

## X-Band Radar Front End

### ■ GENERAL DESCRIPTION

The NJT1045 is designed to be used as the front end in shipboard radar. The unit can operate at any frequency between 9380 and 9440 MHz.

The small light weight front end module contains a variable attenuator MMIC for STC capability, a HEMT low noise amplifier, an image rejection mixer and a local VCO with buffer amplifier.



### ■ ELECTRICAL CHARACTERISTICS < at 25 °C >

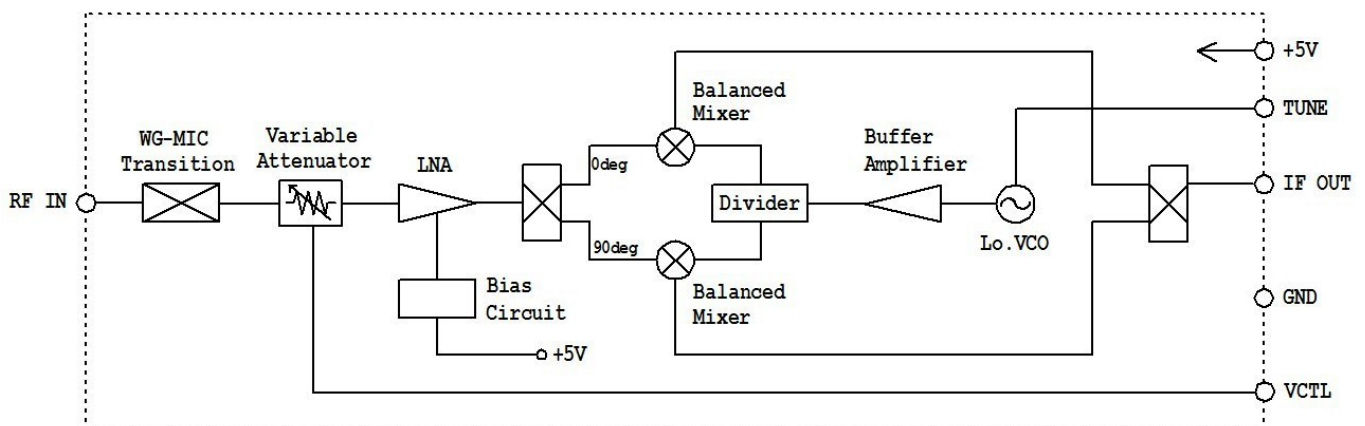
PARAMETERS		Min	Typical	Max	Units
Operating voltage		4.8	5.0	5.2	V
Operating current		-	80	110	mA
Tuning voltage (Note1)		4.5	5.5	6.5	V
Local frequency	VT= 3.0V	-	-	9.430	GHz
	VT= 8.5V	9.510	-	-	GHz
Noise figure		-	2.7	3.5	dB
Conversion gain		6.0	8.0	10.0	dB
1dB Gain compression point (RF Port)		-10.0	-7.0	-	dBm
Attenuation range at VCTL=4.0V		20	23	30	dB
Attenuator control voltage [VCTL]		0	-	4.0	V
Attenuator control current [VCTL]		-	-	1.0	mA
RF single pulse burnout (Note2)		-	-	600	mW
RF repetitive pulse burnout (Note3)		-	-	400	mW

Note1: fLO=9.470GHz

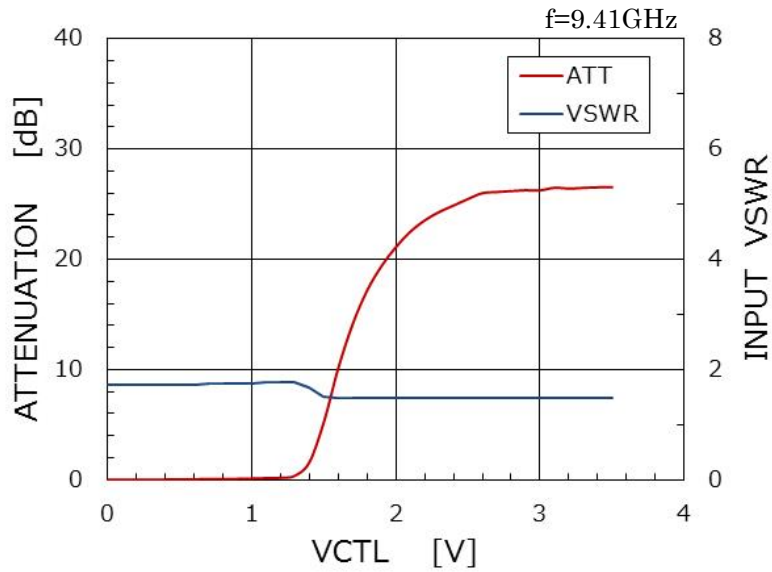
Note2: fRF=9.410GHz, Pd=10nsec

Note3: fRF=9.410GHz, Pd=1µsec, Duty=0.001

### ■ BLOCK DIAGRAM



■ TYPICAL ATTENUATOR PERFORMANCE



■ CALCULATION OF RECEIVER NOISE FIGURE

[NJS6930A+NJT1946A]

		Device characteristics		Total characteristics	
		GAIN [dB]	NF [dB]	GAIN [dB]	NF [dB]
1	NJS6930A[STC]	-1.3	1.3	-1.3	1.3
2	NJT1946A	6.0	2.0	4.7	3.3
3	BPF+IF AMP	(30.0)	(6.0)	34.7	5.0
				<b>Total NF=</b>	<b>5.0dB</b>

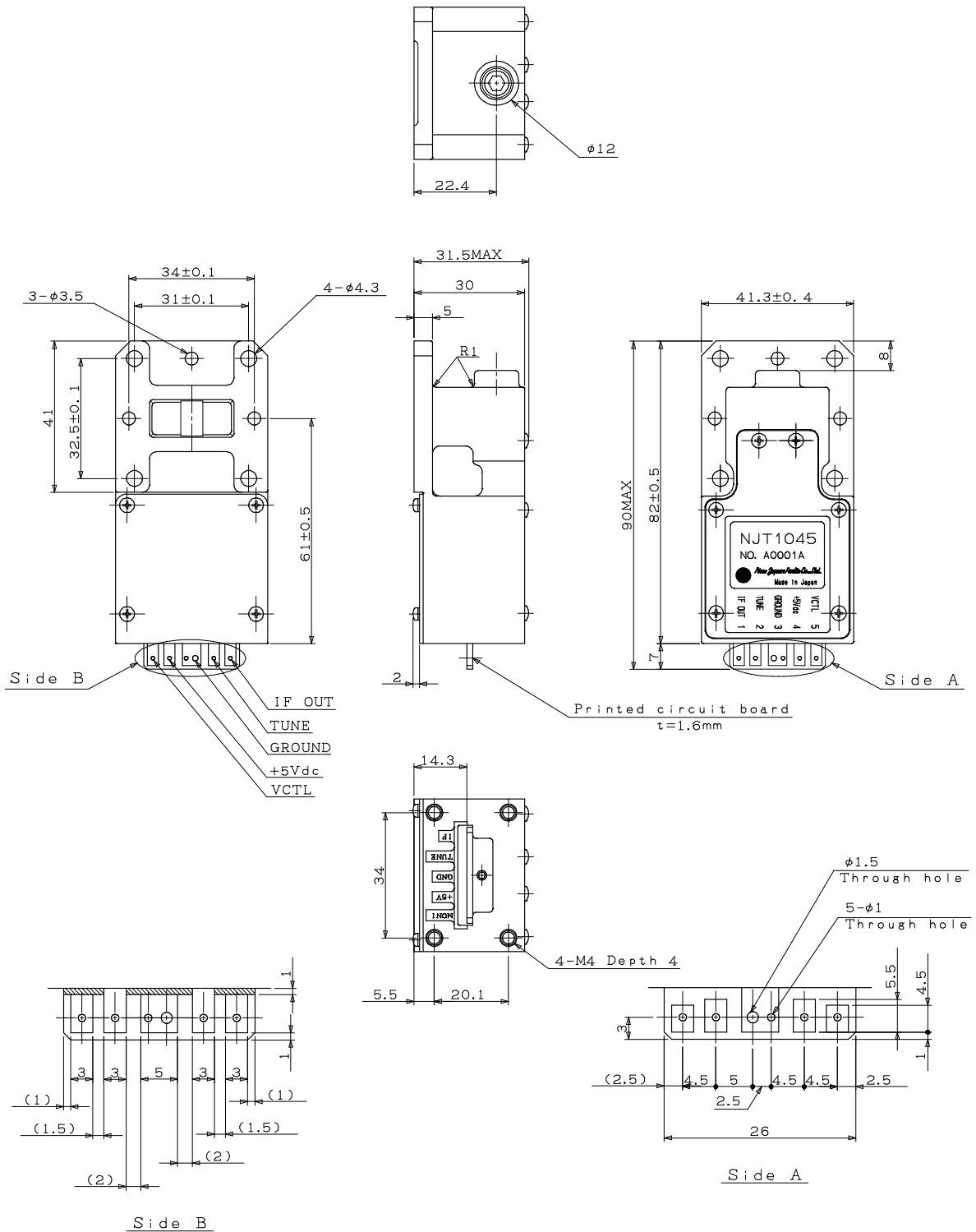
[NJS6930+NJT1045]

		Device characteristics		Total characteristics	
		GAIN [dB]	NF [dB]	GAIN [dB]	NF [dB]
1	NJS6930	-1.0	1.0	-1.0	1.0
2	NJT1045[STC]	8.0	2.5	7.0	3.5
3	BPF+IF AMP	(30.0)	(6.0)	37.0	4.5
				<b>Total NF=</b>	<b>4.5dB</b>

■ ADVANTAGE

This LNFE has an advantage to expand the receiving dynamic range with STC function. The most of feature is installed high performance LNA creates the low NF and high gain. Bias voltage can be applied from circuit board directly without cable connecting. Attenuation is worked by absorber, so no reflection is come into transmission circuit.

■ OUTLINE



(Dimensions are expressed in "mm".)

\*Note : The contents of this sheet are subject to change without notice.