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M. Ohgushi			☐ OPTICAL DEVICE DIV.
			☐ PHOTO VOLTAICS DIV.
			☐

DEVICE SPECIFICATION FOR

LOW NOISE BLOCK DOWNCONVERTER

MODEL No. BSCH87P50

☐ CUSTOMER'S APPROVAL

DATE

BY

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SHARP CORPORATION
ELECTRONIC COMPONENTS
ENGINEERING DEPT

PRESENTED
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General Description

The Dual Pole Low Noise Block Down-Converter is used in combination with an antenna for Ku band, and this converter can receive both Horizontally and Vertically polarized signals.

Attached Reference Materials

1. Outline drawing
2. Block diagram

1. GENERAL SPECIFICATIONS

1-1 Input component	: Feed-Horn(F/D=0.5)
1-2 Receiving frequency range:	: 12.25～12.75GHz
1-3 Local oscillation frequency	: 11.2GHz
1-4 Output Frequency	: 1050～1550MHz
1-5 Output component	: Dual F-type female connector(with water-proof)
1-6 Nominal output impedance	: 75 Ω
1-7 Supply Voltage & Control signals	: 11.5～19.0V
1-8 Power supply system	: IF output overlapping system
1-9 Weight	: 380g

2. AMBIENT CONDITIONS

2-1 Operating temperature	: -40℃~+60℃
2-2 Storage temperature	: -40℃~+60℃
2-3 Humidity	: 35%~95%RH*1
2-4 Ambient pressure	: 1010±300 hPa

*Caution:

When a coaxial cable is connected to F-type connector, lenght of bared core area into the connector should be within 7～11mm.

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3. ELECTRICAL CHARACTERISTICS

Unless otherwise indicated, each of the following specified values is applicable under normal ambient temperature(20℃) and humidity(60±20%)conditions.

No.	Item	Specification				Condition
		Min	Typ	Max	Unit	
3-1	Operating Frequency Band					
3-1-1	Input Frequency	12.25		12.75	GHz	
3-1-2	Output Frequency	1050		1550	MHz	
3-2	Noise figure		0.9	1.1	dB	@25℃
3-3	Conversion gain	50		63	dB	Center Freq.
3-4	Gain Frequency Characteristics			5.0	dBpp	
				1.0	dBpp	Within any 26MHz segment
	H/V Gain difference		5.0		dBpp	at each Output port(25 ℃)
3-5	L.O. Frequency and drift					
3-5-1	L.O. Frequency	11200±1.0			MHz	at 20℃
3-5-2	Drift associated with Temperature change			±3	MHz	at -40℃～+60℃, 20℃ ref.
3-6	L.O. Phase Noise			-50	dBc	@ 1kHz Offset
				-70	/Hz	@ 10kHz Offset
				-90		@ 100kHz Offset
3-7	Inter Modulation Products (3rd Order)	45			dB	input level -70dBm
3-8	L.O. Spurious radiation		-60		dB	fundamental
	at signal Input		-50		dB	harmonics
3-9	Radiation out of		-47		dBm	950-2500 MHz
	the housing		-33		dBm	2500-18000 MHz
3-10	Image interference suppression ratio	40			dB	

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No.	Item	Specification				Condition
		Min	Typ	Max	Unit	
3-11	Cross-Polar Discrimination	20			dB	
3-12	Output VSWR			2.5		
3-13	Supply Voltage and	11.5		14.0	V	Vertical Polarization
	Control signals	16.0		19.0	V	Horizontal Polarization
3-14	Current consumption			200	mA	

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4.RELIABILITY TESTING

4-1 Low temperature shelf test (unpacked condition)

After the test samples are left at -30℃ for 100 hours and then at normal temperature and humidity for 2 hours, normal operation shall be observed without any defects in appearance.

4-2 High temperature and humidity shelf test (packed condition)

After the test samples are left at 60℃ 90%RH for 100 hours and then at normal temperature and humidity for 8 hours, normal operation shall be observed without any defects in appearance.

4-3 Heat cycle test (with current supplied to unpacked component)

The test samples are first subjected to 5 heat cycles, each consisting of three stages ; 2 hours at -30℃, 20 hours at 50℃ and 95%RH, and 2 hours at 65℃. After samples are subsequently left at normal temperature and humidity for 8 hours, normal operation shall be observed in each internal part without any defects in appearance.

4-4 Salt water spray test

After the test samples are left in a shower of salt water (salt concentration 5±1%) at 35±2℃ for 48 hours, normal operation shall be observed.

4-5 Electrostatic shock test

After discharging 500pF, 15kV surge voltage, stored in a capacitor, 4 times at each of the optionally selected points of the test samples exterior via a 150Ω resistor connected in series, there shall be component damage without any defects in appearance.

4-6 Lighting resistance test

Lighting resistance test shall be conducted at the non-operative LNB output terminal.

4-7 Vibration test (packed condition)

Apply vibration (full amplitude of 1.5mm at 10~30Hz) in specified direction(s) and duration according to as-packaged component weight shown below ;

a) For components weighting 10kg or less, 0.5 hour in each of the X , Y and Z-directions.

b) For those weighting over 10kg but no more than 50kg, 30 minutes in only one direction, along either side of the component packing.

After the test, normal operation shall be observed without any defects in appearance.

4-8 Drop test (packed condition)

One corner : One optinally selected corner of the plane which constitutes the bottom of the packing.

3 edges : One short and two long edges which define the corner selected for the drop test ; start with the shorter edge and follow with the remaining longer ones.

6 planes : Start with the plane of smallest area then follow in order of increasing area.

Drop test height : 65cm

After the above drop tests are completed, normal operation shall be observed in each test sample without any defects in appearance.

4-9 Aging test

Subject the test samples to a cyclic aging test in an environment of 20± 15℃, 60± 20%RH, with the source voltage stepped up by 10% of the rated value. Each cycle shall consist of an ON period of 25 minutes duration and an OFF period of 5 minutes duration.

After 500 hours of testing, normal operation shall be observed without any defects in appearance. (Check at specified measurment check points (250 hours and 500 hours after test start).)

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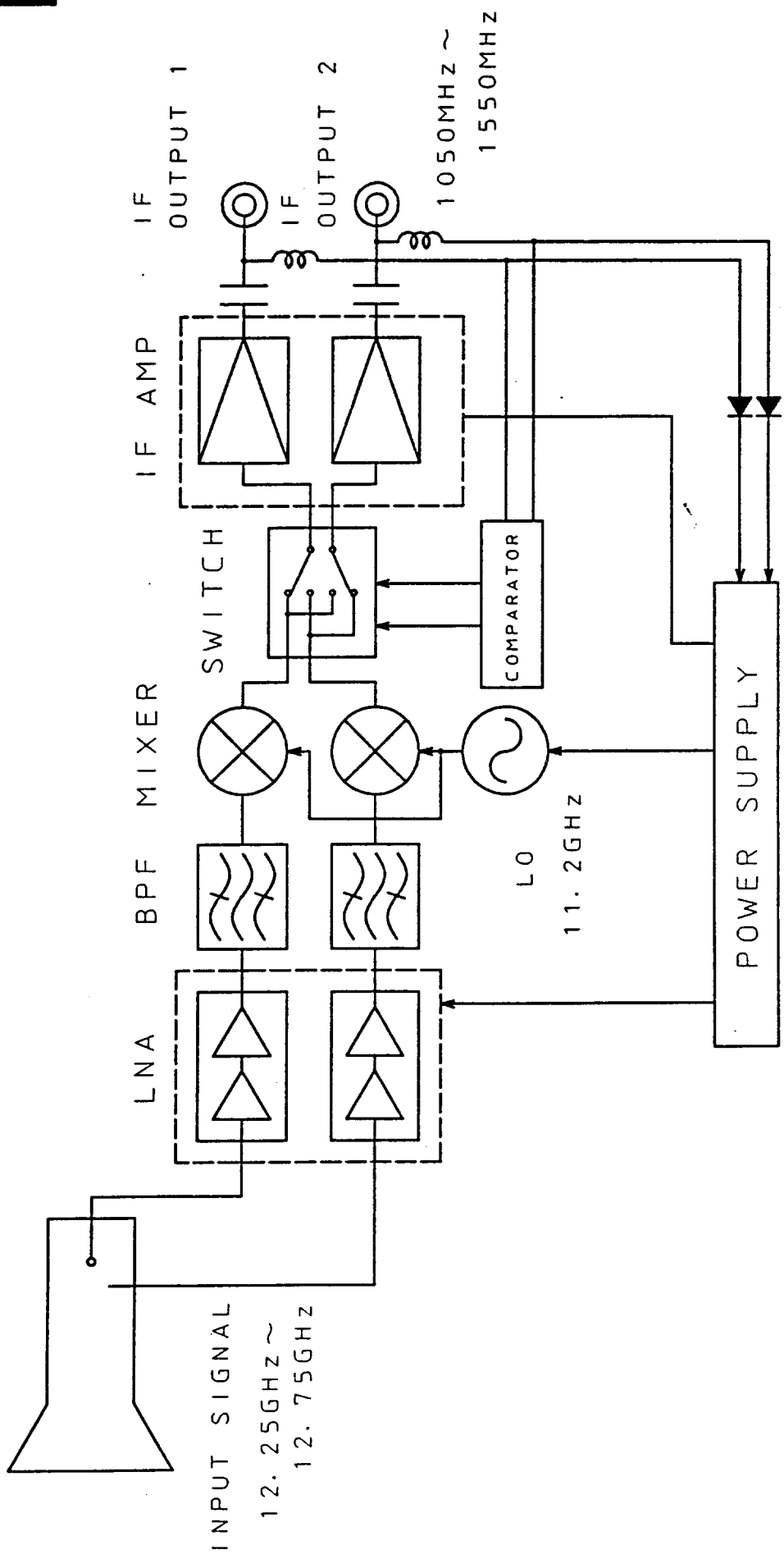

BLOCK DIAGRAM

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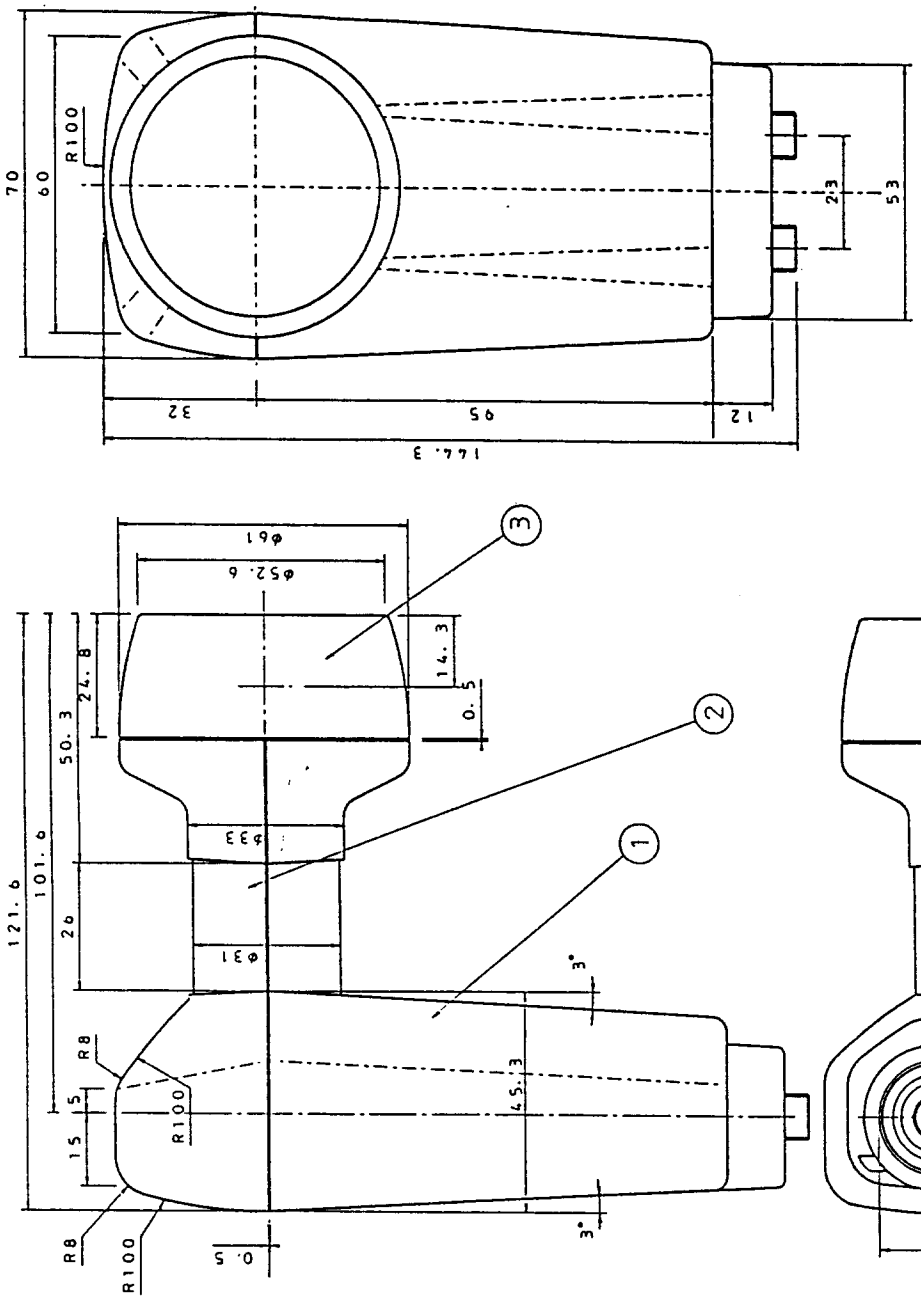

No	Description	Material	color	Q'ty	Remarks
5	Label	Pet	Silver	1	
4	Out Put Connector	Zn Alloy Die Castings		2	F Type
3	Horn-Cap	Poly-Propylene	Semi-transparent White	1	
2	Feed-Horn	Al Alloy Die Castings	Gray	1	Covered Resin
1	Converter	Al Alloy Die Castings	Gray	1	Covered Resin