PREPARED BY	DATE
K. Motoyama	08 MAY 1996
CHECKED BY:	DATE
U. Sonoda	08 MAY 1996
APPROVED BY:	DATE
M. Ohgushi	08 MAY 1996

SHARP

ELECTRONIC COMPONENTS GROUP

SHARP CORPORATION

SPECIFICATION

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REPRESENTATIVE DIVISION

❑ ELECTRONIC COMPONENTS DIV.

❑ OPTICAL DEVICE DIV.

❑ PHOTO VOLTAICS DIV.

❑

DEVICE SPECIFICATION FOR

LOW NOISE BLOCK DOWNCONVERTER

MODEL No. BSCS87M20

FOR CUSTOMER'S APPROVAL

PUBLISHED

MAY 21 1996

SHARP CORPORATION
ELECTRONIC COMPONENTS
ENGINEERING DEPT

❑ CUSTOMER' S APPROVAL

DATE

BY

PRESENTED

BY M Yamauchi

MIYOSHI YAMAUCHI
GENERAL MANAGER
ENGINEERING DEPARTMENT 1
ELECTRONIC COMPONENTS DIVISION
ELECTRONIC COMPONENTS (ELECOM) GROUP

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General Description

The Low Noise Block Down-Converter is used in combination with an antenna for Ku band. This Converter can receive both horizontally and vertically polarized signals by electrical switching.

Attached Reference Materials

1. Block diagram
2. Outline drawing

1. GENERAL SPECIFICATIONS

1-1	Input component	: Feed-Horn(Matched Numerical Angle : 71.8°)
1-2	Receiving frequency range	: 12.25Hz to 12.75GHz
1-3	Local oscillation frequency	: 11.3 GHz
1-4	Output component	: F-type connector
1-5	Nominal output impedance	: 75 Ω
1-6	Supply voltage	: 11.8～24 V
1-7	Power supply system	: IF output overlapping system
1-8	Exterior material	: Diecast aluminum
1-9	Weight	: 250g
1-10	SW method for H/V LNB	Voltage comparator

2. AMBIENT CONDITIONS

2-1	Operating temperature	: -25 ～+60℃
2-2	Storage temperature	: -25 ～+60℃
2-3	Humidity(operation)	: 5-95 % RH
2-4	Ambient pressure	: 1010±300 hPa

*Caution :

When a coaxial cable is connected to F-type connector, length of bared core area into the connector should be within 5～9㎜.

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3. ELECTRICAL CHARACTERISTICS

Unless otherwise indicated, each of the following specified values is applicable under normal ambient temperature and humidity conditions.

No.	Item	Specification				Condition
		Min	Typ.	Max.	Unit	
3-1	Noise figure*		1.1	1.3	dB	at+ 25℃
3-2	Conversion gain	46	50		dB	at 12.25-12. 75GHz
3-3	Gain frequency characteristics			7.0 1.5	dBpp dBpp	Gain flatness within 500MHz Within any 25MHz segment
3-4	3 rd Order Output 1P		+10		dBm	
3-5	Local oscillation freq-uency and drift					
3-5-1	Local oscillation freq-uency		11.3		GHz	
3-5-2	Local drift associated with temperature change			il. 5	MHz	at -25~+60℃
3-6	Cross-polar discrimination	18	25		dB	
3-7	Image interference suppression ratio		40		dB	
3-8	Current consumption		90	130	mA	
3-9	Supply Voltage	11.8 16.4		13.4 18.0	V v	Vertical polarization Horizontal polarization

* Measuring accuracy for noise figure: ±0. 2dB

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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 (unpacked condition)

After the test samples are left at 60℃ 95% RH for 100 hours and then at normal temperature and humidity for 2 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"C 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 Immersion test

The test samples are immersed to a depth of 60cm in a bath of 15～25℃ water for 48 hours. After removing samples from the bath and allowing sufficient time for through surface drying, the interior shall be free of water when opened for inspection.

4-5 Electrostatic shock test

After discharging 500pF,15kV surge voltage, stored in a capacitor, 4 times at any surface of the test sample 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 (packaged condition)

Apply vibration (full amplitude of 1G at 5~50Hz) 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 (packaged 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 fo low with the remaining longer ones.

6 planes : Start with the plane of smallest area then follow n 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 High temperature aging test

Subject the test samples to a cyclic aging test in an environment of 70±5℃, 10～15%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 measurement check points (250 hours and 500 hours after test start)).

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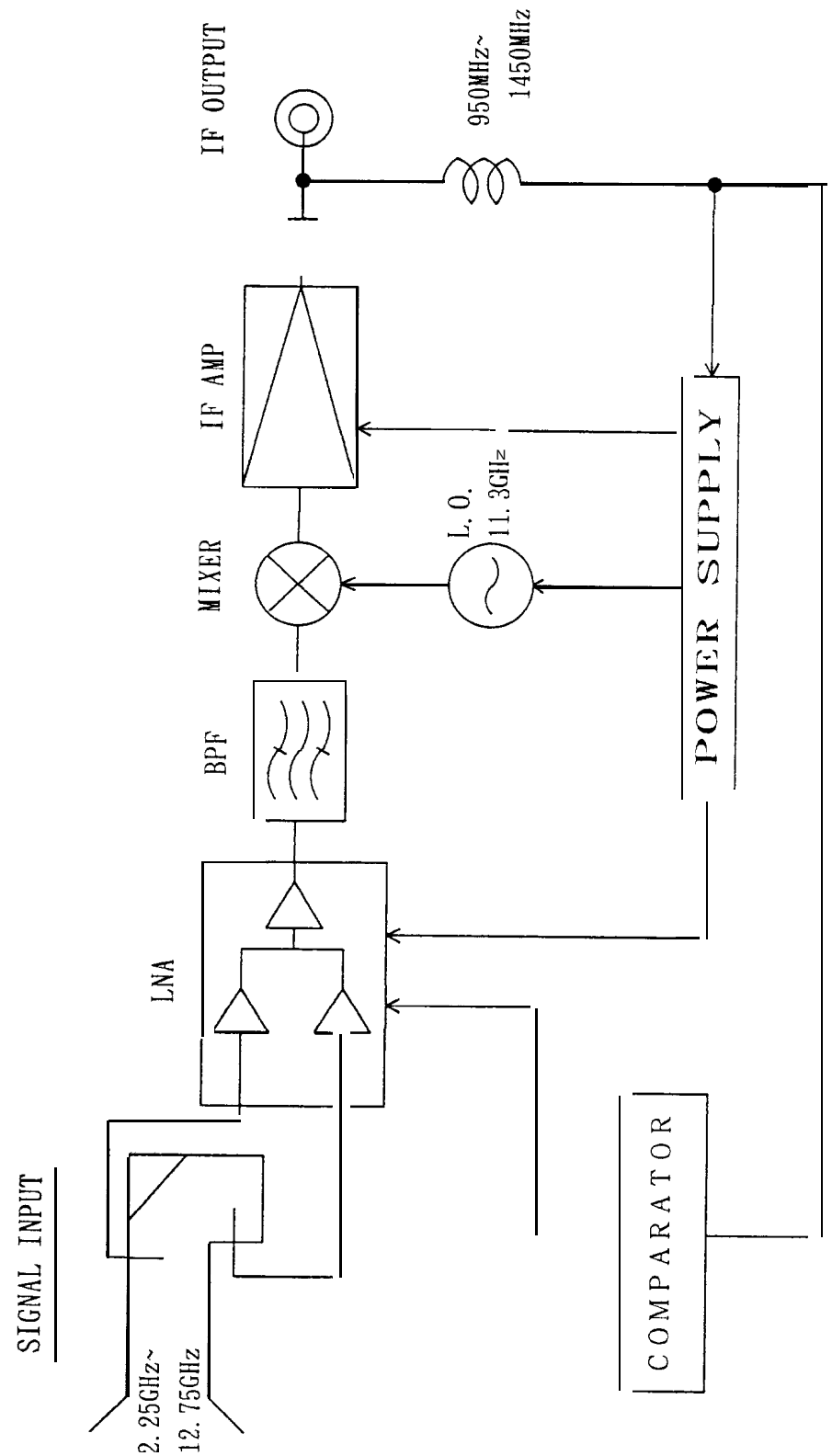
IF OUTPUT
950MHz~
1450MHz
IF AMP
MIXER
L. O.
11. 3GHz
BPF
POWER SUPPLY
H/V .NB BLOCK DIAGRAM
LNA
SIGNAL INPUT
12. 25GHz~
12. 75GHz
COMPARATOR

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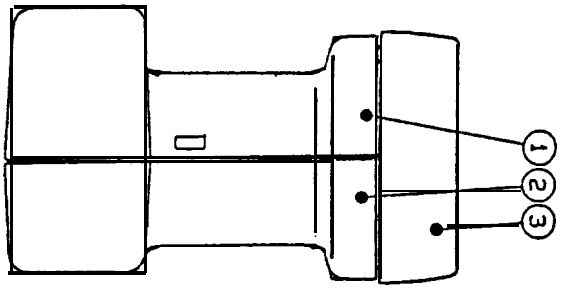

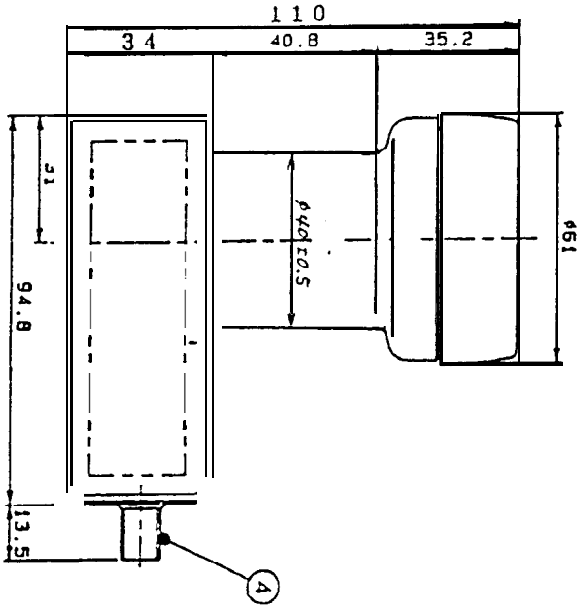

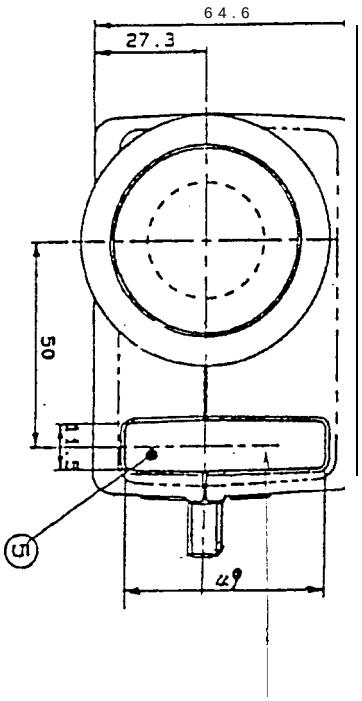

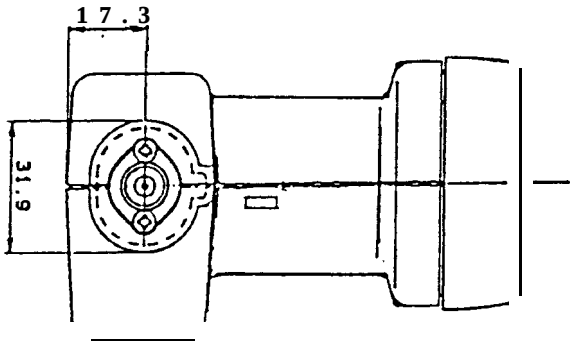

CityCom-*Star-Line*®
LNB CCS-12 12.25 -12.75GHz
Serial No.6E

Illust No.	Description	Material	Color	Q'ty	Remarks
	Cover(Connection Area)	Al Alloy Die Castings	Gray	1	Covered resin
3	Horn-Cap	Poly-Propylene	Semitransparent White	1	
2	Feed-Horn	Al Alloy Die Castings	Gray	1	Covered resin
1	Converter	Al Alloy Die Castings	Gray	1	IF Type

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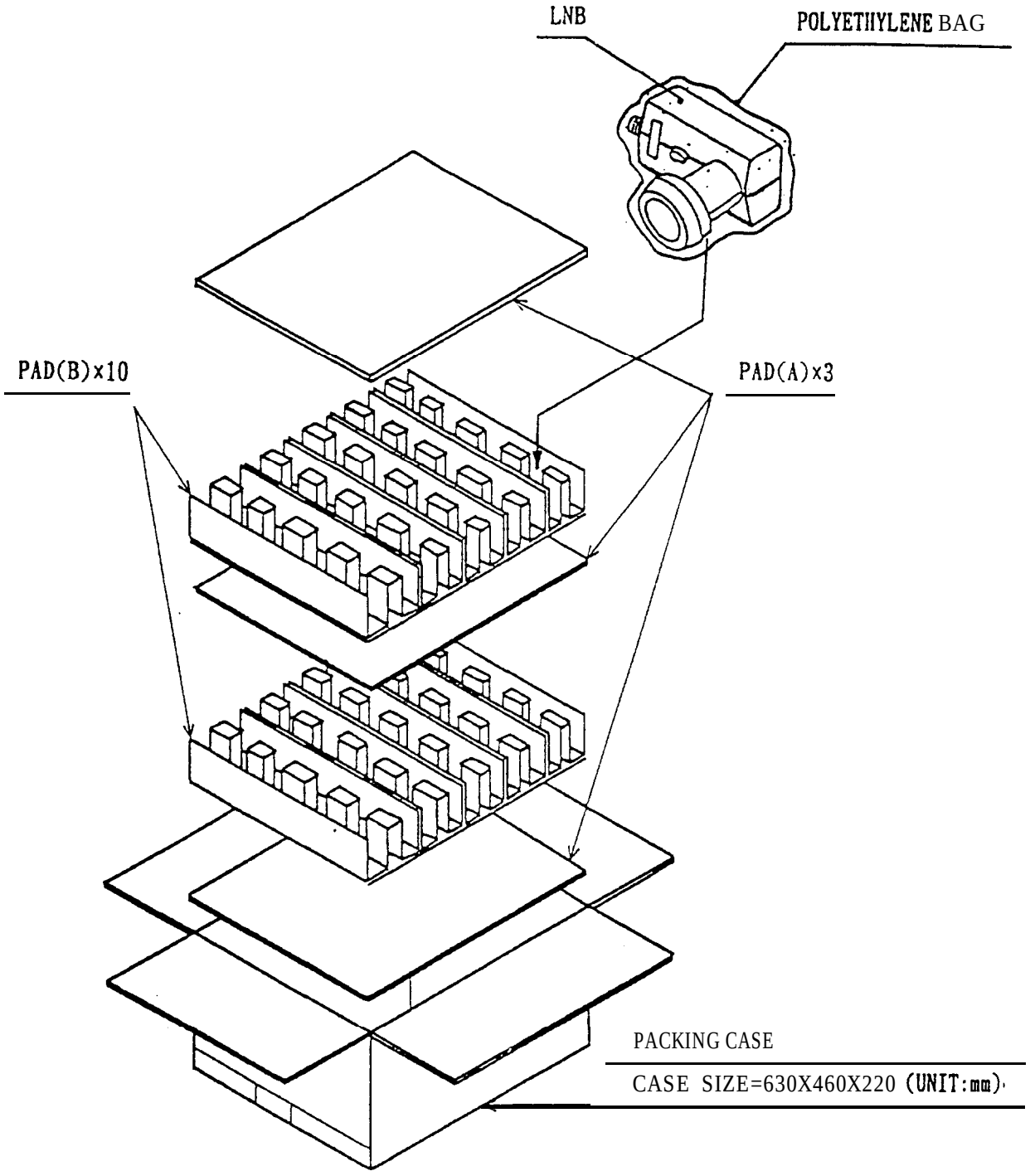

CONSTRUCTION FOR SHIPPING CARTON (40PCS.)