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5 AUG. 1996

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5 AUG. 1996

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SHARP

ELECTRONIC COMPONENTS GROUP
SHARP CORPORATION

SPECIFICATION

SPEC NO. EC-96812

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REPRESENTATIVE DIVISION

ELECTRONIC COMPONENTS DIV.

OPTICAL DEVICE DIV.

PHOTO VOLTAICS DIV.

DEVICE SPECIFICATION FOR

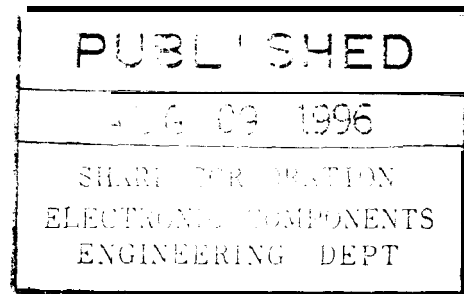
LOW NOISE BLOCK DOWNCONVERTER

MODEL No. BSCU86L70

CUSTOMER'S APPROVAL

DATE

BY



PRESENTED

BY

M. Yamauchi

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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	C-120
1-2 Receiving frequency range:	10.70-11.70GHZ(LOW Band) 11.70 -12.75 GHz(High Band)
1-3 Local oscillation frequency	9.75 GHz(Low Band) 10.60 GHz(High Band)
1-4 Output Frequency	950-1950 MHz(Low Band) 1100 -2150 MHz(High Band)
1-5 Output component	F-type female connector(with water-proof)
1-6 Nominal output impedance	75 Ω
1-7 Supply Voltage & Control signals:	11.5-19. 0V continuous 22kHz(\pm 4kHz)
1-8 Power supply system	IF output overlapping system
1-9 Weight	240g

2. AMBIENT CONDITIONS

2-1 Operating temperature	-40 $^{\circ}$ C~+60 $^{\circ}$ C
2-2 Storage temperature	-40 $^{\circ}$ C~+60 $^{\circ}$ C
2-3 Humidity	5%-95 %RH*1
2-4 Ambient pressure	1010 \pm 300 hPa

*Caution:

When a coaxial cable is connected to F-type connector, length 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 and humidity conditions.

No.	Item	Specification				Condition
		Min	Typ	Max	Unit	
3-1	Operating Frequency Band					
3-1-1	Input Frequency	10.70		11.70	GHz	Low-Band
		11.70		12.75	GHz	High-Band
3-1-2	Output Frequency	95C		1950	GHz	Low-Band
		1100		2150	GHz	High-Band
3-2	Noise figure*1		1.3	1.5	dB	Low-Band @25°C
			1.1	1.3	dB	High-Band @25°C
3-3	Conversion gain	46			dB	Center Freq. at Each Band
3-4	Gain Frequency Characteristics		7.0		dBpp	Low-Band
			7.0		dBpp	High-Band
			1.0		dBpp	Within any 26MHz segment
3-5	L. O. Frequency and drift					
3-5-1	L. O. Frequency		9.75		GHz	Low-Band
			10.60		GHz	High-Band
3-5-2	Drift associated with Temperature change			±3	MHz	at -40°C ~ +60°C
3-6	L. O. Phase Noise			-50	dBc	@ 1kHz Offset at High-Band
				-75	/Hz	@ 10kHz Offset at High-Band
				-95		@ 100kHz Offset at High-Band
3-7	1dB output gain compression		0		dBm	
3-8	L. O. Spurious radiation at signal Input			-60	dBm	
3-9	Image interference suppression ratio		80		dB	

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No.	Item	Specification				Condition
		Min	Typ	Max	Unit	
3-10	Cross-Polar Discrimination	20	25		dB	
3-11	Return Loss at Output		8		dB	
3-12	Supply Voltage and Control signals	11.5		14.0	V	Ca:Vertical Polarization
		16.0		19.0	v	Cb:Horizontal Polarization
		18.0	22.	26.0	kHz	Cc:High Band selection
3-13	Current consumption		110	130	mA	

*1 The value is applicable under the measurement method of SHARP.

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°C 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°C 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°C , 20 hours at 50°C and 95%RH, and 2 hours at 65°C . 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 $5 \pm 1\%$) at $35 \pm 2^{\circ}\text{C}$ 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.

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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 optionally 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.

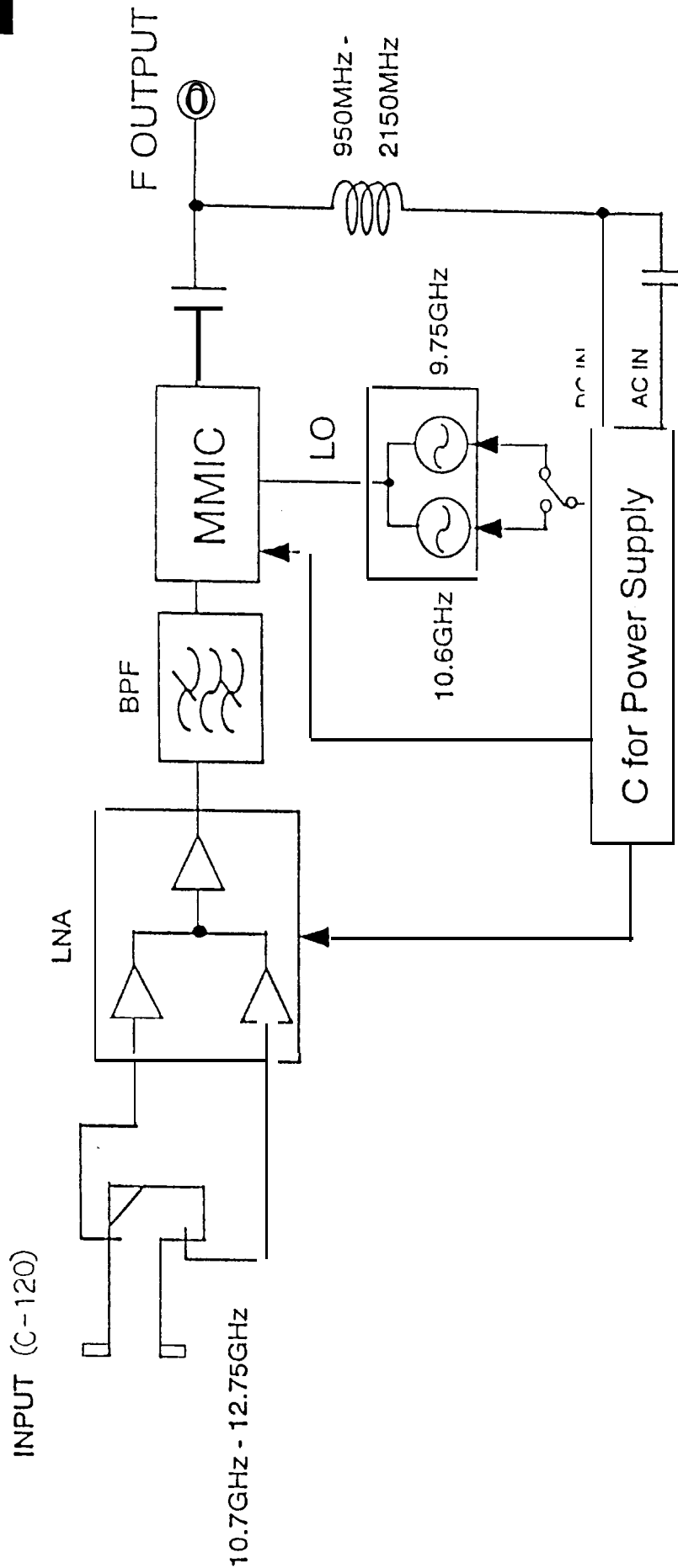
Drop test height : 65cm

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

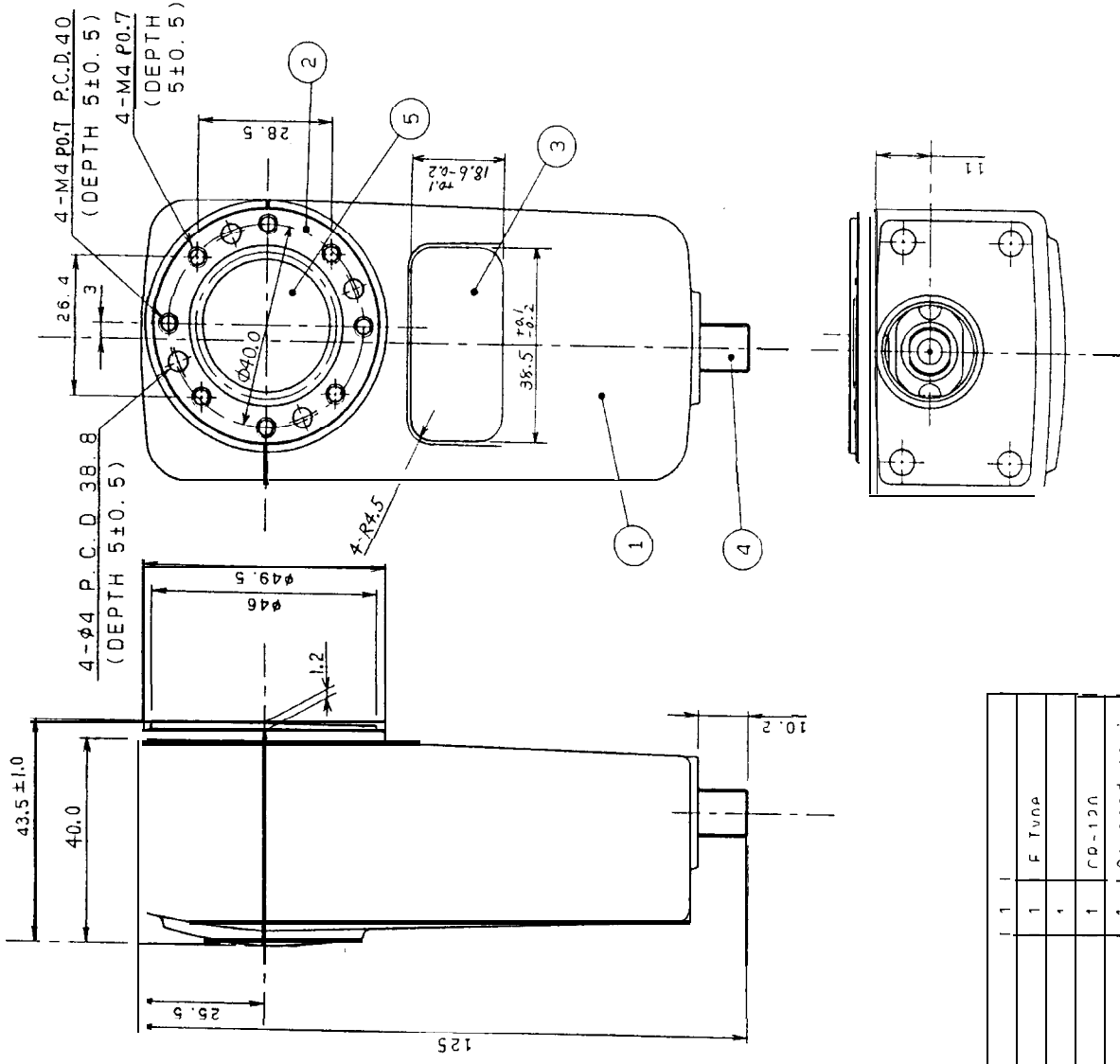
Subject the test samples to a cyclic aging test in an environment of $20 \pm 15^{\circ}\text{C}$, $60 \pm 20\% \text{RH}$, with the source voltage stepped up by 10% of the rated value. Each cycle shall consist of an ON period of 25 minutes duration and an OFF period of 5 minutes duration.

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).)



BLOCK DIAGRAM OF UNIVERSAL LNB

DATE : 1996 . AUG. 1
 DATE REVISE



(UNIT : mm)
 DIMENSIONAL TOLERANCES
 REF: X = +1.0
 Y = 0.1

3	ILDUBI(A)	1PFI	1	WHITE	1
4	OUTPUT CONNECTION	ALLOY DIE CASTING	1	F Type	1
3	Terminal	INCL	1	Silver	1
2	INPUT COMPONENT	ALLOY DIE CASTING	1	CO-120	1
1	CONVERTER	ALLOY DIE CASTING	1	Covered resin	1
1	PLASTIC DESCRIPTION	MATERIAL	1	COLOR	0741 DAMAR