
QPSK NIM

■ INTRODUCTION

QPSK NIM is consist of RF AMP, ZERO IF System, PLL and Base Band Filter.

Satellite Receiver with FEC is a CMOS single-chip multi standard demodulator for digital satellite broadcasting. It consists of two A/D converters for I-input and Q-input, a multi standard QPSK and BPSK demodulator, and a forward error correction (FEC) unit having both an inner (Viterbi) and outer (Reed-Solomon) decoder.

The FEC unit is compliant with the DVB-S and DSS TM specifications. Processing is fully digital. It integrates a derotator before the Nyquist root filter, allowing a wide range of offset tracking.

A variety of configurations and behaviours can be selected through a bank of Control/configuration registers via an I²C

■ FEATURE AND APPLICATION

● Feature

- Receiving Frequency : 950~2150MHz
- Direct Conversion Demodulation(ZERO IF)
- Compatible with DSS and DVB system
- Symbol Frequency Rate 1Msps to 45Msps
- Small size : 30cc & 24cc
- Easy application

● Application

- Satellite STB & PC Card

QPSK NIM

■ SPECIFICATION

● Electrical Characteristics

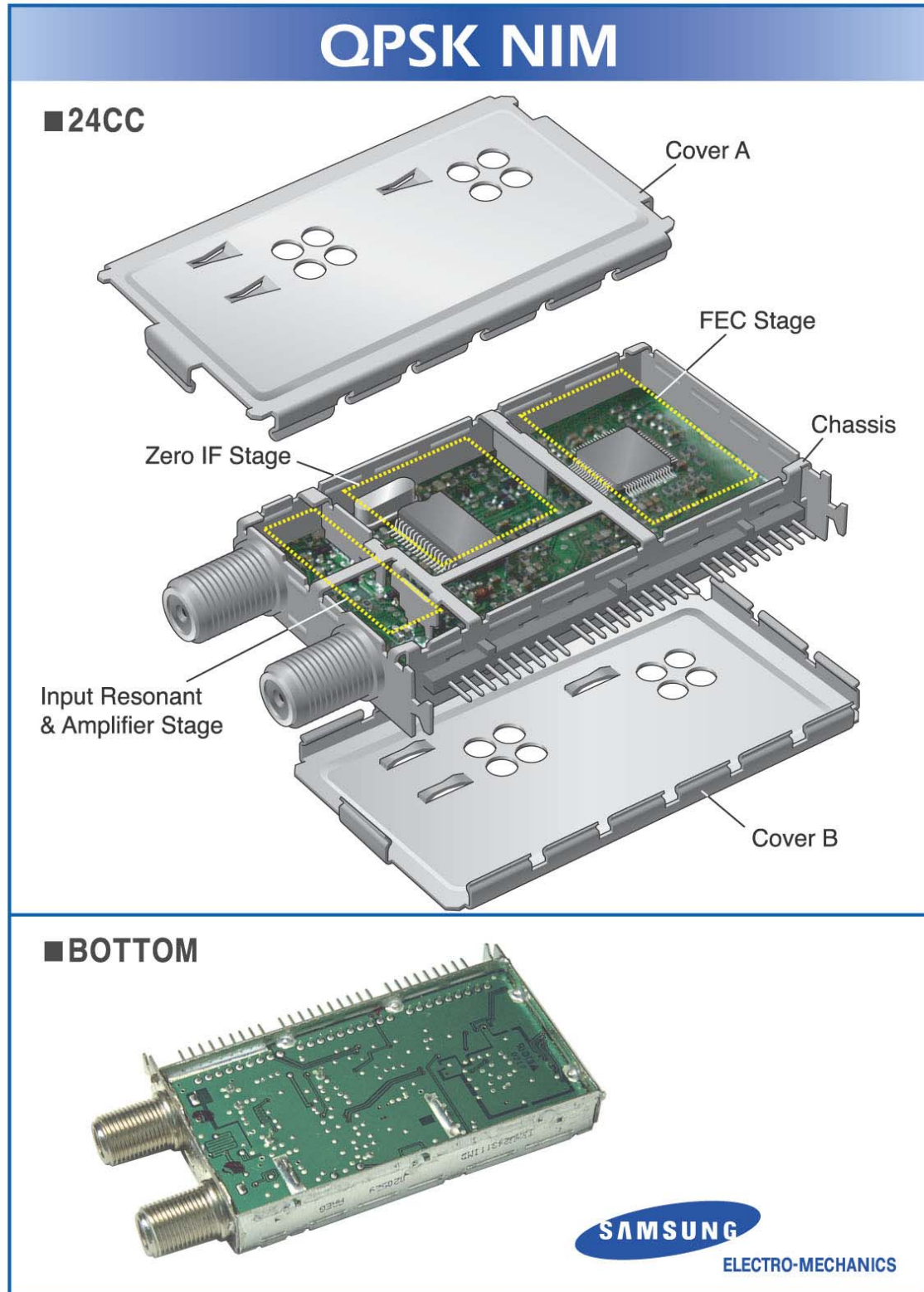
NO.	ITEM	SPECIFICATION	TEST CONDITION
1	INPUT LEVEL	-65~ -25 dBm	
2	RF INPUT VSWR	TYP. 2	
3	NOISE FIGURE	TYP. 6	
4	3'rd order Intermodulation Rejection	MIN 40dBc	Desire <input type="checkbox"/> -25dB Undesire <input type="checkbox"/>
5	I/Q LEVEL IMBALANCE	MAX ± 1 dB	
6	I/Q PHASE ERROR	TYP. ± 2 DEG.	
7	I/Q BASEBAND FLATNESS	MAX ± 3 dB	
8	Local Oscillation Signal Leakage at RF Input Terminal	TYP. -65dBm	
9	Gain Deviation	TYP. 5 dB	950 ~ 2150 MHz
10	PHASE NOISE	TYP. 75dBc/Hz	@10kHz
		TYP. 95dBc/Hz	@100kHz

● Specification OF FEC

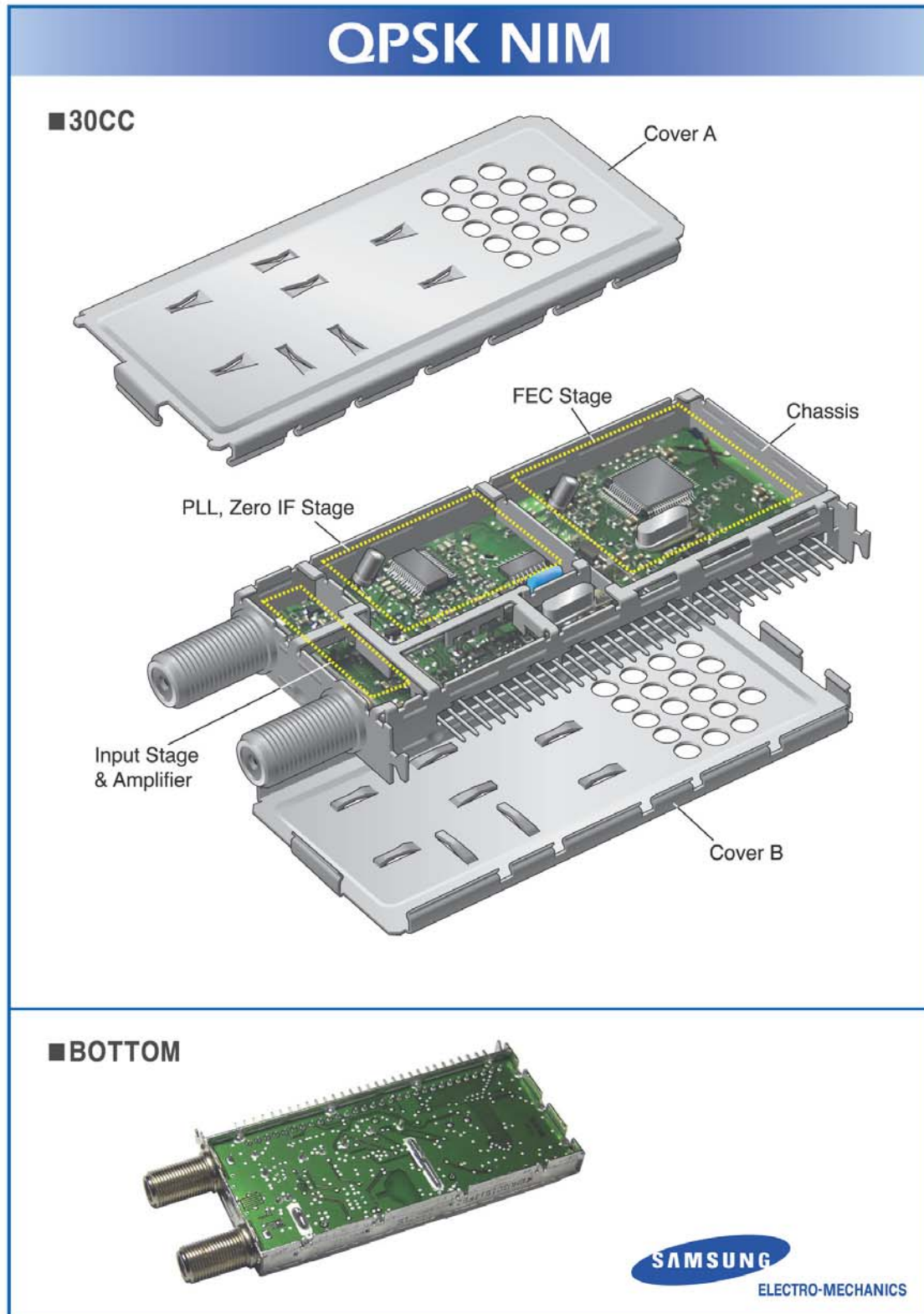
	INNER CODE RATE	Eb/No THRESHOLD PERFORMANCE	COMMENT
Eb/No THRESHOLD PERFORMANCE	1/2	4.5 dB	In case BIT ERROR RATE = 2×10^{-4} at VITERBI OUTPUT
	2/3	5.0 dB	
	3/4	5.5 dB	
	5/6	6.0 dB	
	7/8	6.4 dB	
ACQUISITION TIME	TYP. 100m sec		In case Eb/No : 6.0dB CODE RATE : 7/8
MAXIMUM SYMBOL RATE	1M ~ 45M symbol/sec		
DATA OUTPUT	Parallel or Serial		
CURRENT CONSUMPTION	5V : 10mA(MAX) 3.3V : 300mA(MAX) 1.8V : 180mA(MAX)		

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■ STRUCTURE

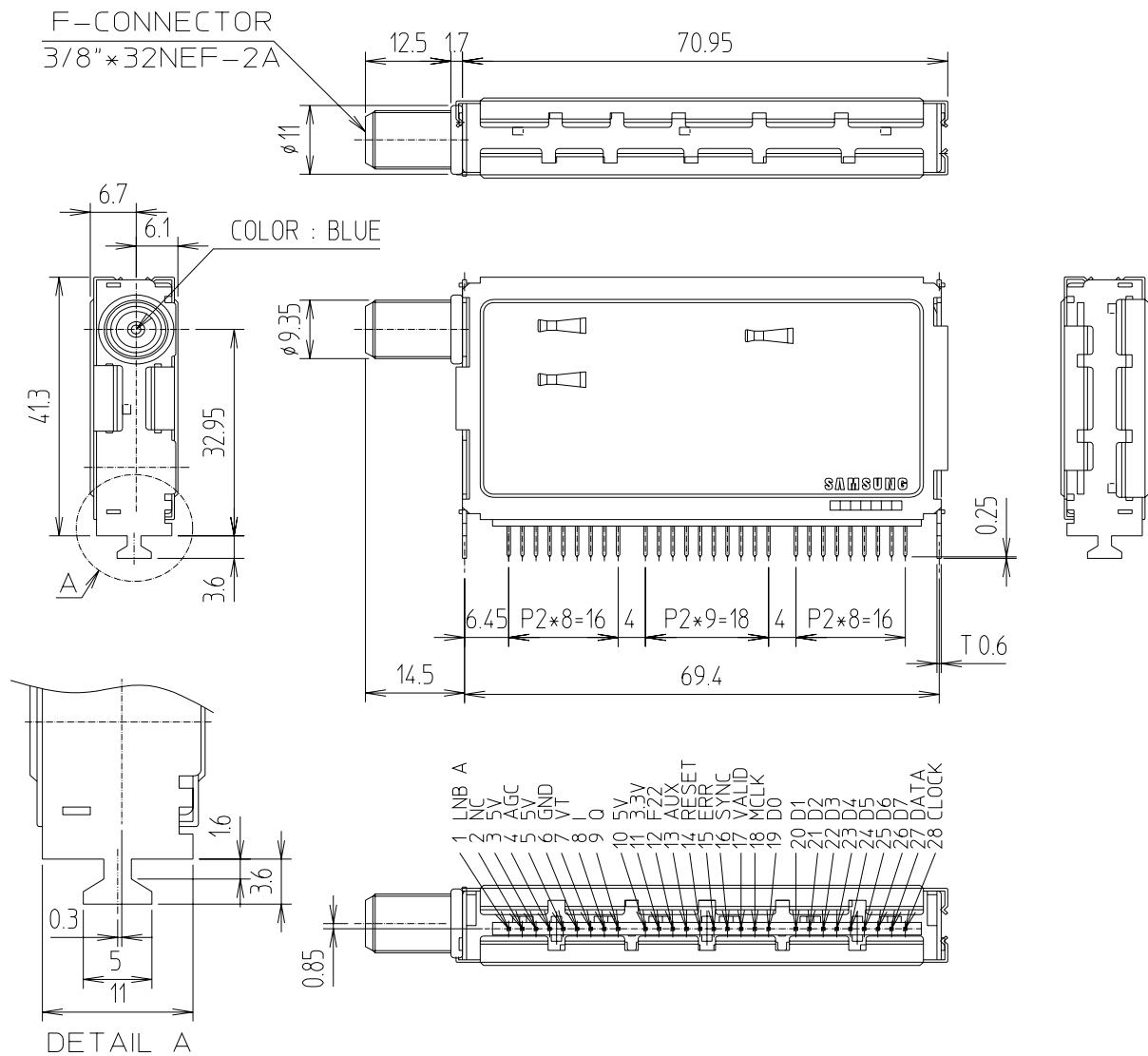


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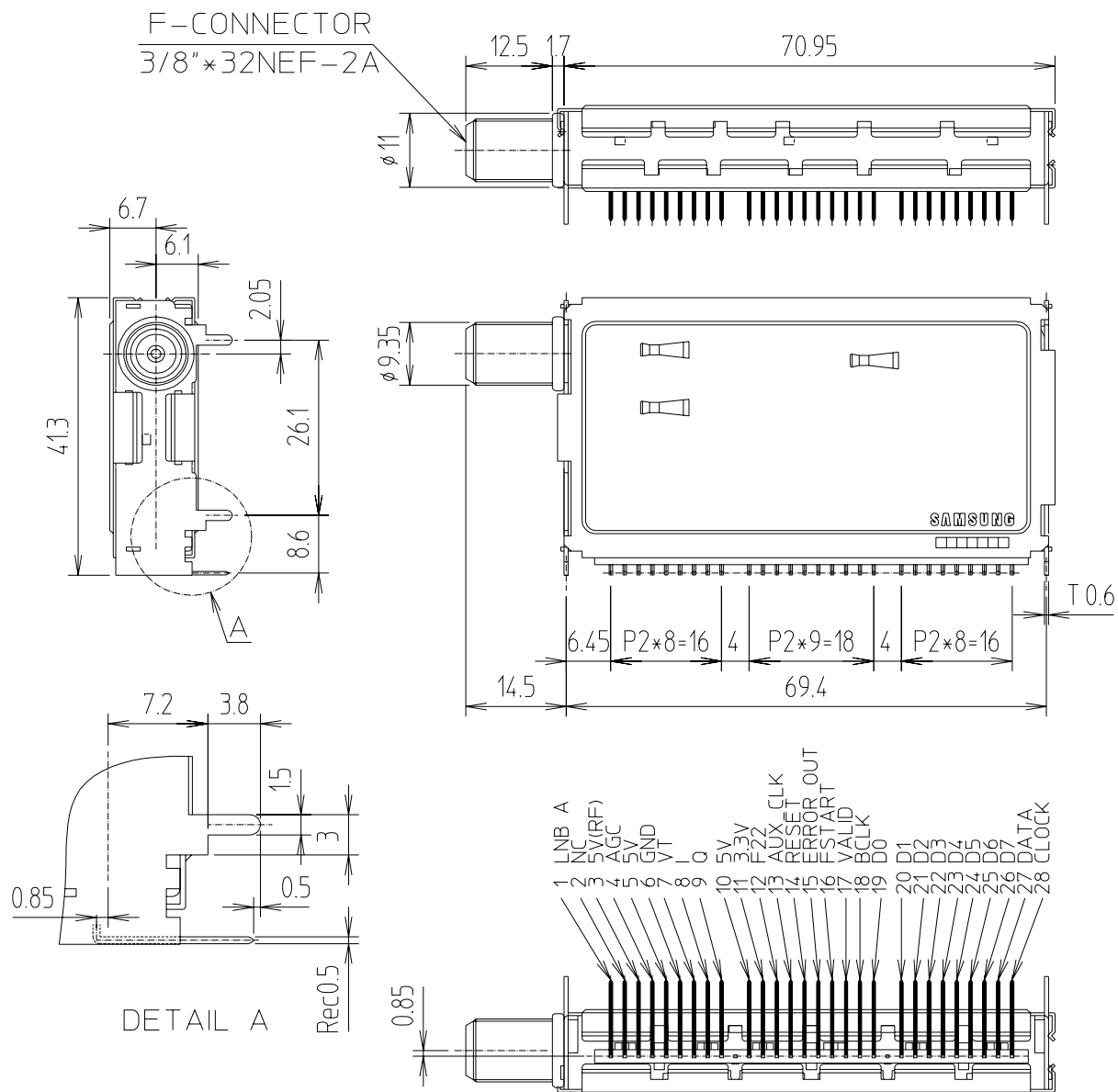
■ APPEARANCE AND DIMENSION

● 24CC (1 Input, VERTICAL)



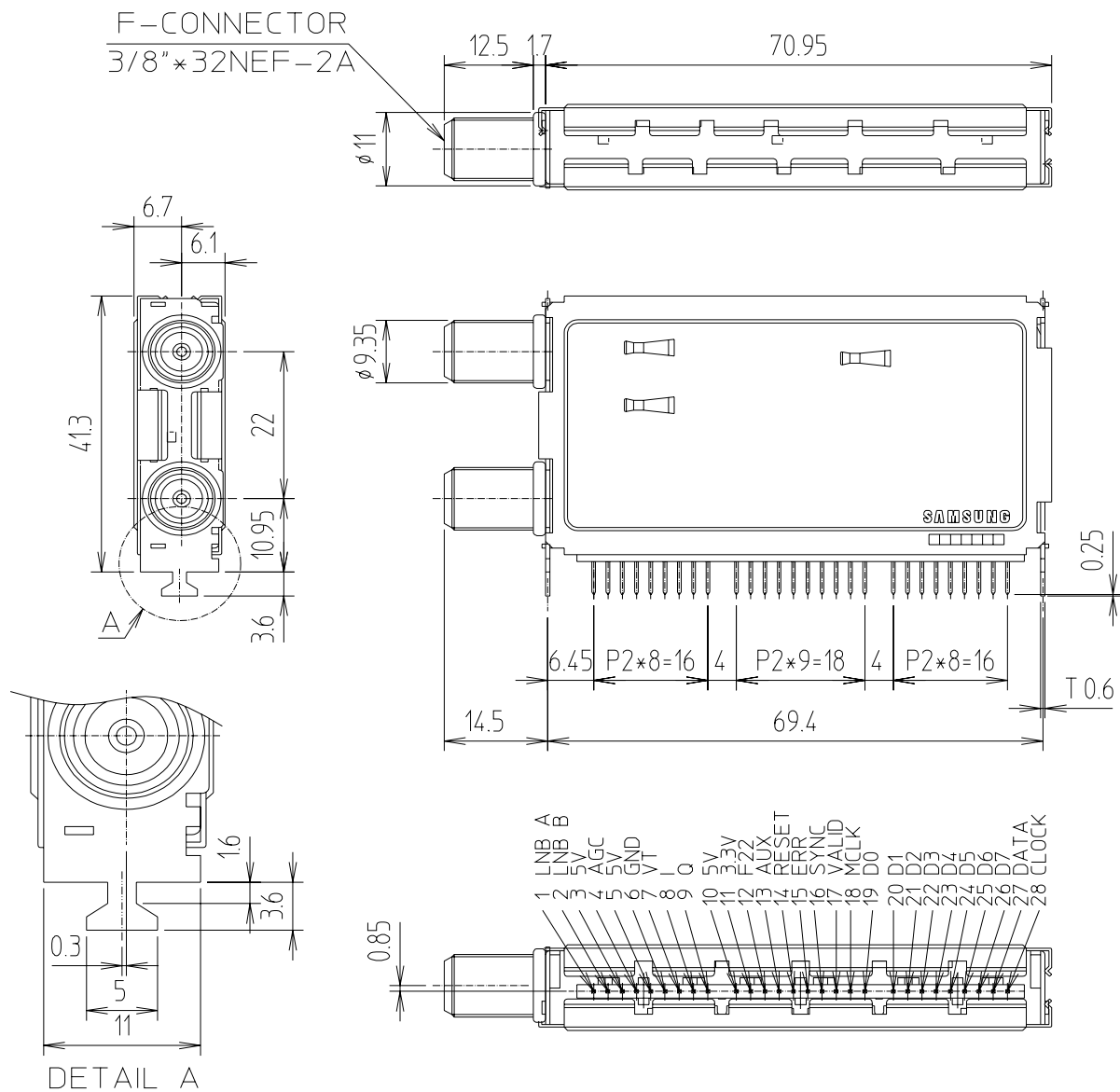
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● 24CC (1 Input, HORIZONTAL)



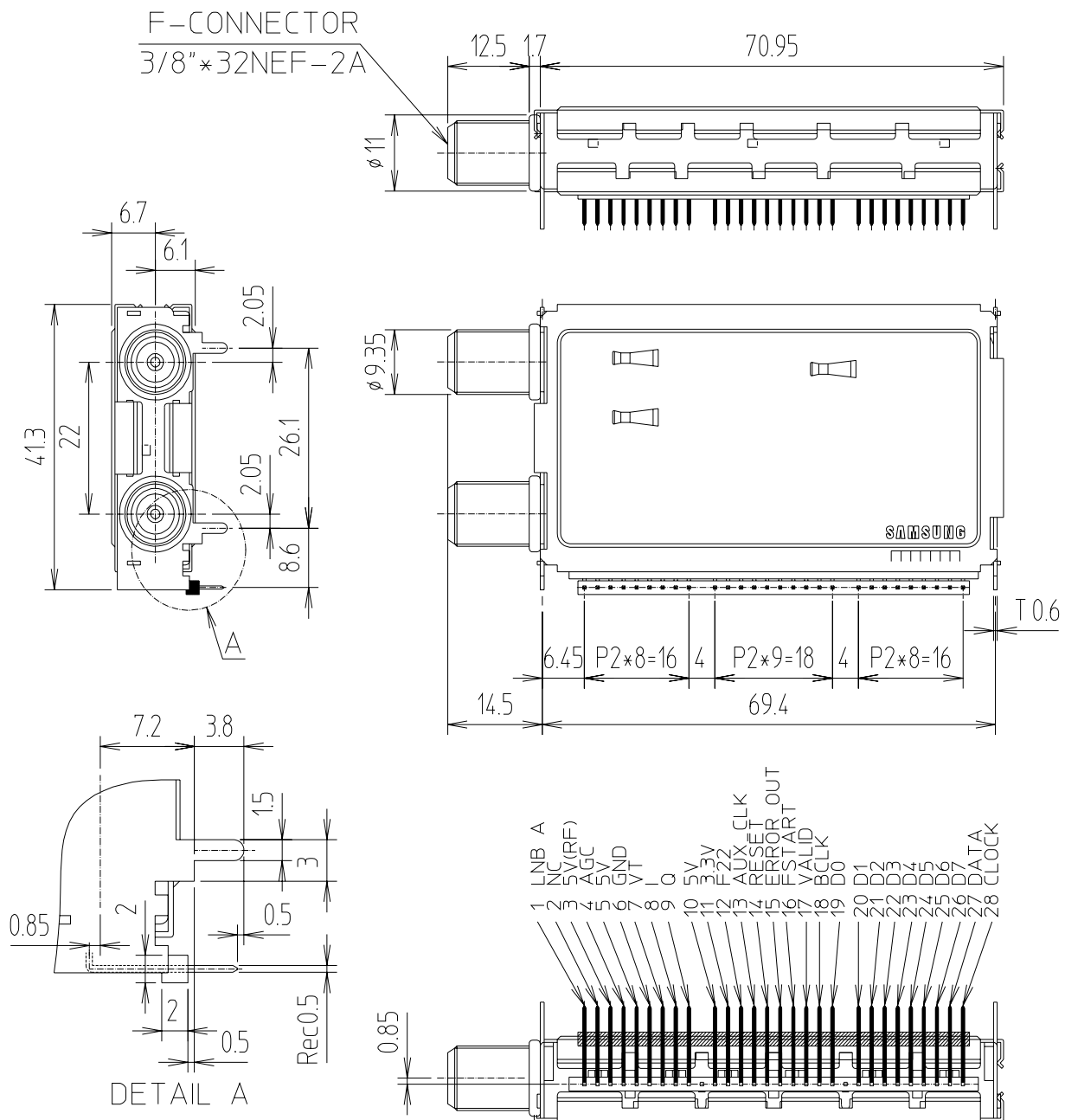
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● 24CC (LOOP THROUGH, VERTICAL)



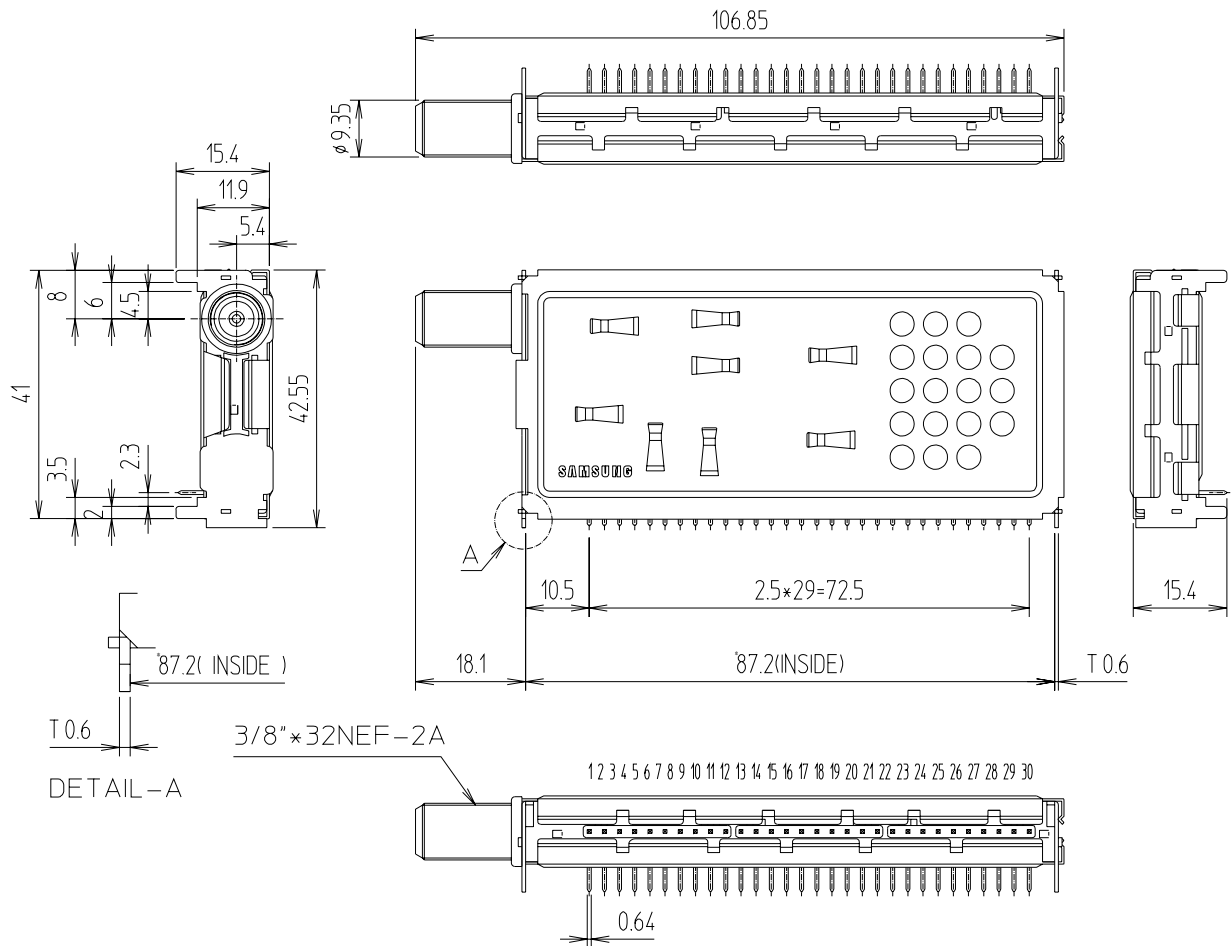
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● 24CC (LOOP THROUGH, HORIZONTAL)



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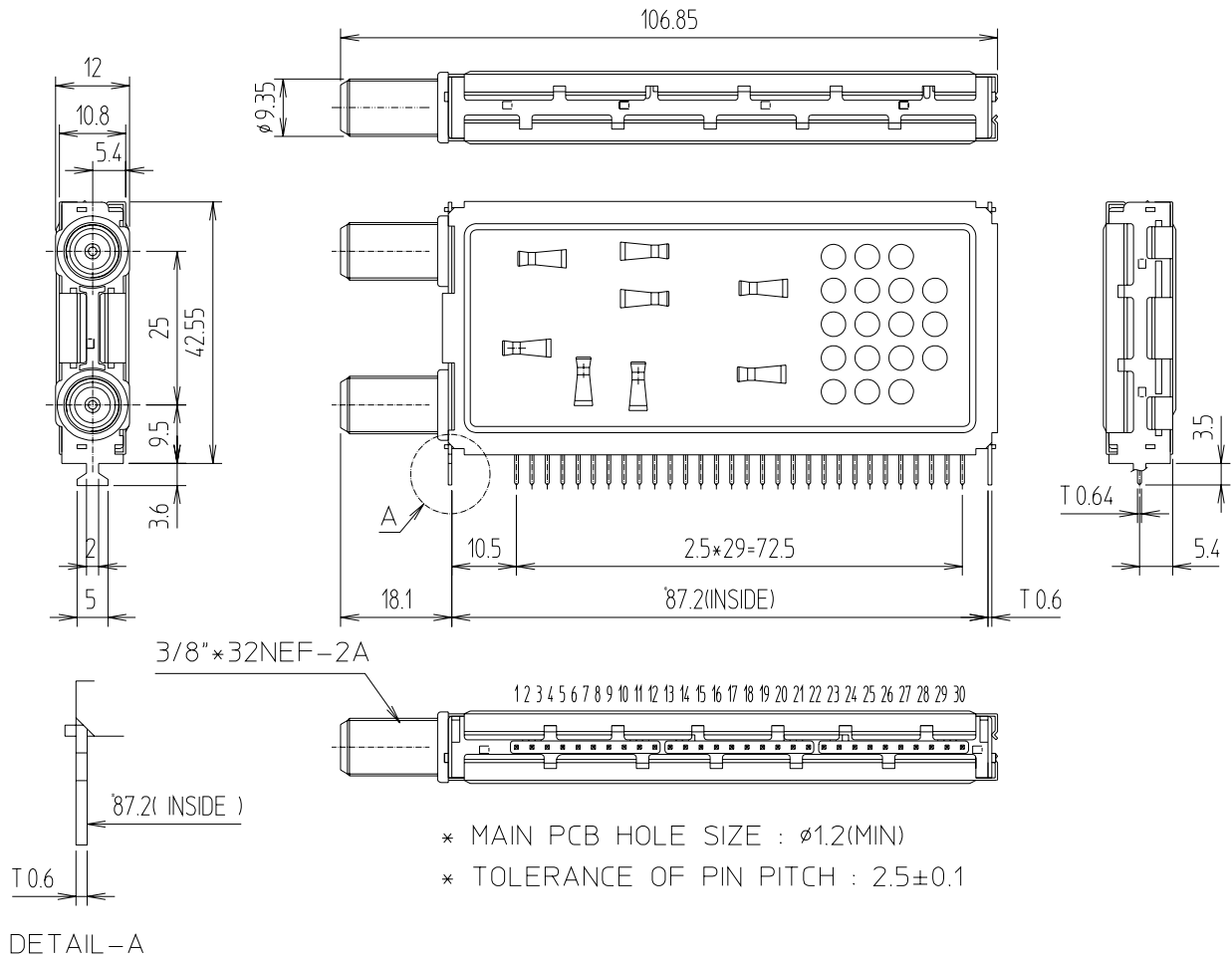
● 30CC (1 Input, HORIZONTAL)



- * MAIN PCB HOLE SIZE : $\phi 1.2$ (MIN)
- * TOLERANCE OF PIN PITCH : 2.5 ± 0.1

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● 30CC (LOOP THROUGH, VERTICAL)



■ PART NUMBERING

TBM U 30 1 5 1 I P B
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

- ① Product Abbreviation
- ② User Country
- ③ Chassis Size
- ④ Input Type
- ⑤ Band Type
- ⑥ Mechanical Type
- ⑦ I2C Interface
- ⑧ ZERO IF IC
- ⑨ Demodulator I.C

① Product Abbreviation

② User Country

Symbol	Country
U	Universal
A	America
E	Europe

③ Chassis Size

Symbol	Chassis Size
24	24CC (ZERO IF(Including PLL) + FEC)
30	30CC (ZERO IF + PLL + FEC)

④ Input Type

Symbol	Type
1	1 INPUT
3	LOOP THROUGH

⑤ Band Type

Symbol	Country
1	1 BAND
2	2 BAND
3	TSA5059T
4	SL1935

⑥ Mechanical Type

Symbol	Type
1	VERTICAL
2	HORIZONTAL

⑦ I2C Interface

Symbol	Type
I	I2C
W	3WIRE

⑧ ZERO IF IC

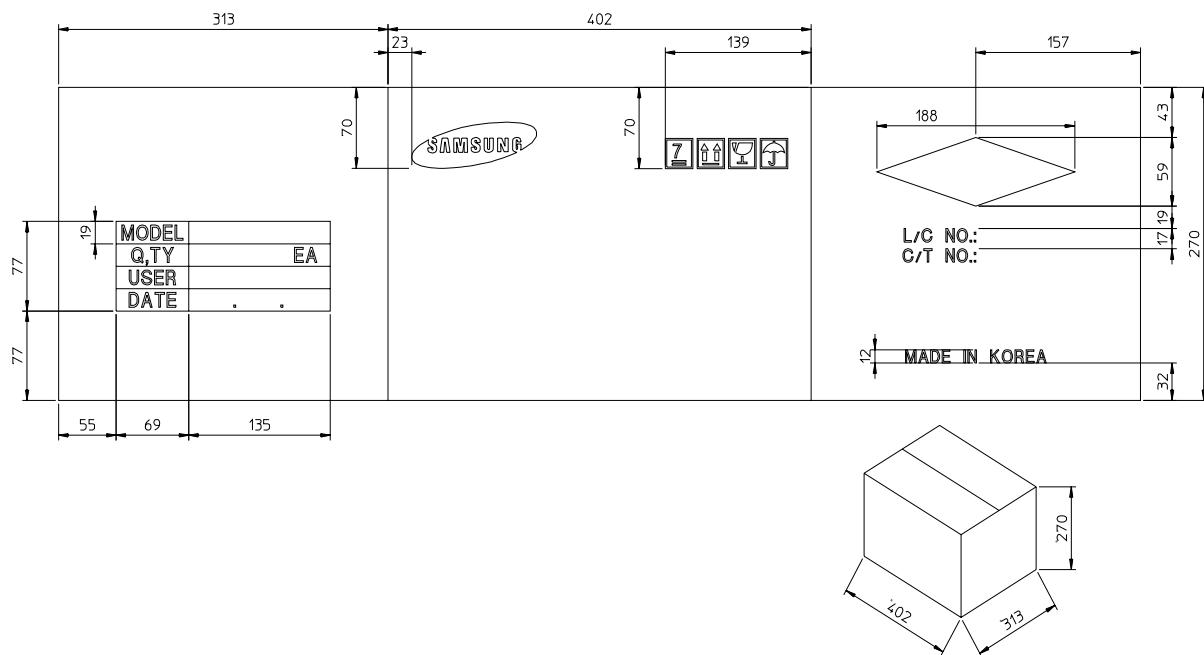
Symbol	Type
M	MITEL(ZARLINK)
P	PHILIPS

⑨ Demodulator IC

Symbol	Country
B	ST
H	HYNIX
L	LSI
P	PHILIPS
T	THOMSON

■ PACKAGING

- PACKING QUANTITY : 120EA [4 Inner Box (30EA per an Inner Box)]
- Outer BOX SIZE(W×D×H) : 402×313×270 mm
- Inner BOX SIZE(W×D×H) : 398×310×65 mm
- GROSS WEIGHT : 8.1kg



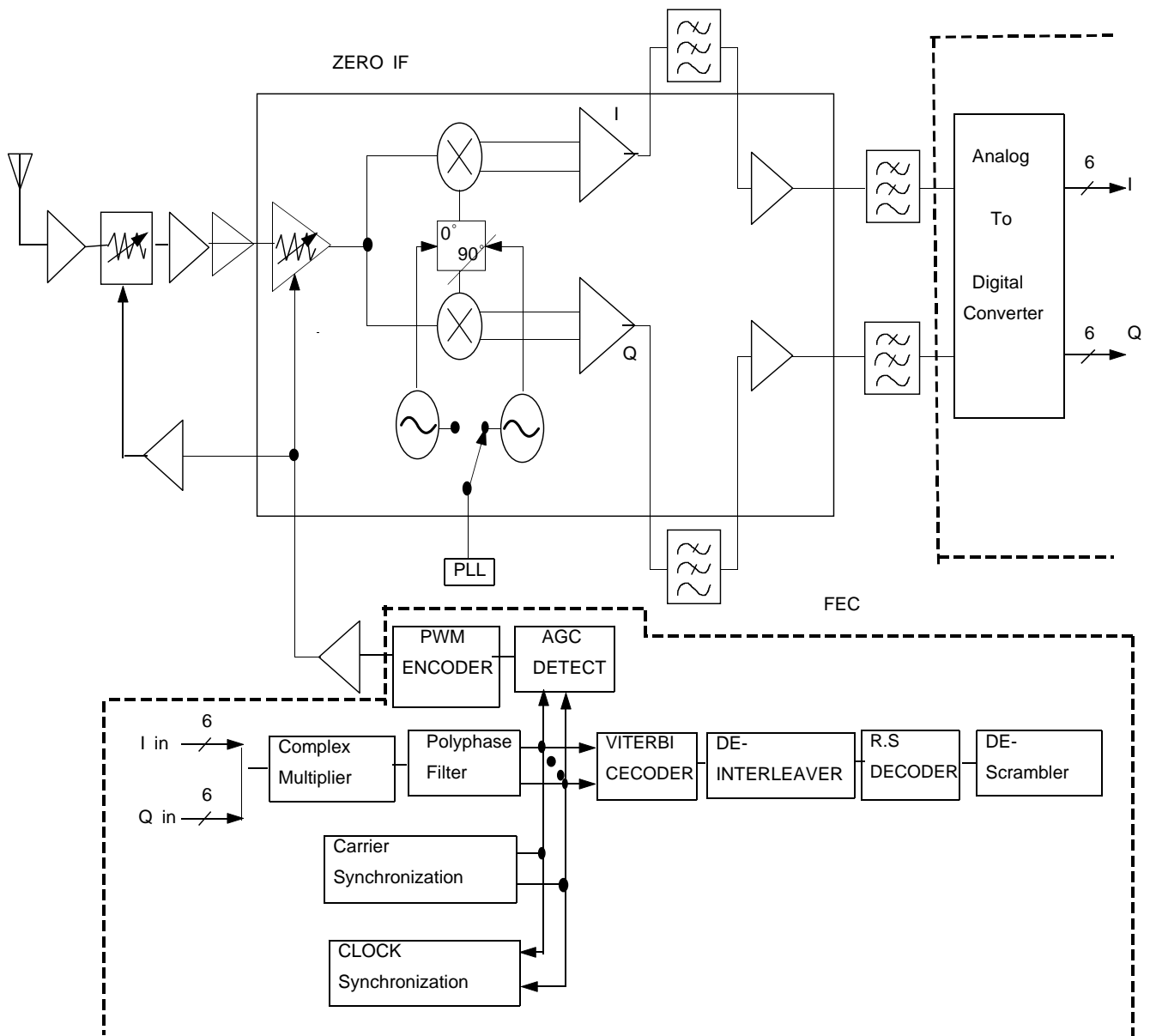
■ RELIABILITY TEST DATA

NO	ITEM	TEST CONDITIONS
1	COLD TEST	-40℃, 168HR
2	HIGH TEMPERATURE LOAD TEST	+80℃, 168HR, B+
3	HUMIDITY TEST	+40℃, 95%RH, 168HR
4	HUMIDITY & TEMPERATURE LOAD TEST	+40℃, 95%RH, 168HR, B+
5	PCT TEST	Pressure 2.07kg/cm ² , 121℃ 100%RH, 24HR
6	VIBRATION TEST	Frequency ranging from 5 to 55Hz, amplitude 2mm, 40 minutes in each direction of X, Y, Z.
7	STATIC ELECTRICITY TEST	① Apply 8kV standard pulse 3 times at ANT. ② Apply 2kV standard pulse 3 times at another pin.
8	ESD protection	① The tuner contains components that can be damaged by static discharge. ② Observe these precautions. ③ Ground yourself before handling the tuner. ④ Do not touch the tuner connector pins without ESD protection.

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■ BLOCK DIAGRAM

● 1 Input



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● LOOP THROUGH

