



## SPECIFICATION

## DVBT TUNER

## 1.SCOPE

The MDVBT-35308ASTY is intended for the reception of DVB-T compliant MPEG2 signals (full TES 300 744 compliant) in combination with the tuner ,all functions are integrated to deliver a corrected stream given DVB-T encoded signal(2k Or 8k mode)with 8MHz bandwidth.

## 2.GENERAL SPECIFICATIONS

2-1. RECEIVING FREQUENCY RANGE	:146~862MHz(I <sup>2</sup> C PLL CONTROLLER FROM OUTSIDE)
2-2. SUPPLY VOLTAGE	:B1,B2, 5V +/-2% B3 1.8V +/-2% B4 3.3V +/-2%
2-3. CONSUMPTION CURRENT	:B1 5V 120 mA B2 5V 50mA B3 1.8V 190 mA B4 3.3V 5 mA

Pin 2 Ant Power is for active Ant. The maximum current shall not exceed 100mA.

To avoid destroying the components inside the tuner,please offer current limited circuit if you need to supply Pin 2 with current.

2-4. OPERATION AND STORAGE	TEMPERATURE 0~50°C
CONDITIONS FOR CUARANTEE	HUMIDITY 85% OR LESS

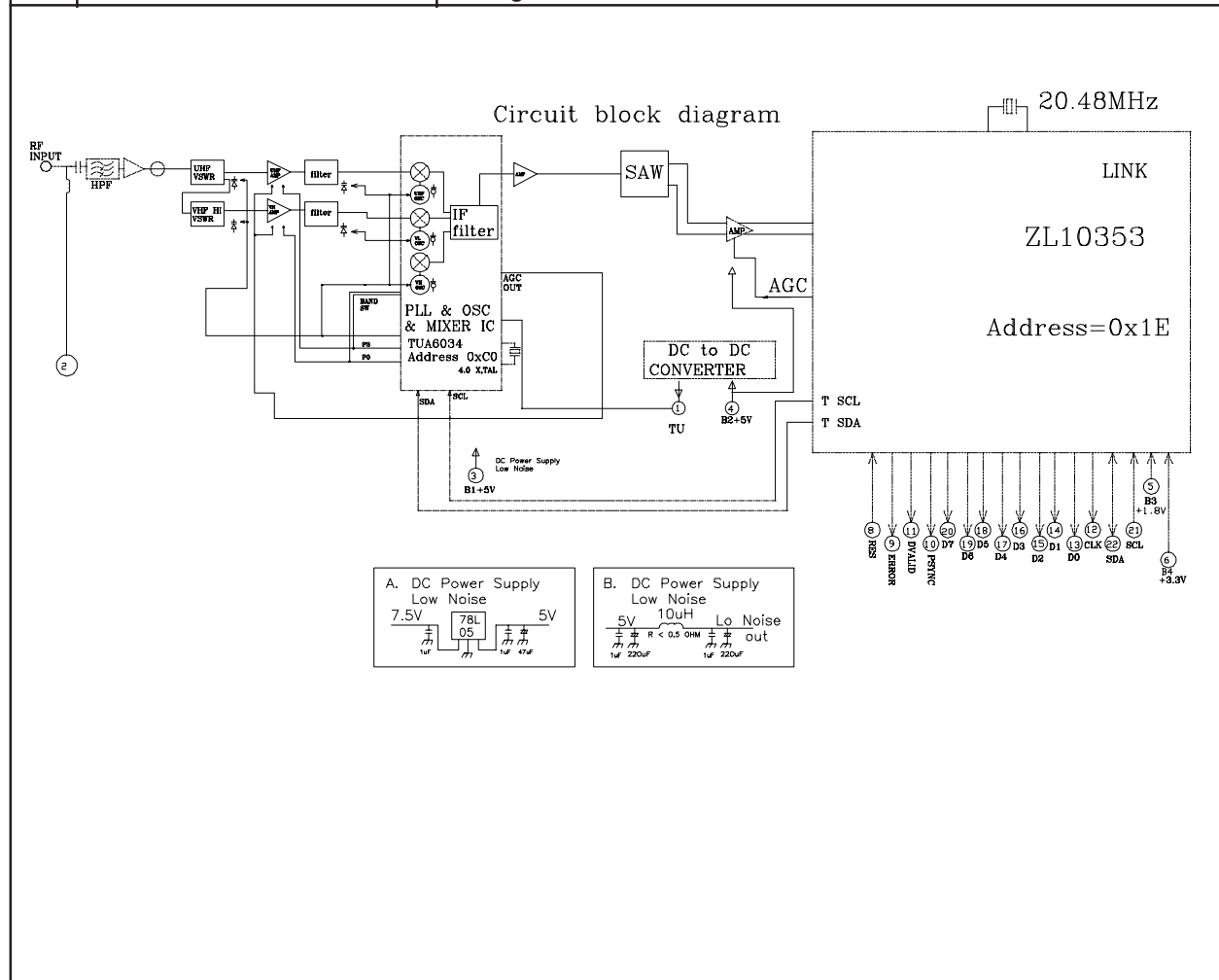
## 3.TEST CONDITIONS

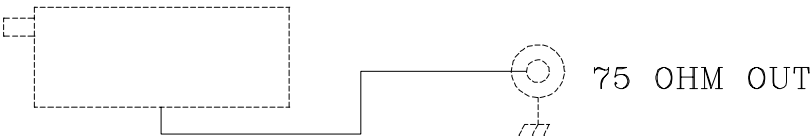
## 3-1. TESTING AMBIENT CONDITIONS

DEFINED AS TEMPERATURE OF 25+/-2°C AND HUMIDITY OF 65+/-5% RH.

NOTE : THAT TEMPERATURES OF 5~30°C AND HUMIDITY OF 45~85% MAY BE REGARDED AS STANDARD.

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NO	ITEM	CONDITION	MIN	TYP	MAX	NOTES
1.	GENERAL SPECIFICATIONS					
1.1	Receiving frequency range	UHF SEE table8-12 VHF HIGH SEE table8-12	428.1 145.1		862 428	MHz
1.2	Mergin frequency	UHF VHF HIGH	-6 -5		+3 +2	MHz
1.3	RF input ompedance	SMA CONNECTOR	75 OHM			
1.5	L.O PLL synthesizer IC	TUA6034 Address 0xC0				
1.6	PLL synthesizer crystal	+/- 50 ppm		4.0		MHz
1.7	1st intermediate frequency 3dB BW	DVB-T		36.167 8		MHz MHz
1.10	AGC voltage input external	0V to 5V	0V min gain 5V max gain			Current 20uA max
2	Operating Voltage	Supply voltage	5V +/- 2%	3.3V +/- 2%	1.8 +/- 2%	
2.2	Humidity	Operating	less than 85%			
		Storage	less than 95%			
2.3	Temperature	Operation	0°C to 50°C			
		Storage	-20°C to 75°C			



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NO.	ITEM	CONDITION	MIN.	TYP.	MAX.	NOTES
TEST CONNDITION						
3.	Supply voltage Ambient humidity Ambient temperature	B1,B2 +5V B3+1.8V B4+3.3V 60% to 70% 20°C to 30°C				
3.1	Test circuit					
3.2	Noise Figure	UHF VHF HIGH		7 6	10 9	dB dB
3.3	AGC Range AGC voltage 5V to 0.5V	UHF VHF HIGH	35 40	55 65		dB dB
3.5	Gain taper				8	dB
3.6	VSWR	UHF VHF HIGH VHF LOW		2 2 2		dB dB dB
3.7	IF Rejection	UHF VHF HIGH	45 45	50 50		dB dB
3.8	Image Rejection	UHF VHF HIGH	40 30	50 40		dB dB
3.9	RF input oscillator leakage	<890 MHz <1800 MHz			46 46	dBuV dBuV
3.10	Phase noise offset 1KHz  offset 10KHz  offset 100KHz	UHF VHF HIGH UHF VHF HIGH UHF VHF HIGH		-58 -60 -75 -75 -95 -95		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz
3.2	1% cross modulation input Channel +/-2Channel level 60dBuV	UHF VHF HIGH	80 80			dBuV dBuV



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NO.	ITEM	CNODITION	NIM.	TYP.	MAX.	NOTES.
5.0	Electrical Characteristics Control refer to ZL10353 data sheet chip address 0x1E					
5.1	Input sensitivity	Band width 8MHz FET mode 2K Guard interal 1/32 Constllation 64QAm FEC code rate 2/3 RS uncorrected error=0		-78		dBm
5.2	Performance with AWGN	C/N at antenna input input		20		dB
5.3	protection from co-channel PAL	PAL-I 75% bars,FM sound 1KHz		4		dB
5.4	protection from adjacent channel PAL	PAL-I 75% color bars,FM sound 1KHz		-35		dB
5.5	protection from adjacent DVB-t			-25		dB
5.6	protection from image Channel PAL	PAL-I 75% color bars,FM sound 1KHz		-46		dB
5.7	Pecformance with single echo inside the interval 2K mode	Te=Tg included (7.2us) Delay phase=0°		1.5		dB
5.8	Performance with single echo inside the interval	Te-Tsymbo 1/ 2 Delay phase=0°		19.5		dB
5.9	Typical multi-path channel	Additional END		4.0		dB



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TABLE 8-4 BIT Read/Write

ADDRESS Bbyte	1	1	0	0	0	MA1	MA0	0	A	BYET1
Divider Byte1		14	13	12	11	10	9	8		
	0	2	2	2	2	2	2	2	A	BYTE2
Divider Byte2		7	6	5	4	3	2	1	0	
	2	2	2	2	2	2	2	2	A	BYTE3
Control byte	1	CP	T2	T1	T0	RSA	RSB	OS	A	BYTE4
Bandswitch Byte	0	0	0	P4	P3	P2	P1	P0	A	BYTE5
Agc Control Byte*	ATC	AL2	AL1	AL0	0	0	0	0	A	BYTE6

\* Byte6 replaces byte5 when T2,T1,T0=0,1,1

ADDRESS	1	1	0	0	0	MA1	MA0	1	A	BYTE1
STATUS BYTE	POR	FL	1	1	AGC	A2	A1	A0	A	BYTE2

A:ACKNOWLEDGE BIT.

MA1,MA0:VOLTAGE ADDRESS BITS.(Fix MA1,MA0=0,0)

CP:charge pump current bits bit=0 50uA or 125uA  
bit=1 250uA(default)or 650uA  
see table 8-11 charge pump current

T0,T1,T2:test bits.see table 8-7 test modes

RSA,RSB:reference divider bits see table 8-8 reference divider

OS:tuning control bit bit=0 enable Vt  
bit=1 disable Vt

P0,P1,P2,P3:VHFLO,VHFHI,UHF,BANDSWITCH AND ANT SWITCH see table 8-12

P4:NPN port control bit bit=0(fix AGC Voltage input)

ATC:AGC timer constant bit bit=0 time 2S  
bit=1 time 50ms

AL0,AL1,AL2:AGC take-over point bits,see table 8-9

POR:power-on reset flag:POR=0 AT POWER-ON

FL:PHASE LOCK DETECT FLAG.bit=1 OSC LOCK  
bit=0 OSC UNLOCK

AGC:internal AGC .fiag AGC=1 when internal AGC is active (level below 3V)

A0,A1,A2:5-level AGC Voltage

TABLE 8-7 Test modes	T1	T2	T0
Normal mode, charge pump currents 50 and 250uA selectable	0	0	0
Normal mode, charge pump currents 50 and 250uA selectable(default)	0	0	1
CP is in high-impedance state	0	1	0
Byte6 will follow(otherwise byte5 will follow)	0	1	1
P0=Fdiv OUTPUT ,P1=Fref OUTPUT	1	0	0
not in use	1	0	1
Extended mode charge pump currents 50 and 250uA selectable	1	1	0
Extended mode charge pump currents 125 and 650uA selectable	1	1	1



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TABLE 8-8 referencr divider ratios

Reference divider ratios	PLL 4MHz quartz	Mode	T2	T1	REA	RSB
80	50KHz	normal	0	0	0	0
128	31.25KHz	normal	0	0	0	1
24	166.67KHz	X	X	X	1	0
64	62.5KHz	X	X	X	1	1
32	125KHz	extended	1	1	0	0
28	142.86KHz	extended	1	1	0	1

TABLE 8-9 AGC Take-over point

IF output level symmetrical mode	A2	A1	A0
118 dBuV	0	0	0
115 dBuV	0	0	1
112 dBuV	0	1	0
109 dBuV	0	1	1
106 dBuV	1	0	0
103 dBuV	1	0	1

TABLE 8-10 RF INPUT LEVEL

P4 5-LEVEL ADC (reference)	A2	A1	A0
ANT INPUT LEVEL >110	0	0	0
80~110dBuV	0	0	1
70~80 dBuV	0	1	0
60~70 dBuV	0	1	0
<60 dBuV	1	0	0

TABLE 8-11 charge pump current

Charge pump current	mode	CP	T2	T1	T0
50uA	normal	0	0	0	x
250uA	normal	0	0	0	x
50uA 174~349 MHz	extended	0	1	1	0
428.1~659 MHz					
125uA 349.1~397 MHz	extended	0	1	1	1
659.1~759 MHz					
250uA 397.1~428 MHz	extended	1	1	1	0
759.1~862 MHz					
650uA	extended	1	1	1	1

note :x=don't care.

Analog signal charge pump=50uA ,Digital signal charge=50uA~250uA

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TABLE 8-12 3-band selection and ANT switch

	P0	P1	P3	P2
VHF HI	1	0	0	0
UHF	0	0	1	0

I2C BUS Timing Diagram and telegram examples

Write data format

