

SPECIFICATION	
MODULATOR	
1. SCOPE	<p>THIS SPECIFICATION OUTLINES THE PERTINENT ELECTRICAL REQUIREMENTS OF THE RF OUTPUT MODULATOR WHICH CONVERTS THE FM VIDEO AND FM AUDIO SIGNAL INTO THE RF SIGNAL FOR TELEVISION STANDARD TRANSMISSION SYSTEM</p>
2. GENERAL SPECIFICATIONS	<p>2-1. OUTPUT FREQUENCY 2350~2420MHz (I²C PLL CONTROLLER FROM OUTSIDE)</p> <p>2-2.</p> <p>2-3. SUPPLY VOLTAGE B1 9.0+/-0.5V B2 5V Max B3 -1.0 ~ -1.6V</p> <p>2-4. CONSUMPTION CURRENT B1 95+/-10mA B2 500mA Max (B3 -1.2V)</p> <p>2-5. OPERATION AND STORAGE TEMPERATURE 0-50° C</p> <p>2-6. CONDITIONS FOR GUARANTEE HUMIDITY 85% OR LESS</p>
3. TEST CONDITIONS	<p>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%RH MAY BE REGARDED AS STANDARD.</p> <p>3-2.</p> <p>3-3. UNIT SETTING CONDITIONS (1) PICTURE-- 10 STEP WAVE SIGNAL 1.5Vp-p(82ΩLoad). (2) AUDIO -- 1.0Vp-p OF SINE WAVE 1KHZ.</p>
<p>COMTECH TECHNOLOGY CO., LTD FM2350TSIMP (1/4)</p>	

SPECIFICATION						
MODULATOR						
4. ELECTRICAL PERFORMANCE						
4-1. VIDEO SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-1-1	INPUT IMPEDANCE		1.3		K	MEASURE AT 0.5-5MHZ
4-1-2	INPUT SIGNAL LEVEL		1		V _{p-p}	LOAD OF 82Ω CONNECTED NEGATIVE SYNCHRONOUS
4-1-3	MODULATION Fp 2480MHz (SINE WAVE 300KHz 1VP-P)	2	3	4	MHz	SUPERIMPOSED SINOUS WAVE (3.58MHZ) IS 20% OF THE STEP INPUT
4-1-5	DIFFERENTIAL GAIN	-8		8	%	LEVEL. MEASURE UNDER THE APL OF 10-90% DIFFERENTIAL GAIN OF DEMODULATOR UNIT IS TO BE COMPENSATED.
4-1-6	DIFFERENTIAL PHASE	-8		8	DEG	-DITTO-
4-1-7	S/N	45			dB	MEASURE MITH RESPECT TO STANDARD DEMODULATOR OUTPUT.
4-1-8	OUT LEVEL TAPER		4	6	dB	Fp 2400~2483MHZ
4-2. AUDIO SYSTEM CHARACTERISTICS						
4-2-1	INPUT IMPEDANCE		1.4		KΩ	MEASURE AT 0.1-10KHZ
4-2-2	MODULATION	35	40	45	KHZ	
4-2-3	DISTORTION FACTOR			3	%	AUDIO INPUT SIGNAL: 1.0V _{p-p} 1KHZ MODULATION 50% (SINE WAVE) VIDEO INPUT SIGNAL: ALL BLACK (SYNC.ONLY) USE STANDARD DEMODULATOR OF INTER-CARRIER SYSTEM. DE-EMPHASIS(50 usec) IS ON.
4-2-4	S/N	40			dB	THE SAME AS 4-2-3
COMTECH TECHNOLOGY CO., LTD FM2350TSIMP (2/4)						

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4-3. OUTPUT SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-3-1	VIDEO CARRIER FREQUENCY	-50	f_p	+50	KHZ	TEST AT 25°C TEMPERATURE AND 65%RH OF HUMIDITY. Fp2350~2420MHz
4-3-2	VIDEO OUTPUT LEVEL (B3 -1.2V)	23	24	26	dBm	
4-3-3	AUDIO OUTPUT LEVEL DIFFERENCE(P/S RATIO)	22	27	32	dB	fs1 6.0MHz fs2 6.5MHz *OUTPUT CHANNEL
4-3-4	AUDIO CARRIER FREQUENCY	-8	f_s	+8	KHZ	INPUT SIGNAL : NONE THE MEASUREMENT IS TAKEN AFTER 30 sec. FROM THE POWER-ON.
4-3-5	AUDIO MODULATOR fs1 fs2	35 35	50 50	65 65	KHZ	MEASUREMENT DIFFERENCE VIDEO OF CARRIER
4-3-6	OUT-BAND SPURIOUS	45	50		dB	FREQUENCY OUTPUT LEVEL FOR 2.4~2.483GHZ EXCEPT TO f_p . $f_p \pm f_s$ AGAINST VIDEO CARRIER OUTPUT LEVEL.
4-3-7	IN-BAND SPURIOUS WITHIN BANDWIDTH	60			dB	
4-3-8	OUTPUT IMPEDANCE		50		Ω	UNBALANCED.
5-1 PLL SECTION CHARACTERISTICS						
COMTECH TECHNOLOGY CO., LTD FM2350TSIMP (3/4)						

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NO.	ITEM	SPECIFICATION							NOTES																																																																																												
5-2.	IIC BUS (1) SDA,SCL INPUT VOLTAGE	UNDER STANDARD TEST CONDITION							V																																																																																												
		CONDITION	MIN.	TYP.				MAX.																																																																																													
		HIGH VOLTAGE	3					5																																																																																													
		LOW VOLTAGE	0					1.5																																																																																													
	(2) ADDRESS	C2 (ON WRITE DATA FORMAT)																																																																																																			
	(3) SDA SCL INPUT IMPEDANCE	SDA/SCL ARE IN THE HIGH IMPEDANCE AND THERE SHOULD BE NO RELIABILITY PROBLEM WITH 5V CONTINUALLY ON THE SDA/SCL, IF POWER SUPPLY IS SWITCHED OFF.																																																																																																			
	(4) DATA FORMAT	<table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th style="width: 10%;"></th> <th colspan="5" style="text-align: center;">MSB</th> <th colspan="5" style="text-align: center;">LSB</th> <th style="width: 10%;"></th> </tr> <tr> <th>ADDRESS</th> <th>1</th><th>1</th><th>0</th><th>0</th><th>0</th> <th>MA1</th><th>MA0</th><th>0</th><th>A</th><th>BYTE1</th> </tr> </thead> <tbody> <tr> <td>PROGRAMMABLE DIVIDER</td> <td>0</td><td>2</td><td>2</td><td>2</td><td>2</td> <td>2</td><td>2</td><td>2</td><td>A</td><td>BYTE2</td> </tr> <tr> <td>PROGRAMMABLE DIVIDER</td> <td>2</td><td>7</td><td>6</td><td>5</td><td>4</td> <td>3</td><td>2</td><td>1</td><td>0</td><td>BYTE3</td> </tr> <tr> <td>CHARGE PUMP AND TEST BITS</td> <td>1</td><td>CP</td><td>T1</td><td>TO</td><td>1</td> <td>1</td><td>1</td><td>OS</td><td>A</td><td>BYTE4</td> </tr> <tr> <td>I/O PORT CONTROL BITS</td> <td>P7</td><td>P6</td><td>P5</td><td>P4</td><td>P3</td> <td>P2</td><td>P1</td><td>P0</td><td>A</td><td>BYTE5</td> </tr> </tbody> </table> <p style="text-align: center;">TABLE 1 WRITE DATA FORMAT (MSB IS TRANSMITTED FIRST)</p> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tbody> <tr> <td>ADDRESS</td> <td>1</td><td>1</td><td>0</td><td>0</td><td>0</td> <td>MA1</td><td>MA0</td><td>1</td><td>A</td><td>BYTE1</td> </tr> <tr> <td>STATUS BYTE</td> <td>POR</td><td>FL</td><td>I2</td><td>I1</td><td>I0</td> <td>A2</td><td>A1</td><td>A0</td><td>A</td><td>BYTE2</td> </tr> </tbody> </table> <p style="text-align: center;">TABLE 2 READ DATA FORMAT</p> <p>A:ACKNOWLEDGE BIT. MA1,MA0:VOLTAGE ADDRESS BITS. CP:CHARGE PUMP CURRENT SELECT. T1:TEST MODE SELECTION. TO:CHARGE PUMP DISABLE. OS:VARACTOR DRIVE OUTPUT DISABLE SWITCH. P7,P6,P5,P4,P3,P2,P1,P0:CONTROL OUTPUT STATES. POR:POWER ON RESET INDICATOR FL:PHASE LOCK DETECT FLAG. I2,I1,I0:DIGITAL INFORMATION FROM PORTS P7,P5 AND P4. A2,A1,A0:5 LEVEL ADC DATA FROM P6.</p> <div style="margin-top: 10px;"> <p>Write data format</p> <p>Read data format</p> </div>												MSB					LSB						ADDRESS	1	1	0	0	0	MA1	MA0	0	A	BYTE1	PROGRAMMABLE DIVIDER	0	2	2	2	2	2	2	2	A	BYTE2	PROGRAMMABLE DIVIDER	2	7	6	5	4	3	2	1	0	BYTE3	CHARGE PUMP AND TEST BITS	1	CP	T1	TO	1	1	1	OS	A	BYTE4	I/O PORT CONTROL BITS	P7	P6	P5	P4	P3	P2	P1	P0	A	BYTE5	ADDRESS	1	1	0	0	0	MA1	MA0	1	A	BYTE1	STATUS BYTE	POR	FL	I2	I1	I0	A2	A1	A0	A	BYTE2
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