



SPECIFICATION

MODULATOR

1. SCOPE

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

2. GENERAL SPECIFICATIONS

- 2-1. OUTPUT FREQUENCY 1100~1300MHZ (I²C PLL CONTROLLER FROM OUTSIDE)
- 2-2.
- 2-3. SUPPLY VOLTAGE 12V+/-0.2V
- 2-4. CONSUMPTION CURRENT 140+/-20mA
- 2-5. OPERATION AND STORAGE TEMPERATURE 0-50° C
- CONDITIONS FOR GUARANTEE 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%RH
MAY BE REGARDED AS STANDARD.

3-2.

3-3. UNIT SETTING CONDITIONS

- (1) PICTURE-- 10 STEP WAVE SIGNAL 1.0VP-P(82ΩLoad).
- (2) AUDIO -- 1.0Vp-p OF SINE WAVE 1KHZ.



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MODULATOR						
4. ELECTRICAL PERFORMANCE						
4-1. VIDEO SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-1-1	INPUT IMPEDANCE		1.7k		Ω	MEASURE AT 0.5-5MHZ
4-1-2	INPUT SIGNAL LEVEL		1.0		V _{p-p}	LOAD OF 82 Ω CONNECTED NEGATIVE SYNCHRONOUS
4-1-3	MODULATION 1100~1300 SINE WAVE 10KHz 1VP-P	5	6	7	MHz	SUPERIMPOSED SINUOUS WAVE (3.58MHZ) IS 20% OF THE STEP INPUT LEVEL. MEASURE UNDER THE APL OF 10-90% DIFFERENTIAL GAIN OF DEMODULATOR UNIT IS TO BE COMPENSATED.
4-1-5	DIFFERENTIAL GAIN	-8		8	%	-DITTO-
4-1-6	DIFFERENTIAL PHASE	-8		8	DEG	-DITTO-
4-1-7	S/N	45			dB	MEASURE MITH RESPECT TO STANDARD DEMODULA- TOR OUTPUT.
4-1-8	OUT LEVEL TAPER		4	6	dB	Fp 1100~1300MHZ
4-2. AUDIO SYSTEM CHARACTERISTICS						
4-2-1	INPUT IMPEDANCE		1.4		K Ω	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 MODULA- TION 50% (SINE WAVE) VIDEO INPUT SIGNAL: ALL BLACK (SYNC.ONLY) USE STANDARD DEMODU- LATOR 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						
						FM1200TSIMG (2/4)



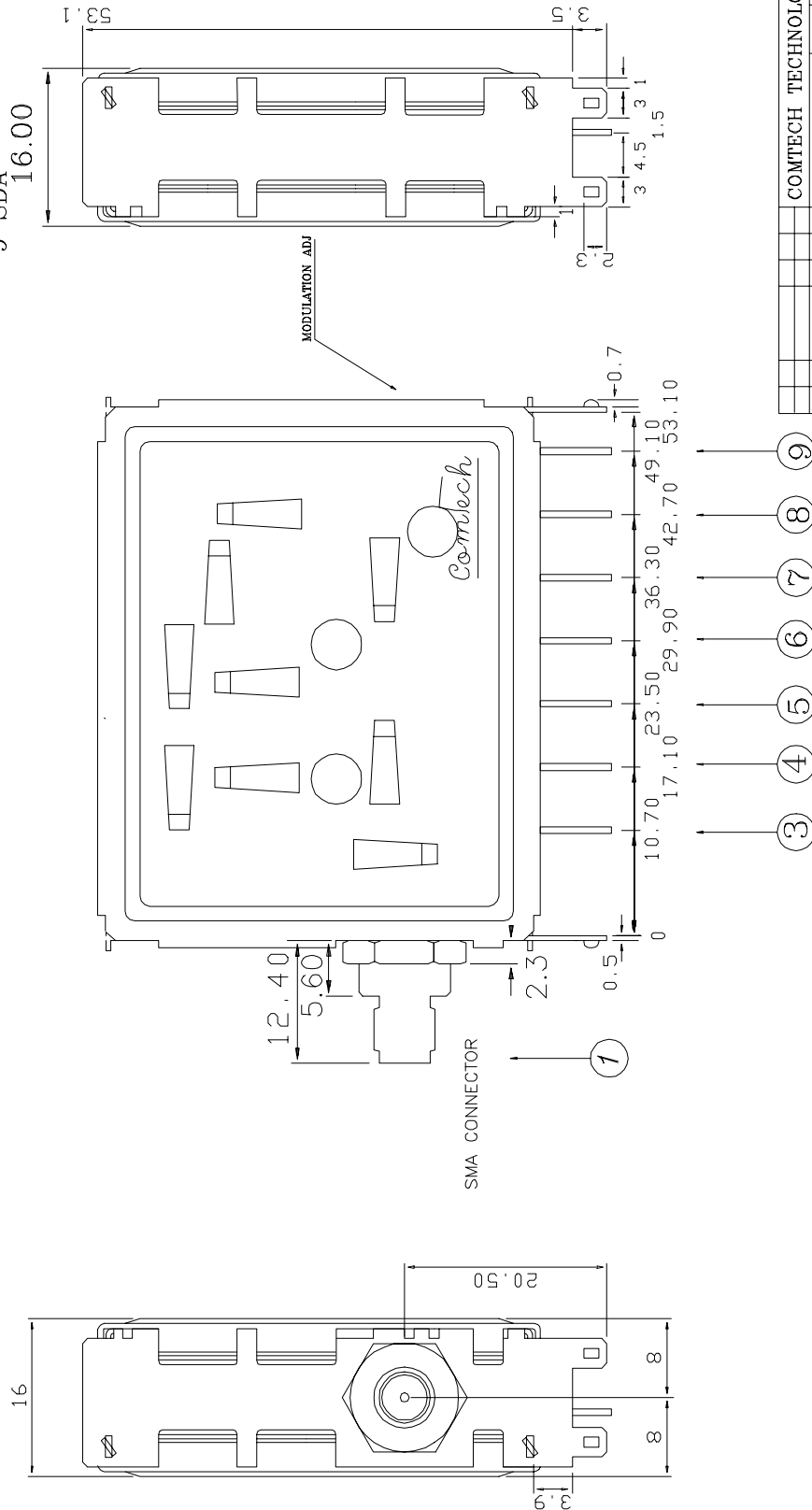
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4-3. OUTPUT SYSTEM CHARACTERISTICS						
	PARAMETER	SPECIFICATION			UNIT	REMARK
		MIN	TYP	MAX		
4-3-1	VIDEO CARRIER FREQUENCY	-50	fp	+50	KHZ	TEST AT 25°C TEMPERATURE AND 65%RH OF HUMIDITY. fs1 6.0MHZ fs2 6.5MHZ *OUTPUT CHANNEL
4-3-2	VIDEO OUTPUT LEVEL 1100~1300MHZ	15	17	19		
4-3-3	AUDIO OUTPUT LEVEL DIFFERENCE(P/S RATIO) Fp:1100~1300MHZ	22	27	32	dB	
4-3-4	AUDIO CARRIER FREQUENCY	-8	fs1	+8	KHZ	INPUT SIGNAL : NONE THE MEASUREMENT IS TAKEN AFTER 30 sec. FROM THE POWER-ON.
4-3-5	AUDIO MODULATOR fs1 fs2	60	70	80	KHZ	MEASUREMENT DIFFERENCE VIDEO OF CARRIER
4-3-6	OUT-BAND SPURIOUS	45	50		dB	FREQUENCY OUTPUT LEVEL FOR 0-1GHZ. EXCEPT TO fp. fp+/-fs AGAINST VIDEO CARRIER OUTPUT LEVEL.
4-3-7	OUTPUT IMPEDANCE		75		Ω	UNBALANCED.
5-1 PLL SECTION CHARACTERISTICS						
COMTECH TECHNOLOGY CO., LTD					FM1200TSIMG (3/4)	



SPECIFICATION													
BS TUNER													
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	MSB				LSB							
		ADDRESS	1	1	0	0	0	MA1	MA0	0	A	BYTE1	
		PROGRAMMABLE DIVIDER	0	2	14	13	12	11	10	9	8	A	BYTE2
		PROGRAMMABLE DIVIDER	2	7	6	5	4	3	2	1	0	A	BYTE3
		CHARGE PUMP AND TEST BITS	1	(0) CP	T1	T0	1	1	1	(0) OS	A	BYTE4	
		I/O PORT CONTROL BITS	P7	P6	P5	P4	P3	P2	P1	P0	A	BYTE5	
		TABLE 1 WRITE DATA FORMAT (MSB IS TRANSMITTED FIRST)											
		ADDRESS	1	1	0	0	0	MA1	MA0	1	A	BYTE1	
		STATUS BYTE	POR	FL	I2	I1	I0	A2	A1	A0	A	BYTE2	
		TABLE 2 READ DATA FORMAT											
		A:ACKNOWLEDGE BIT. MA1,MA0:VOLTAGE ADDRESS BITS. CP:CHARGE PUMP CURRENT SELECT. T1:TEST MODE SELECTION. T0: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.											

PIN-CONNECTION

- 1 RF OUT
- 3 AUDIO IN fs2
- 4 N.C.
- 5 AUDIO IN fs1
- 6 12V
- 7 VIDEO
- 8 SCL
- 9 SDA



COMTECH TECHNOLOGY CO., LTD	
DESCR.	SCALE 3/2
CHKD. CRS 07-04-20	MODEL FM1200TSIMG
APPD.	UNIT rmm
ZONES/REV	DATE OR NO. JAP/EN/CH/DESC
	DOCUMENT NO.