

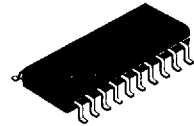
UHF BAND RF MODULATOR

The KA2982D is a monolithic integrated circuit small out-line package designed for use in the UHF RF converter for VCRs, video game machines and so on.

FEATURES

- Supply voltage 5V (4.5V~5.5V)
- Symmetrical RF oscillator to 700MHz
- Video input clamp/White clip
- Negative/Positive video AM
- FM/AM audio modulation
- Control of video modulation index
- Picture carrier to Sound carrier ratio Adjustment
- Oscillator stability
- Built in TSG
- Picture/Sound RF mixer

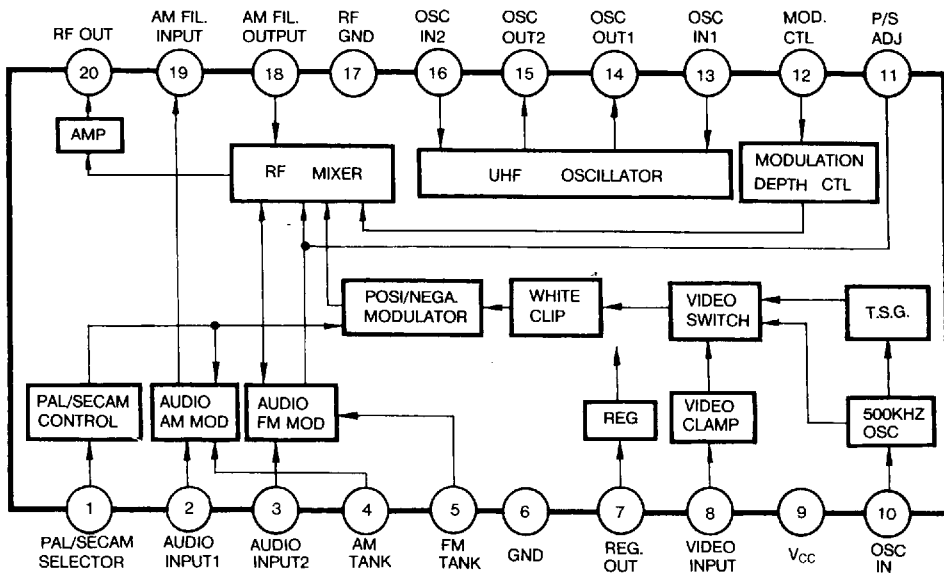
20-SOP-375



ORDERING INFORMATION

Device	Package	Operating Temperature
KA2982D	20-SOP-375	-20°C~+70°C

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

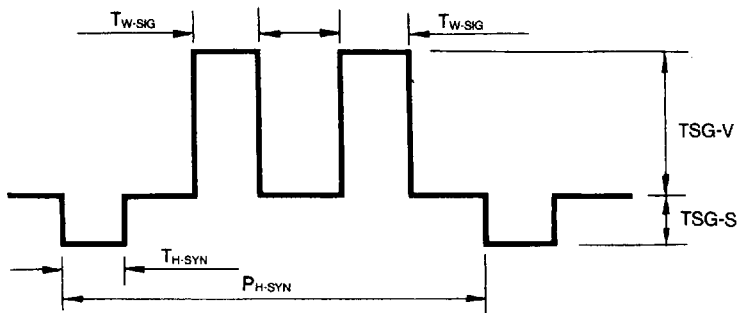
Characteristic	Symbol	Value	Unit
Power supply	V _{CC}	7	V
Power dissipation	P	350	mW
Operating Temperature	T _{opr}	-20~+70	°C
Storage Temperature	T _{stg}	-55~+125	°C

ELECTRICAL CHARACTERISTICS (TA=25°C, V_{CC}=5V)f_p=591.25MHz +/-1MHz, f_s=5.5MHz +/-100KHz

Characteristic	Symbol	Conditions	SPEC			Unit
			Min	Tpy	Max	
Supply Current	I _{CC}	No input Signal (Audio, Video)	30	40	50	mA
TSG MOD Depth	M _{TSG}	SW2: OFF	70	80	90	%
TSG V/S Ratio	R _{TSG V/S}	#See NOTE 1	1.7	2.0	2.3	
H-Sync SIG. Period	P _{H-SYNC}		63	64	65	uS
H-Sync SIG. Width	T _{H-SYNC}		3.5	4.0	4.5	uS
White SIG. Width	T _{W-SIG}		3.5	4.0	4.5	uS
Max FM MOD. Depth	M _{FM MAX}	Sine 1KHZ 5V _{P-P}	180			%
A. 2nd Harmonic	THD _(A)	No Input Signal(AUDIO)	48	53		dB
A. SIG.to Noise R.	G _{A-S/N}	#See NOTE 2	50	55		dB
A. FM MOD. Depth	M _{A-FM}	Sine 1KHZ. 2.5V _{P-P} (50KHZ:100%)	58		122	%
A. AM MOD. Depth	M _{A-AM}	Sine 1KHZ. 1V _{P-P}	50	60	70	%
A. FM Distortion	THD _(FM)	Use STD Demodulator (PAL)			3	%
A. AM Distortion	THD _(AM)	Use STD Demodulator (SECAM)			3	%
Amp. Freq. Respon.	G _A	0.1V _{P-P} , 0.1KHZ-10KHZ(REF:1KHZ)	-2		+2	dB
P/S Carrier Ratio	G _{P/S}	No Input Signal(AUDIO, VIDEO)	11.5	13.5	15.5	dB
Sync Crush Level	ΔS _{sync}	V _i =0.55V _{P-P} Color Bar Signal			10	%
1'st Sync White Signal Rise Time	TV1	No Input Signal. # See Note 1	22	24	26	uS

Characteristic	Symbol	Conditions	SPEC			Unit
			Min	Tpy	Max	
2'nd Sync White Signal Rise Time	TV2	No Input Signal. #See Note 1	38	40	42	uS
Differential Phase	DP	1V _{p-p} , Stair-Step Video Signal Measured APL 50% (Chroma=40IRE)		2	3	deg
Differential Gain	DG		%			
RF Voltage Change	DG _{RF}	500-700MHz	-2		+2	dB
IN Band Spurious	G _{IN-LKG}	Measure Between F _V & F _a (NO A/V Input Signal)			-53	dB
Out Band Spurious	G _{OUT-LKG}	Measure between 0 & 1GHz except the range of F _V - 5.5 MHz (Standard A/V MOD)			-60	dB
V. MOD. Depth	M _{V-NEG}	PAL	70	80	90	%
V. MOD. Depth	V _{V-POS}	SECAM				
V. Output Level	V _O	No Input Signal (VIDEO, AUDIO)	78.5	81	83.5	dBuV
Chroma Beat	G _{C-BEAT}	0.5V _{p-p} , Sine 4.43MHz In (PAL)	64	67	-	dB
V. 2nd Har. Dist.	THD _(V)	V. In = 1V _{p-p} , Sine 1MHz		-56	-46	dB
V. Freq. Respon.	G _V	1V _{p-p} , Sine 0.5MHz-5MHz (REF;1MHZ)	-2		+2	dB
V. S/N Ratio	G _{V-S/N}	Use Video S/N Meter	50			dB
Max V. MOD. Depth	M _{V-MAX}	1-1.5V _{p-p} , 100% White Video Signal	84	93		%
OSC Freq. Drift	DF _{OSC}	VCC:4.5-5.5V	-200		+200	KHz

#NOTE1:TSG Output Waveform



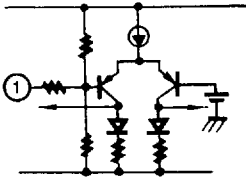
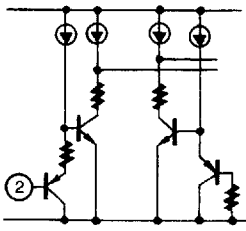
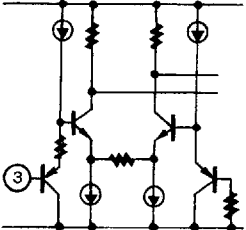
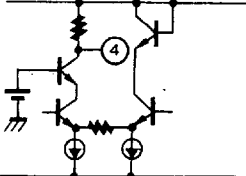
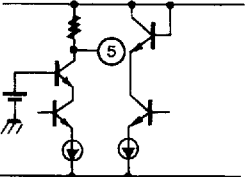
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#NOTE2:Input Condition

1) Audio input: Sine Wave 1KHz, 1V_{p-p}

2) Video input: Stair-Step Video Signal, 1.0V_{p-p}

PIN DESCRIPTION

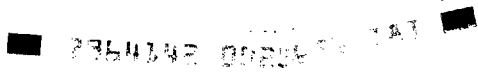
Pin	Function	Description	Equivalent	Remark
1	PAL/SECAM Mode Control	PAL Mode:HIGH SECAM Mode: OPEN		BIAS: 2.1-2.2V at 1 Pin
2	AUDIO IN 1	AUDIO Input For AM(SECAM System)		BIAS: 0V
3	AUDIO IN 2	AUDIO Input For FM(PAL System)		BIAS: 0V
4	AM TANK	LC Parallel Resonance TANK		BIAS: 3.4V
5	FM TANK	LC Parallel Resonance TANK		



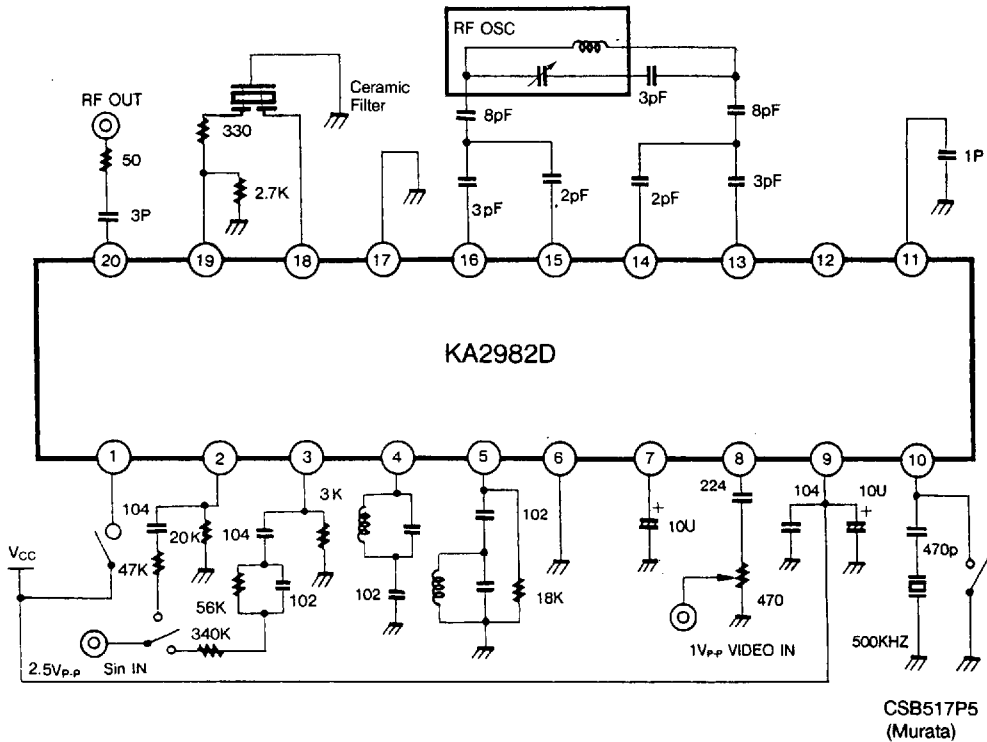
Pin	Function	Description	Equivalent	Remark
6	Ground			
7	Regulator Output	Voltage Regulator Output		BIAS: 4.0V
8	Video Input	Video Input (Clamp Input)		BIAS(Clamp Level): 2.7V
9	Vcc	Power Supply		Supply Voltage: 4.5-5.5 V
10	OSC Input	OSC in for T.S.G.		Bias: 1.9V
11	P/S ADJ.	P/S Control Pin		PAL Mixer & FM MOD
12	Modulation CTL In	Modulation Control Pin		SECAM&PAL Mixer

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Pin	Function	Description	Equivalent	Remark
13	OSC IN 1			
14	OSC OUT 1			
15	OSC OUT 2			
16	OSC IN 2			
17	RF GND			Ground For OSC
18	AM Filter Out			The Output of Ceramic Filter input to SECAM Mixer
19	AM Filter Input (Ceramic Filter Input: AM)			AM MOD OUTPUT
20	RF OUTPUT			RF Output (Buffer Output)

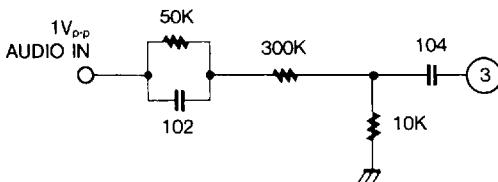


TEST CIRCUIT



CSB517P5 (Murata)

NOTE 1: AUDIO PREAMPHASIS TEST CIRCUIT FOR FM.



NOTE 2: Bins Correspond to FM AUDIO MOD Depth

Device	FM AUDIO MOD. Depth
KA2982D-01	58~69.5%
KA2982D-02	65.5~92%
KA2982D-03	88~122%

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Application Circuit

