

DIGITAL MONOLITHIC INTEGRATED CIRCUITS (MOS)

MOS IC, LSI

Type No.	Function	Maximum Ratings (Ta=25°C)	Electrical Characteristics (Ta=25°C)						
			Item	Symbol	Condition	min.	typ.	max.	Unit
MN6205	CMOS Digital Quartz Watch Circuit for LCD Driver	V _{SS1} =+0.2~-3V	Supply Voltage 1)	V _{SS1}		-1.25	-1.55	-1.8	V
		V _{SS2} =+0.2~-6V	Supply Voltage 2)	V _{SS2}	C ₁ Open	-2	-3	-3.6	V
		T _{opr} =-20~+70°C	Supply Current	I _{SS}	Without load, C ₁ =C ₂ =0.1μF			-2.5	μA
		T _{stg} =-55~+100°C	Osc. Start Voltage	V _{STA}	t _{osc} =10s			-1.4	V
		Operating Condition	Frequency Variation vs Supply Voltage	Δf _i /f _o	V _{SS1} =-1.45~-1.55V			±2	ppm
			Osc. Feedback Resistance	R _f				20	MΩ
		V _{DD} =0 V _{SS1} =-1.55V V _{SS2} =-3V f _{osc} =32.768kHz							
Timer									
MN6076	Digital AC Clock Timer with ON/OFF Double Time Setting Function	V _{DD} =+0.3~-16V	Supply Current	I _{DD}			1.3		mA
		V _i =+0.3~V _{DD} -0.3V	Input Signal Frequency	f _i		DC	50/60	10k	Hz
		V ₀ =+0.3~-26V	"H" Level Input Voltage (All Input)	V _{IH}	V _{SS} =0V		0	-1	V
		T _{opr} =-10~+70°C	"L" Level Input Voltage (All Input)	V _{IL}	V _{SS} =0V	V _{DD} +1		V _{DD}	V
		T _{stg} =-30~+125°C	"H" Level Output Current (PM)	I _{OH1}	V _{TH} =-3V			12.0	mA
		Operating Condition	Output Breakdown Voltage (PM)	BV _{O1}	I _{TL} =-10μA			-22	V
			"H" Level Output Current (d&g)	I _{OH2}	V _{TH} =-3V			6	mA
		V _{DD} =-12V	Output Breakdown Voltage (d&g)	BV _{O2}	I _{TL} =-10μA			-22	V
		V _{SS} =0V	"L" Level Output Current (Others)	I _{OL3}	V _{TH} =-3V			3	mA
		V _{PP} =-10V	Output Breakdown Voltage (Others)	BV _{O3}	I _{TL} =-10μA			-22	V
	"L" Level Output Current (Others)	I _{OL4}	V _{TH} =-2V	500			μA		
	Output Breakdown Voltage (Others)	BV _{O4}	I _{TL} =-10μA			-22	V		
BBD's for Audio Signal Delays									
MN3001	Dual 512-stage BBD for Audio Signal Delays	V _{TE} =-20~+0.3V	Signal Delay Time	t _D	f _{cp} =10kHz~800kHz 512+512stages	0.32		51.2	ms
		V _{BB} =-0.3~+10V	Input Signal Frequency	f _i	3dB down from value at f _i =1kHz f _{cp} =40kHz, V _i =2V _{rms}	0		0.3f _{cp}	kHz
		P ₀ =50mW	Input Signal Swing	V _i	f _{cp} =40kHz, f _i =1kHz THD≦2.5%		0.32	1.8	V _{rms}
		T _{opr} =-20~+60°C	Insertion Loss	L _i	f _{cp} =40kHz, f _i =1kHz V _i =2V _{rms}		8.5	11	dB
		T _{stg} =-55~+125°C	Total Harmonic Distortion	THD	f _{cp} =40kHz, f _i =1kHz V _i =0.78V _{rms}		0.4	2.5	%
		Operating Condition	Noise Voltage	V _{no}	f _{cp} =80kHz			0.25	mV _{rms}
			Signal to Ratio	S/N	Weighted "A" curve			70	dB
V _{DD} =-15V V _{GG} =-14V V _{BB} =+5V V _{Bias} =-3.3~-4.9V									
MN3002	512-Stage BBD for Audio Signal Delays	V _{TE} =-20~+0.3V	Signal Delay Time	t _D	f _{cp} =10kHz~800kHz	0.32		25.6	ms
		V _{BB} =-0.3~+10V	Input Signal Frequency	f _i	3dB down from value at f _i =1kHz f _{cp} =40kHz, V _i =2V _{rms}	0		0.3f _{cp}	kHz
		P ₀ =50mW	Input Signal Swing	V _i	f _{cp} =40kHz, f _i =1kHz THD≦2.5%			1.8	V _{rms}
		T _{opr} =-20~+60°C	Insertion Loss	L _i	f _{cp} =40kHz, f _i =1kHz V _i =2V _{rms}		8.5	11	dB
		T _{stg} =-55~+125°C	Total Harmonic Distortion	THD	f _{cp} =40kHz, f _i =1kHz V _i =0.78V _{rms}		0.4	2.5	%
		Operating Condition	Output Noise Voltage	V _{no}	f _{cp} =80kHz			0.25	mV _{rms}
			Signal to Noise Ratio	S/N	Weighted "A" curve			70	dB
V _{DD} =-15V V _{GG} =-14V V _{BB} =+5V V _{Bias} =-3.3~-4.9V									

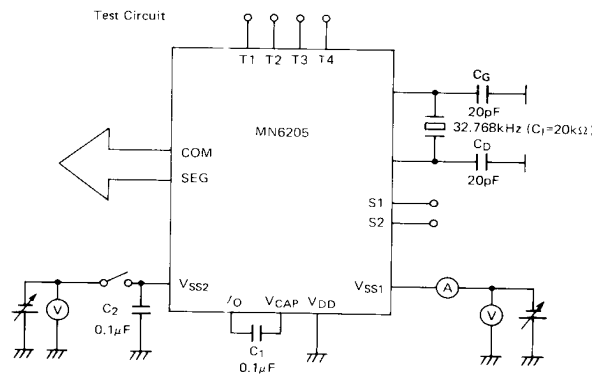
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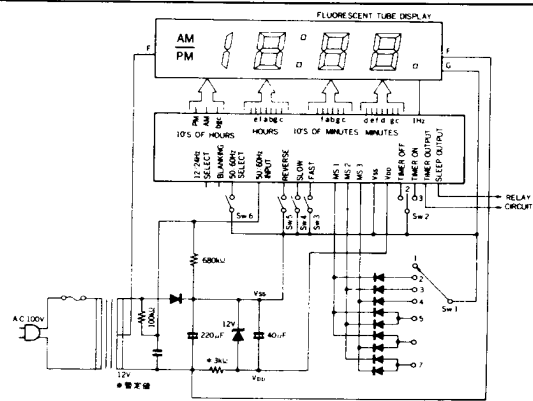
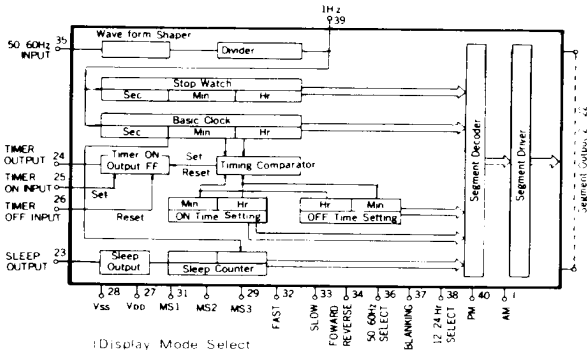
Block Diagram

Application Circuit

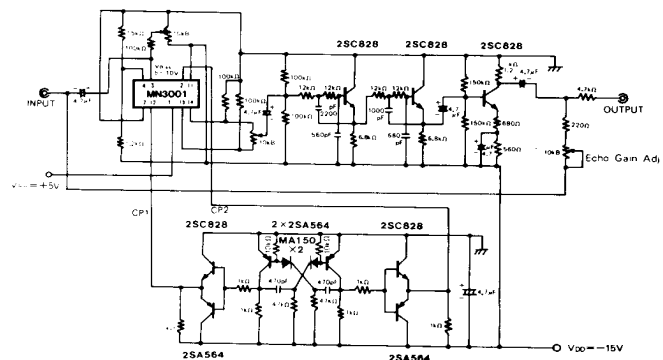
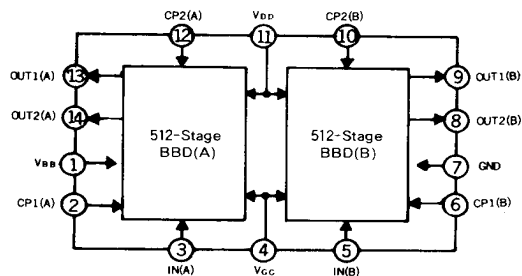
MN6205 (Chip)



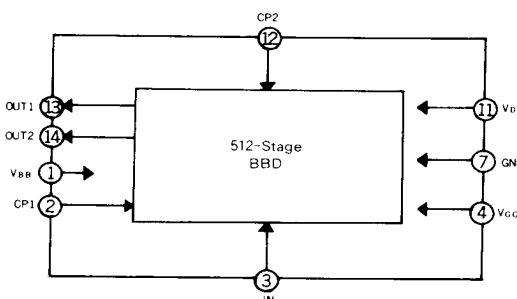
MN6076 (Package I.—19, 40—Lead Plastic DIL)



MN3001 (Package I.—12, 14—Lead Plastic DIL)



MN3002 (Package I.—12, 14—Lead Plastic DIL)



Echo Effect (Signal delay over 10ms)