

DIGITAL MONOLITHIC INTEGRATED CIRCUITS (MOS)

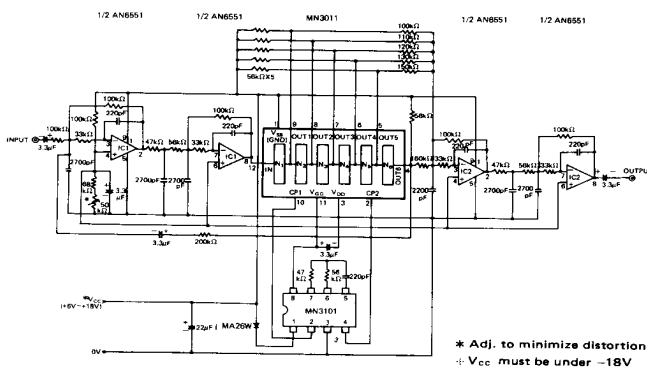
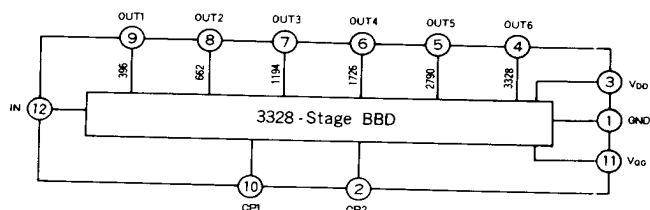
MOS IC, LSI

MOS IC, LSI			Electrical Characteristics (Ta=25°C)								
Type No.	Function	Maximum Ratings (Ta=25°C)	Item	Symbol	Condition	min.	typ.	max.	Unit		
△MN3011	3328-stage 6-tap BBD for Audio Signal Delays	VTE=-18~+0.3V VO=-18~+0.3V Topr=-20~+70℃ Tstg=-55~+125℃	Signal Delay Time	tD1 (O1)	fcp=10kHz~100kHz	1.98		19.8	ms		
				tD2 (O2)		3.31		33.1	ms		
				tD3 (O3)		5.97		59.7	ms		
				tD4 (O4)		8.63		86.3	ms		
				tD5 (O5)		13.95		139.5	ms		
				tD6 (O6)		16.64		166.4	ms		
		Operating Condition	VDD=-15V	Input Signal Frequency	fi	fcp=40kHz, -3dB			11	kHz	
			VGG=VDD+1V	Input Signal Swing	Vi	THD=2.5%			1.1	Vrms	
				Insertion Loss	Li	fcp=40kHz, fi=1kHz		0		dB	
				Total Harmonic Distortion	THD	fcp=40kHz, fi=1kHz, Vi=0.78Vrms		0.4		%	
				Output Noise Voltage	Vno1	fcp=100kHz Weighted "A" curve	O1~O3			0.27	mVrms
					Vno2		O4~O6			0.4	mVrms
				Signal to Noise Ratio	S/N1		O1~O3	80			dB
					S/N2		O4~O6	76			dB
MN3012	BBD with 3-Output for Audio Signal Delays (190-stage 5-stage 3-stage)	VTE=-18~+0.3V VO=-18~+0.3V Topr=-20~+70℃ Tstg=-55~+125℃	Signal Delay Time		fcp=10kHz~200kHz						
			OUT 1 Terminal	tD1		0.457		9.5	ms		
			OUT 2 Terminal	tD2		0.0125		0.25	ms		
			OUT 3 Terminal	tD3	0.0075		0.15	ms			
			Input Signal Frequency		fcp=40kHz 3dB down						
			OUT 1 Terminal	fi1				12	kHz		
		Operating Condition	OUT 2 Terminal	fi2				14	kHz		
			OUT 3 Terminal	fi3			15	kHz			
		VDD=-15V	Input Signal Swing	Vi	THD≤2.5%			1.2	Vrms		
			Insertion Loss	Li	fcp=40kHz, fi=1kHz		0		dB		
			Total Harmonic Distortion	THD	Vi=0.78Vrms		0.4		%		
			Output Noise Voltage		fcp=100kHz Weighted "A" curve						
			OUT 1 Terminal	Vno1				0.14	mVrms		
			OUT 2 Terminal	Vno2				0.14	mVrms		
			OUT 3 Terminal	Vno3				0.14	mVrms		
			Signal to Noise Ratio		fcp=100kHz Weighted "A" curve						
			OUT 1 Terminal	S/N1			90		dB		
			OUT 2 Terminal	S/N2			97		dB		
			OUT 3 Terminal	S/N3			98		dB		
		△MN3204	512-Stage Low Voltage Operation BBD for Audio Signal Delays	VTE=-0.3~+11V VO=-0.3~+11V Topr=-20~+60℃ Tstg=-55~+125℃	Signal Delay Time	tD	fCP=10kHz~200kHz	1.28		25.6	ms
					Input Signal Frequency	fi	fCP=40kHz, 3dB down			12	kHz
					Input Signal Swing	Vi	fCP=40kHz fi=1kHz	THD=2.5%		0.5	Vrms
					Insertion Loss	Li			0		dB
					Total Harmonic Distortion	THD		Vi=0.25Vrms	0.4		%
Operating Condition	Noise Voltage				Vno	fcp=100kHz Weighted "A" curve			0.14	mVrms	
	Signal to Noise Ratio			S/N			77		dB		
VDD=5V VGG=4.67V											

△ Preliminary

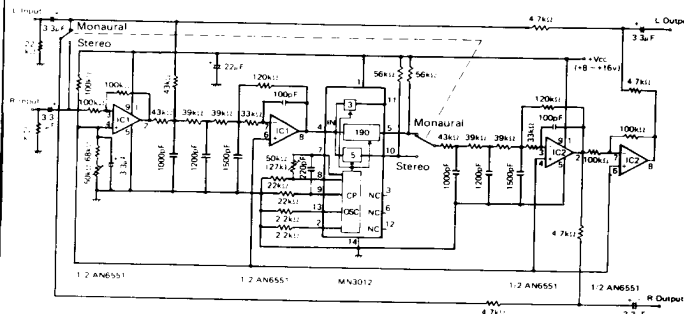
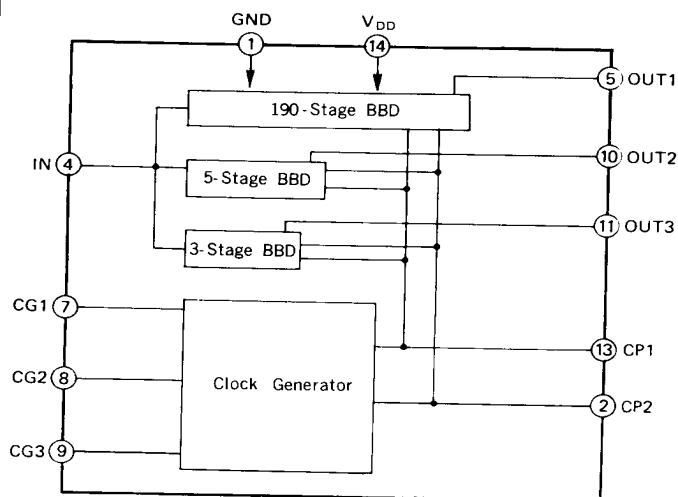
MOS IC, LSI

Application Circuit



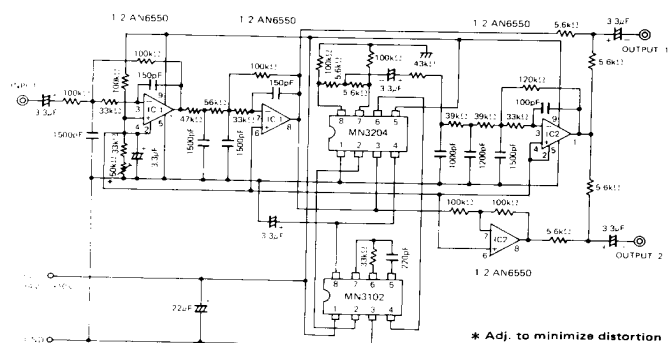
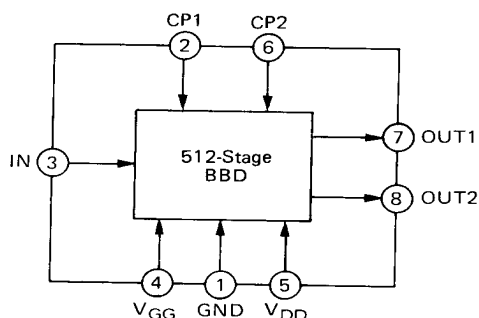
* Adj. to minimize distortion
† V_{CC} must be under $-18V$

Reverberation Effect (Single delay over 100ms)



* Adj. to minimize distortion

Ambience Circuit (Stereo Input)



* Adj. to minimize distortion

Monaural Ambience Circuit