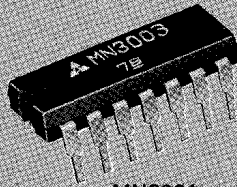
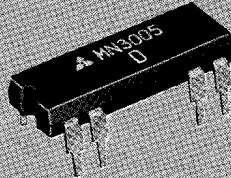


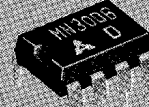
BBD's for variable delay lines in audio frequency range.



MN3001
MN3002
MN3003
MN3004
MN3010

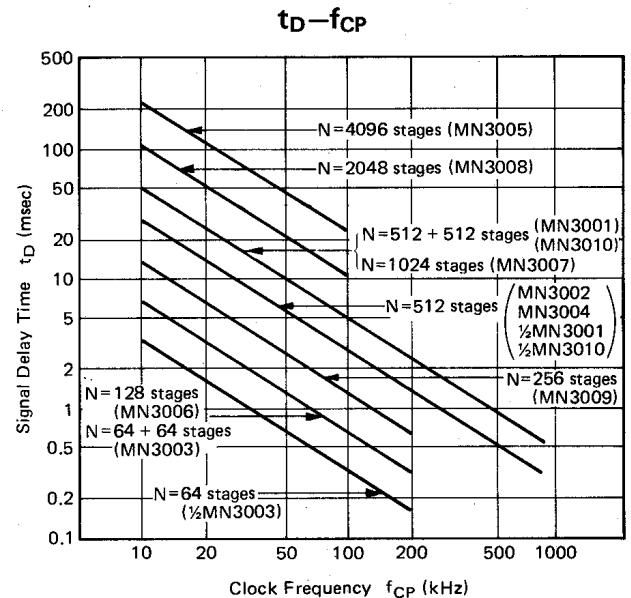


MN3005
MN3008



MN3006
MN3007
MN3009

- P-channel silicon gate; tetrode MOS transistors configuration
- Signal delay: 6.4 msec to 204.8 msec
- Clock frequency range: 10 ~ 200 kHz
- Signal to noise ratio: 70dB ~ 90dB (typ.)
- Low distortion



Stage		Type No.	Noise	Application
64	Dual Type	MN3003	Low Noise Types	Reverberation Effect (Signal Delay under 10 msec) Vibrato Effect *1 Chorus Effect *2 Phasor/Flanger Effect *3
128	Single Type	MN3006		
256		MN3009		
512		MN3004		
		MN3002	Standard Types	Echo Effect (Signal Delay over 10 msec.) Double Voicing Effect *4
	MN3001			
	Dual Type	MN3010	Low Noise Types	
1024		MN3007		
2048	Single Type	MN3008		Reverberation Effect (Signal Delay over 100 msec.)
4096		MN3005		

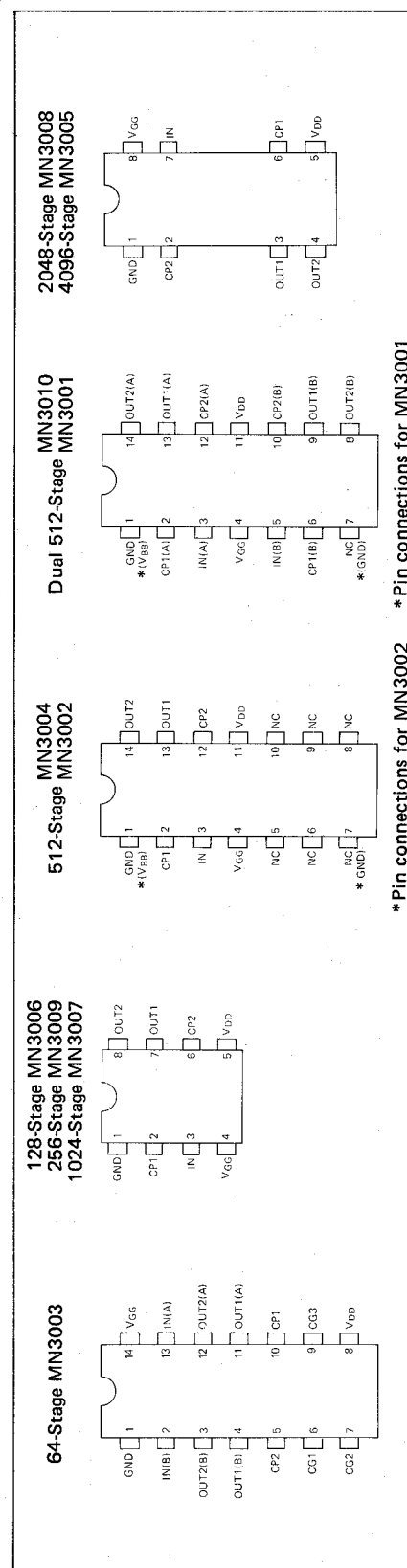
*1 Vibrato Effect: Several H_z modulation effect of the clock frequency for BBD.

*2 Chorus Effect: Mixing effect of the original signal and the attenuated delayed signal.

*3 Phasor/Flanger Effect: Effect of either the sum or difference of the original signal and the delayed signal.

*4 Double Voicing Effect: Mixing effect of the original signal and the delayed signal.

Δ Preliminary														
Item		Symbol	MN3001	MN3002	MN3003	MN3004	MN3005	MN3006	Δ MN3007	Δ MN3008	Δ MN3009	Δ MN3010	Unit	
Circuit Construction	Number of BBD		Dual-512	512	Dual-64	512	4096	128	1024	2048	256	Dual-512	Stage	
	Clock Generator		External		Built-in	External								
	Output Terminal		Pair											
Operating Conditions	Drain Supply Voltage	VDD	-15	-15	-9	-15	-15	-15	-15	-15	-15	-15	V	
	Gate Supply Voltage	VGG	-14	-14	-8	-14	-14	-14	-14	-14	-14	-14	V	
	Back-Gate Bias Voltage	VBB	+5	Not Needed										V
	Clock Voltage "H"	VCPH	0	0	0	0	0 ~ -1	0 ~ -1	0 ~ -1	0 ~ -1	0 ~ -1	0 ~ -1	V	
	Clock Voltage "L"	VCPL	-15	-15	-9	-15	-15	-15	-15	-15	-15	-15	V	
	Input DC Bias	Vbias	-3.3 ~ -4.9	-2.5 ~ -6	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	-5 ~ -10	V
Electrical Characteristics	Input Signal Frequency (fcp = 40kHz, 3dB down)	fi	12			10			12			14	12	kHz (max.)
	Input Signal Swing	Vi	1.8	0.8	1.8	1.2	1.8	1.5	1.5	1.5	1.7	1.8	Vrms(max.)	
	Insertion Loss	Li	8.5	3.5	1.5	0	0	0	0	0	0	0	dB (typ.)	
	Total Harmonic Distortion	THD	0.4	0.5	0.4	1	0.2	0.5	0.5	0.5	0.3	0.4	% (typ.)	
	Noise Level	VN	250 (typ.)	100 (typ.)	210	400	80	250	300	150	210	210	μV (max.)	
	Signal to Noise Ratio	S/N	70	75	85	75	90	80	78	88	85	85	dB (typ.)	
Package (Molded Package)	Signal Delay Time	td	51.2	25.6	6.4	25.6	204.8	6.4	51.2	102.4	12.8	51.2	msec (max.)	
			14-Pin DIP			Larger 8-Pin DIP	8-Pin DIP			Larger 8-Pin DIP	8-Pin DIP	14-Pin DIP		



The device specification are subject to change without priornotice.

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