



MM5554 frequency divider general description

The MM5554 frequency divider provides six stages of binary division to produce six octave-related outputs of an electronic musical instrument tone generator. Each divider stage consists of an asynchronous, DC-coupled flip-flop. The six stages are internally connected in cascades of one, two, and three flip-flops. Each flip-flop drives a push-pull output buffer, which provides low output impedance in both logic states. Two of the internal cascades also provide trigger outputs for use in cascading the divider stages. The timing diagram shown results from connecting the same input trigger to all three inputs.

The MM5554 complements the MM5555/MM5556

chromatic frequency generator; output characteristics and power supply requirements are compatible. The MM5554 is packaged in a 14-lead dual-in-line package.

features

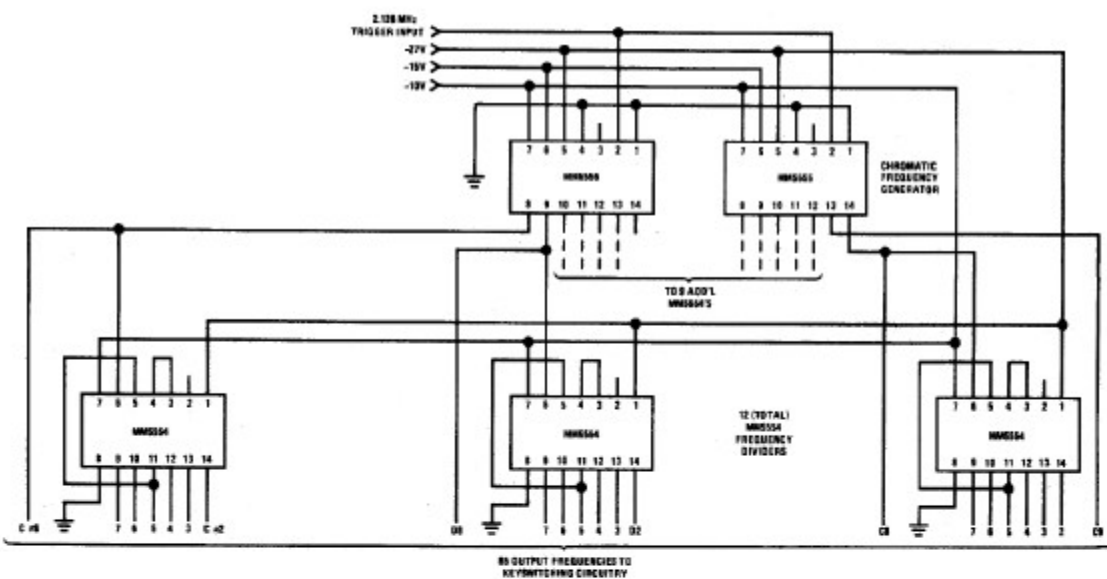
- 0 to 500 kHz toggle frequency
- 1-, 2-, 3-stage partitioning

applications

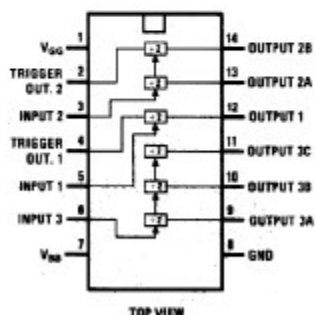
- Electronic organs
- Electronic music synthesizers
- Musical instrument tuners

logic and connection diagrams

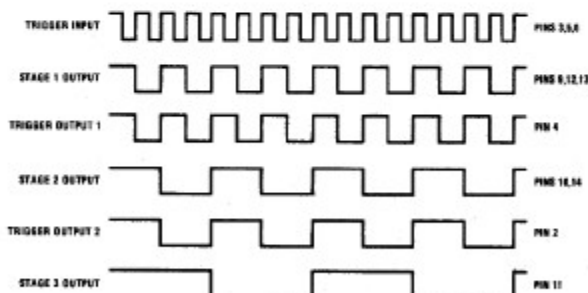
Typical Organ Tone Generator



Dual-In-Line Package



Timing Diagram



MM5554 frequency divider

absolute maximum ratings

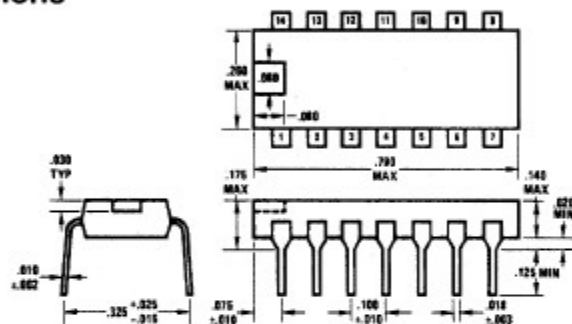
	SYMBOL	MIN	MAX	UNITS
Logic Supply Voltage	V_{GG}	+0.3	-33	V
Buffer Supply Voltage	V_{BB}	+0.3	-18	V
Trigger Input Voltage	V_{IT}	+0.3	-18	V
Power Dissipation	P_D		250	mW
Storage Temperature	T_S	-55	+100	°C
Operating Temperature	T_A	0	+70	°C

electrical characteristics

T_A within operating range ($V_{GG} = -27 \pm 2V$, $V_{BB} = -10 \pm .5V$), unless otherwise noted.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
Inputs:					
Frequency	f_{IT}	DC		500	kHz
Rise and Fall Times (10% to 90%)	t_r, t_f			25	μs
Pulse Width (at 90%)	p_w	1			μs
Logical High Level	V_{ITH}	+0.3	0	-2.5	V
Logical Low Level	V_{ITL}	-7.0	-10	-18	V
Leakage Current @ $V_{ITL} = -18V$	I_{ITL}			1.0	μA
Trigger Outputs: (loaded 10M ohm to ground, $T_A = 25^\circ C$)					
Logical High Level	V_{OTH}	0		-1.5	V
Logical Low Level	V_{OTL}	-10			V
Outputs: (loaded 20K ohm to ground and 20K ohm to V_{BB}, $T_A = 25^\circ C$)					
Logical High Level	V_{OH}	0		-1.0	V
Logical Low Level	V_{OL}	-8.0		V_{BB}	V
Supply Currents: (no output loads, $T_A = 25^\circ C$)					
Logic Supply	I_{GG}		2	4	mA
Buffer Supply	I_{BB}			20	μA

physical dimensions



Molded Dual-In-Line Package (N)
Order Number MM5554N

Manufactured under one or more of the following U.S. patents: 3083262, 3189758, 3231797, 3303356, 3317671, 3323071, 3381071, 3408542, 3421025, 3426423, 3440498, 3518750, 3519897, 3557431, 3560765, 3566218, 3571630, 3575609, 3579059, 3593069, 3597640, 3607469, 3617859, 3631312, 3633052, 3638131, 3648071, 3651565.

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