



AY-1-5050
AY-1-5051

AY-1-6721/5
AY-1-6721/6

4-5-6-7 Stage Frequency Dividers

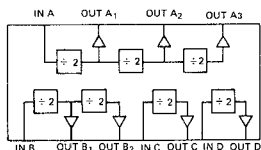
FEATURES

- DC to 1 MHz operating frequency range.
- Diode protection on all inputs.
- Low output impedance in both states.
- Choice of configurations:
 - 1) AY-1-5050: 7-Stage Frequency Divider, 3+2+1+1
 - 2) AY-1-5051: 4-Stage Frequency Divider, 2+1+1
 - 3) AY-1-6721/5: 5-Stage Frequency Divider, 3+2
 - 4) AY-1-6721/6: 6-Stage Frequency Divider, 3+2+1

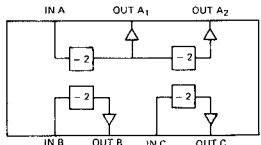
DESCRIPTION

The AY-1-5050, AY-1-5051, AY-1-6721/5 and the AY-1-6721/6 are constructed on monolithic silicon chips using MTOS (Metal-Thick-Oxide-Silicon) P-Channel Enhancement Mode Field Effect Transistors. All circuits can be driven from a sine or square wave input. The different types all have the same specifications and are fully compatible with one another.

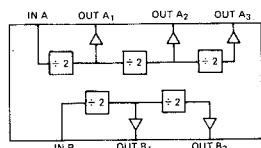
BLOCK DIAGRAMS



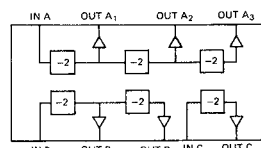
AY-1-5050



AY-1-5051



AY-1-6721/5

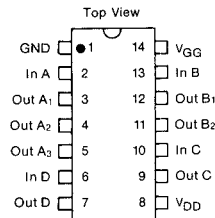


AY-1-6721/6

PIN CONFIGURATIONS

14 LEAD DUAL IN LINE

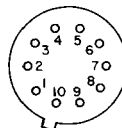
AY-1-5050



10 LEAD

AY-1-5051

Bottom View

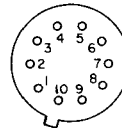


- | | |
|----------|-------------------|
| 1 Out A1 | 6 In C |
| 2 Out A2 | 7 Out C |
| 3 In B | 8 V _{GG} |
| 4 Out B | 9 V _{DD} |
| 5 GND | 10 In A |

10 LEAD

AY-1-6721/5

Bottom View

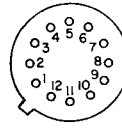


- | | |
|-------------------|--------------------|
| 1 GND | 6 In A |
| 2 Out B2 | 7 Out A1 |
| 3 Out B1 | 8 Out A2 |
| 4 In B | 9 Out A3 |
| 5 V _{GG} | 10 V _{DD} |

12 LEAD

AY-1-6721/6

Bottom View



- | | |
|----------|--------------------|
| 1 GND | 7 Out C |
| 2 In A | 8 V _{DD} |
| 3 Out A1 | 9 Out B2 |
| 4 Out A2 | 10 Out B1 |
| 5 Out A3 | 11 In B |
| 6 In C | 12 V _{GG} |



ELECTRICAL CHARACTERISTICS

Maximum Ratings*

Drain Voltage	−30V to +0.3V
Gate Voltage	−30V to +0.3V
Data Input Voltage	−30V to +0.3V
Storage Temperature	−55°C to +150°C
Operating Temperature (T _A)	0°C to +70°C

*Exceeding these ratings could cause permanent damage. Functional operation of these devices at these conditions is not implied —operating ranges are specified below.

Standard Conditions (unless otherwise noted)

V _{DD} = −13V ±1V	C _L = 10 pF
V _{GG} = −27V ±1V	Operating Temperature (T _A) = +25°C
R _L = 1M Ohm	

Characteristics	Min.	Typ**	Max	Units	Conditions
Data Input					
Logic "0" level	—	—	−2	V	Sine or square wave
Logic "1" level	−10	—	—	V	
Data Input operating freq.	DC	—	1	MHz	
Data Input Pulse width					
— "0" level	300	—	—	ns	V _{in} = −20VDC
— "1" level	300	—	—	ns	
Input Leakage	—	—	5	μA	
Output Parameters					
Logic "0" level	—	—	−1	V	Sinking current = 0.5 mA R _L = 100 KΩ R _L = 10 KΩ
Logic "1" level	−11	—	—	V	
Drive Capability					
— "0" level	—	−1	−1.5	V	
— "1" level	−11	—	—	V	V _{GG} = −27 V
— "1" level	−8	—	—	V	
Data output Rise and Fall time	—	0.6	—	μs	
Current Drain					
I _{GG}	—	3	—	mA	
I _{DD}	—	***	—	—	

**Typical values are at +25°C and nominal voltages.

*** V_{DD} is only used for the push-pull outputs therefore I_{DD} is equal to the sum of load currents. This separate V_{DD} enables tremulant to be introduced in the electronic organ application.

TIMING DIAGRAM

