National Semiconductor

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MM5034/MM5035
Octal 80-Bit Static Shift Register

General Description

The MM5034 octal 80-bit shift register is a monolithic MOS integrated circuit utilizing N-channel low threshold enhancement mode and ion-implanted depletion mode devices.

The MM5034 is designed for use in computer display peripherals. All inputs and outputs are TTL compatible. The clocks and recirculate logic are internal to reduce system component count, and TRI-STATE® output buffers provide bus interface. Because of its N-channel characteristics, single 5V power supply operation is required.

Simple interface to the NSC CRT DP8350 controller and character generator to incorporate an entire CRT terminal is feasible with the MM5034.

The MM5034 is available in a 22-lead dual-in-line package.

The MM5035 is a 20-pin version of the MM5034 with the TRI-STATE output select feature omitted, for a simple data in/data out operation.

Features

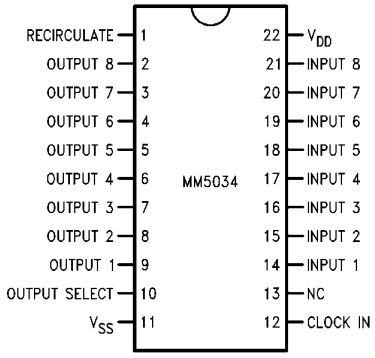
- Single 5V power supply
- Internal clocks
- High speed and static operation
- TRI-STATE output buffer
- Recirculate and outut select independent
- TTL compatible

Applications

- CRT displays
- Computer peripherals

Connection Diagrams

Dual-In-Line Package

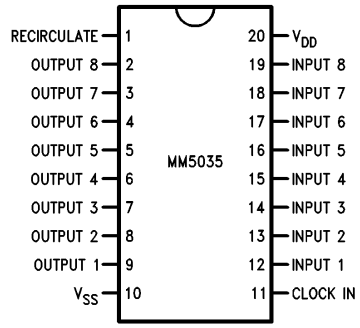


TL/F/10821–1

Top View

Order Number MM5034N
See NS Package Number N22A

Dual-In-Line Package



TL/F/10821–2

Top View

Order Number MM5035N
See NS Package Number N20A

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RRD-B30M105/Printed in U. S. A.

Absolute Maximum Ratings

If Military/Aerospace specified devices are required, please contact the National Semiconductor Sales Office/Distributors for availability and specifications.

Supply Voltage	7 V_{DC}
Input Voltage	7 V_{DC}
Power Dissipation	750 mW
Storage Temperature Range	−65°C to +150°C
Lead Temperature (Soldering, 10 sec.)	300°C

Electrical Characteristics $V_{DD} = 5V \pm 5\%$, $T_A = 0°C$ to $+70°C$

Parameter	Conditions	Min	Typ	Max	Units
Clock Input					
Logical "1" Input Voltage		2.2			V
Logical "0" Input Voltage				0.8	V
Data and Control Inputs					
Logical "1" Input Voltage		2.2			V
Logical "0" Input Voltage				0.8	V
Data, Clock and Control Inputs					
Logical "1" Input Current	$V_{IN} = 5V$			5.0	μA
Input Capacitance	$V_{IN} = 2.5V$		5.0	8.0	pF
Outputs					
Logical "1" Output Voltage	$I_{OUT} = 100\ \mu A$	2.4	2.8		V
Logical "0" Output Voltage	$I_{OUT} = 1.6$ mA		0.25	0.4	V
TRI-STATE Output Current	$V_{OUT} = 5V$			−5.0	μA
	$V_{OUT} = 0V$			5.0	μA
Supply Current			60	90	mA
Timing					
Clock Frequency		0		3.0	MHz
Clock Pulse Width High	*(Figure 1)*	125		10,000	ns
Clock Pulse Width Low	(Note 1)	125		∞	ns
Output Rise and Fall Time (t_r, t_f)	*(Figure 1)*		40	50	ns
Set-Up Time	*(Figure 1)*	100			ns
Hold Time	*(Figure 1)*	0			ns
Output Enable Time	*(Figure 1)*			185	ns
Output Disable Time	*(Figure 1)*			185	ns
Clock Rise and Fall Time	*(Figure 1)*			5.0	μs
Output Delay, (t_{PD})			80	185	ns

Note 1: The clock input must be a low level for DC storage. Minimum width assumes 10 ns t_r and t_f.

Recirculate and TRI-STATE Operation

Recirculate is used to maintain data in the shift register after it has been loaded. While the shift register is being loaded, Recirculate must be at a logical "0". When the loading is completed, Recirculate should be brought to a logical "1". This disables the data input and feeds the output of the last shift cell back to the input of the first shift cell for each of the 8 registers.

For the output to be in the TRI-STATE mode output-select should be at the logical "1" level.

AC Test Circuits and Switching Time Waveforms

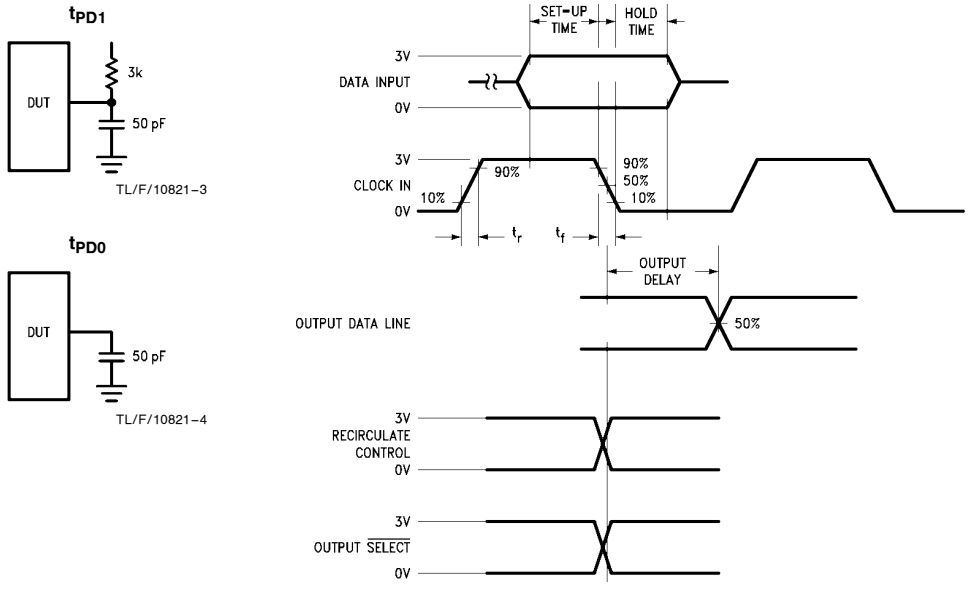


FIGURE 1

Typical Application

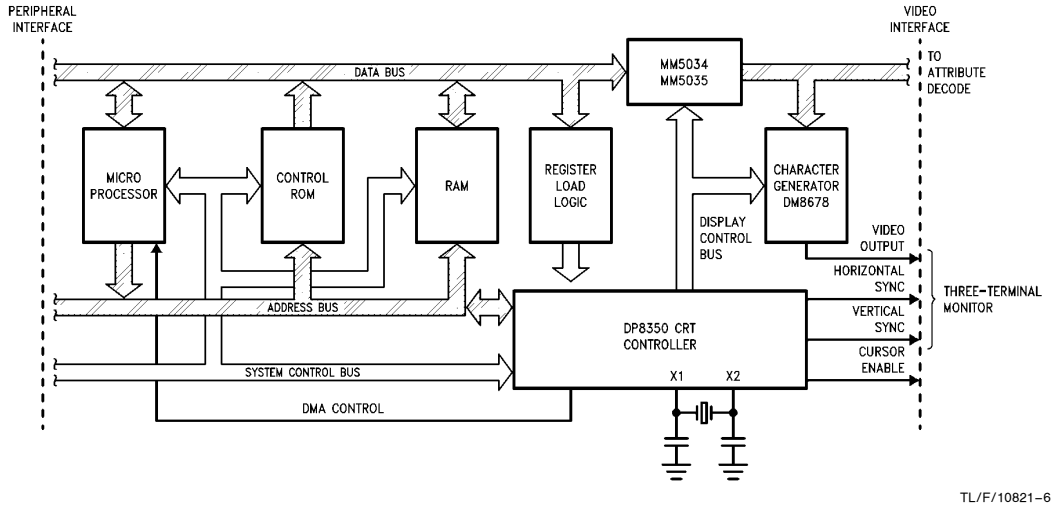
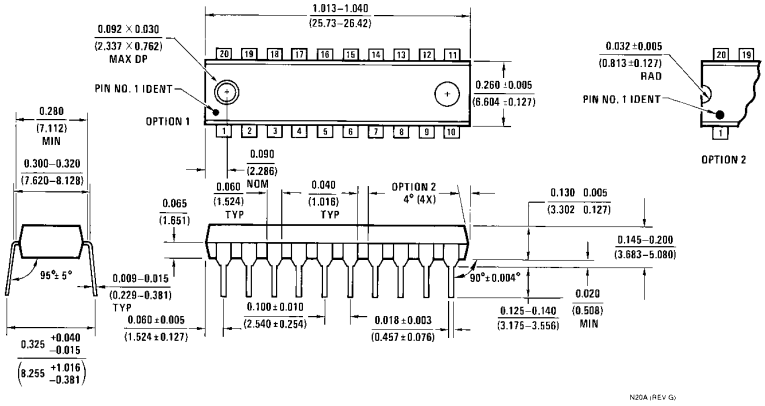
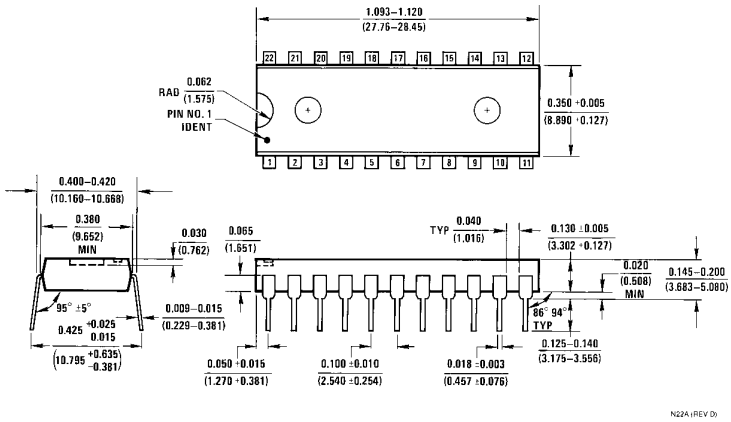


FIGURE 2. CRT System Diagram Using the MM5034, MM5035 as a Line Buffer with DMA

Physical Dimensions inches (millimeters)



20-Lead Molded Dual-In-Line Package (N)
Order Number MM5035N
NS Package Number N20A



22-Lead Molded Dual-In-Line Package (N)
Order Number MM5034N
NS Package Number N22A

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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