S-34 ORIG

002641

T-2641 GI

SL-5-2064
SL-6-2064
SL-7-2064*

Dual 64-Bit Static Shift Registers

FEATURES

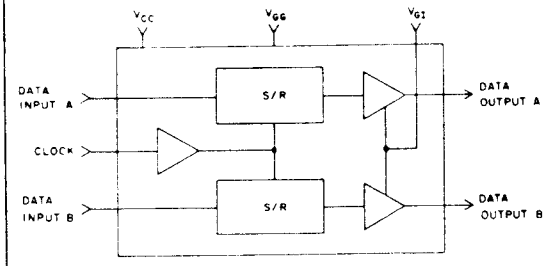
- TTL/DTL Compatible Clock Input
- TTL/DTL Compatible Data—
  No external interfacing components required on data inputs or outputs.
- DC-1MHz Operation
- Full Static Operation—
  Data is stored independently of the clock logic level.
- Two Temperature Ranges—
  SL-5 & SL-7: 0°C to +70°C
  SL-6: -55°C to +125°C
- Zener Protected Inputs
- Glass Passivation Protection

DESCRIPTION

The SL-5-2064, SL-6-2064 and SL-7-2064 are dual 64-bit static shift registers with clock and data inputs and outputs that interface directly with TTL/DTL logic arrays without the use of any special interface components. These devices contain two independent common clock 64-bit DC to 1MHz shift register, constructed on a single monolithic chip utilizing MTNS P—Channel enhancement mode transistors. Each shift register bit is implemented with a cross coupled flip-flop, so that data is stored indefinitely regardless of the logic level of the clock. A single phase clock input is provided for both registers. Data on the input is sampled while the clock is at a "0" level and the register shifts on a "0" to "1" transition.

*Available only in Europe (14 Lead Plastic DIP)

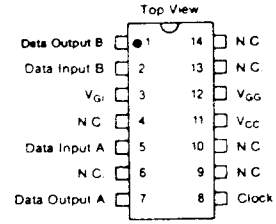
BLOCK DIAGRAM



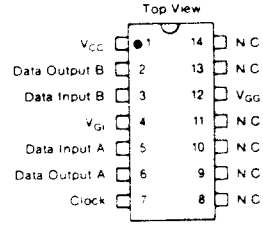
PIN CONFIGURATIONS

14 LEAD DUAL IN-LINE

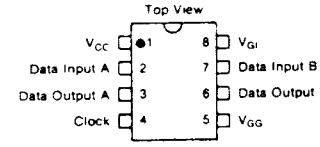
SL-5-2064, SL-6-2064



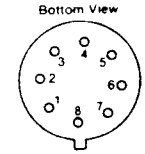
SL-7-2064*



8 LEAD DUAL IN-LINE



8 LEAD TO-78



ELECTRICAL CHARACTERISTICS

Maximum Ratings*

V_{GG} and V_{GI} with respect to V_{CC} ..... -20V to +0.3V
Clock and Data Inputs with respect to V_{CC} ..... -15V to +0.3V
Storage Temperature ..... -65°C to +150°C
Operating Temperature: SL-5-2064, SL-7-2064 ... 0°C to +70°C
SL-6-2064 ..... -55°C to +125°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_{CC} = +5 Volts ±0.5 Volts (V_{CC} is the substrate voltage)
V_{GG} = -12 Volts ±1 Volt
V_{GI} = GND
Operating Temperature (T_A) = 0°C to +70°C (SL-5-2064, SL-7-2064)
= -55°C to +125°C (SL-6-2064)
One TTL load (C_L total = 10 pF)

Characteristic	Symbol	Min	Typ**	Max	Units	Conditions
DC CHARACTERISTICS						
Clock Input						
Logic 1 Level	$V_{\phi H}$	V_{CC}-1.5	—	—	Volts	
Logic 0 Level	$V_{\phi L}$	—	—	+0.8	Volts	
Leakage	$I_{L\phi}$	—	—	10	µA	$V_{in} = V_{CC}$ -10V
Data Input						
Logic 1 Level	V_{IH}	V_{CC}-1.5	—	—	Volts	
Logic 0 Level	V_{IL}	—	—	+0.8	Volts	
Leakage	I_{LI}	—	—	10	µA	$V_{in} = V_{CC}$ -10V
Data Output						
Logic 1 Level	V_{OH}	V_{CC}-1.0	—	—	Volts	I_{OH} = 100 µA
Logic 0 Level	V_{OL}	—	—	+0.4	Volts	I_{OL} = 1.6mA
Power	—	—	200	275	mW	SL-5-2064, SL-7-2064
	—	—	200	300	mW	SL-6-2064
AC CHARACTERISTICS						
Clock Input						
Frequency	f	DC	—	1.0	MHz	
Pulse Width	$t_{\phi pw}$	450	250	—	ns	$t_f + t_{\phi pw} + t_r$
Pulse Delay	$t_{\phi d}$	450	—	—	ns	$+t_{\phi d} \geq 1$ µsec
Rise and Fall Times	t_r, t_f	—	—	1000	ns	
Capacitance	C_ϕ	—	20	—	pF	1MHz, T_A = +25°C
Data Input						
Set Up Time	t_{DS}	350	250	—	ns	
Hold Time	t_{DH}	10	0	—	ns	
Capacitance	C_I	—	5	—	pF	1MHz, T_A = +25°C
Data Output						
Propagation Delay	t_{pd}	—	300	400	ns	SL-5-2064, SL-7-2064
	t_{pd}	—	300	500	ns	SL-6-2064

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

TIMING DIAGRAM