

**FEATURES**

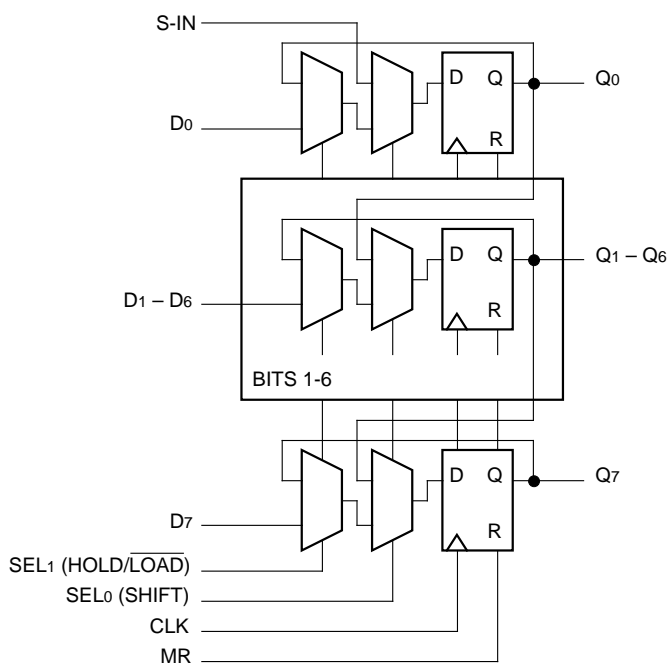
- 1000ps max. CLK to output
- Extended 100E VEE range of -4.2V to -5.5V
- SHIFT overrides HOLD, /LOAD control
- Asynchronous Master Reset
- Pin-compatible with E141
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E241
- Available in 28-pin PLCC package

**DESCRIPTION**

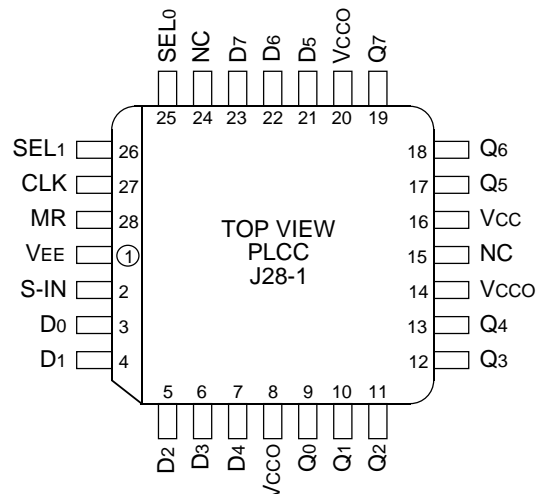
The SY10/100E241 are 8-bit shiftable registers designed for use in new, high-performance ECL systems. Unlike the E141, the E241 features internal data feedback organized such that the SHIFT control overrides the HOLD, /LOAD control. Thus, the normal operations of HOLD and LOAD can be toggled with a single control line without the need for external gating. This configuration also enables switching to scan mode with the single SHIFT control line.

The eight inputs D<sub>0</sub>-D<sub>7</sub> accept parallel input data, while S-IN accepts serial input data when in shift mode. Data is accepted a set-up time before the rising edge of CLK. Shifting is also accomplished on the rising clock edge. A HIGH on the Master Reset pin (MR) asynchronously resets all the registers to zero.

**BLOCK DIAGRAM**



**PIN CONFIGURATION**



**PIN NAMES**

Pin	Function
D <sub>0</sub> -D <sub>7</sub>	Parallel Data Inputs
S-IN	Serial Data Input
SEL <sub>0</sub>	SHIFT Control
SEL <sub>1</sub>	HOLD, /LOAD Control
CLK	Clock
MR	Master Reset
Q <sub>0</sub> -Q <sub>7</sub>	Data Outputs
VCC <sub>0</sub>	VCC to Output

**TRUTH TABLE**

SEL <sub>0</sub>	SEL <sub>1</sub>	Function
L	L	Load
L	H	Hold
H	X	Shift (D <sub>n</sub> to D <sub>n+1</sub> )

**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CC0</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	μA	—	
I <sub>EE</sub>	Power Supply Current	10E	—	125	150	—	125	150	—	125	150	mA	—
		100E	—	125	150	—	125	150	—	144	173		

**AC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CC0</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
f <sub>SHIFT</sub>	Max. Shift Frequency	700	900	—	700	900	—	700	900	—	MHz	—
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output CLK MR	625 600	750 725	975 975	625 600	750 725	975 975	625 600	750 725	975 975	ps	—
t <sub>s</sub>	Set-up Time										ps	—
	D	175	25	—	175	25	—	175	25	—		
	SEL <sub>0</sub> (SHIFT) 350	200	—	350	200	—	350	200	—	—		
	SEL <sub>1</sub> (HOLD/LOAD) S-IN	400 125	250 -100	— —	400 125	250 -100	— —	400 125	250 -100	— —		
t <sub>H</sub>	Hold Time										ps	—
	D	200	-25	—	200	-25	—	200	-25	—		
	SEL <sub>0</sub> (SHIFT)	100	-200	—	100	-200	—	100	-200	—		
	SEL <sub>1</sub> (HOLD/LOAD) S-IN	50 300	-250 100	— —	50 300	-250 100	— —	50 300	-250 100	— —		
t <sub>RR</sub>	Reset Recovery Time	900	600	—	900	600	—	900	600	—	ps	—
t <sub>PW</sub>	Minimum Pulse Width CLK, MR	400	—	—	400	—	—	400	—	—	ps	—
t <sub>skew</sub>	Within-Device Skew	—	60	—	—	60	—	—	60	—	ps	1
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Time 20% to 80%	300	525	800	300	525	800	300	525	800	ps	—

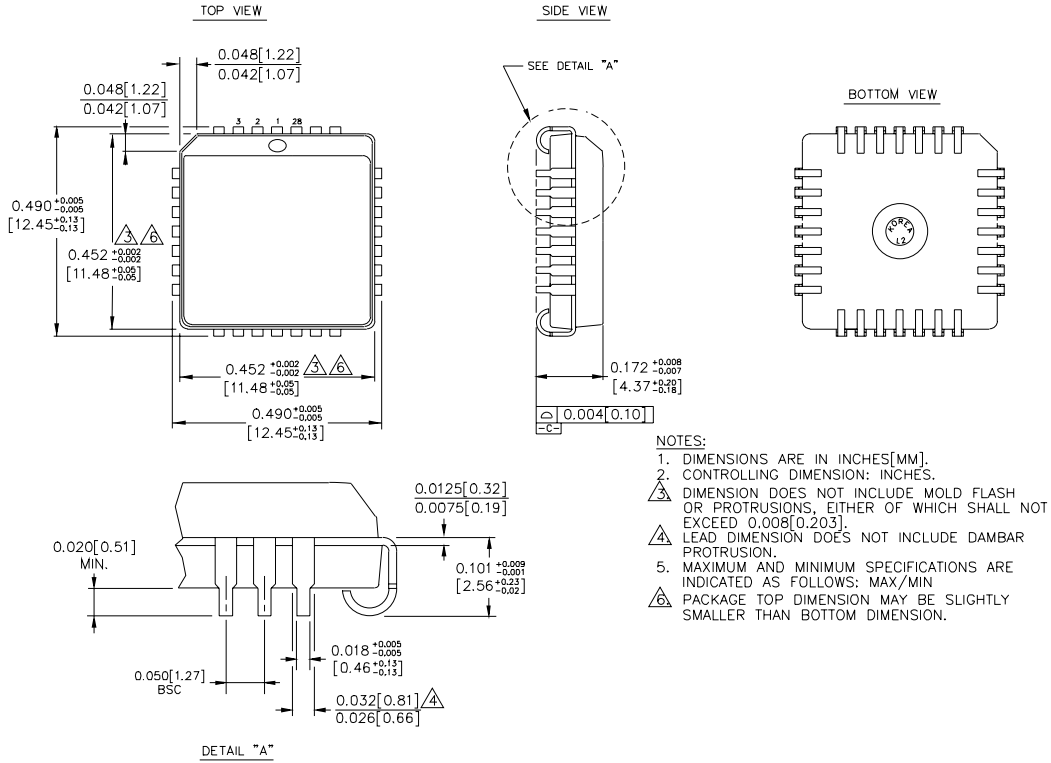
**NOTE:**

1. Within-device skew is defined as identical transitions on similar paths through a device.

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY10E241JC	J28-1	Commercial
SY10E241JCTR	J28-1	Commercial
SY100E241JC	J28-1	Commercial
SY100E241JCTR	J28-1	Commercial

**28 LEAD PLCC (J28-1)**



Rev. 03

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**MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA**

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