FEATURES

- 700MHz min. shift frequency
- Extended 100E V_{EE} range of –4.2V to –5.5V
- 8 bits wide
- Bi-directional
- Four selectable modes for full functionality
- Asynchronous Master Reset
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E141
- Pin-compatible with E241
- Available in 28-pin PLCC package

DESCRIPTION

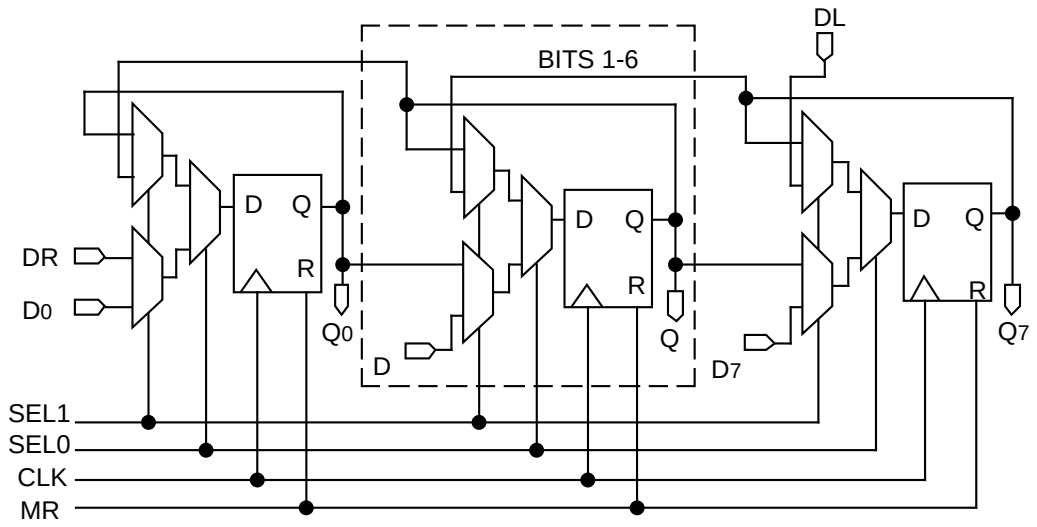
The SY10/100E141 are 8-bit, full-function shift registers designed for use in new, high-performance ECL systems. The E141 performs serial/parallel in and serial/parallel out, shifting in either direction. The eight inputs D_0–D_7 accept parallel input data, while DL/DR accept serial input data for left/right shifting.

The two select pins, SEL_0 and SEL_1 permit four modes of operation: Load, Hold, Shift Left and Shift Right, as shown in the Truth Table. Input data is clocked into the register on the rising clock edge after meeting the minimum set-up time. A logic HIGH on the Master Reset (MR) pin asynchronously resets all the registers to zero.

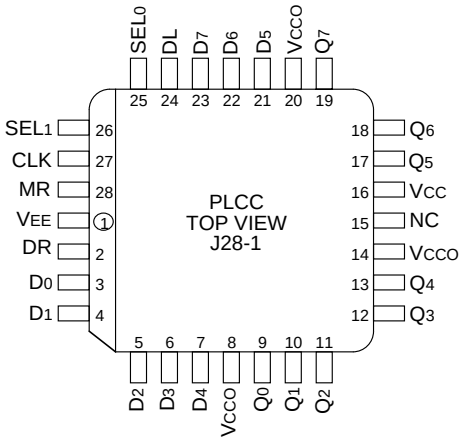
PIN NAMES

Pin	Function
D_0-D_7	Parallel Data Inputs
DL, DR	Serial Data Inputs
SEL_0, SEL_1	Mode Select Inputs
CLK	Clock
Q_0-Q_7	Data Outputs
MR	Master Reset
V_{CCO}	V_{CC} to Output

BLOCK DIAGRAM



PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information[1]

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E141JC	J28-1	Commercial	SY10E141JC	Sn-Pb
SY10E141JCTR[2]	J28-1	Commercial	SY10E141JC	Sn-Pb
SY100E141JC	J28-1	Commercial	SY100E141JC	Sn-Pb
SY100E141JCTR[2]	J28-1	Commercial	SY100E141JC	Sn-Pb
SY10E141JY[3]	J28-1	Industiral	SY10E141JY with Pb-Free bar-line indicator	Matte-Sn
SY10E141JYTR[2, 3]	J28-1	Industrial	SY10E141JY with Pb-Free bar-line indicator	Matte-Sn
SY100E141JY[3]	J28-1	Industrial	SY100E141JY with Pb-Free bar-line indicator	Matte-Sn
SY100E141JYTR[2, 3]	J28-1	Industrial	SY100E141JY with Pb-Free bar-line indicator	Matte-Sn

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25°C$, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

TRUTH TABLE

Function	DL	DR	SEL_0	SEL_1	MR	CLK	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6	Q_7
Load	X	X	L	L	L	Z	D_0	D_1	D_2	D_3	D_4	D_5	D_6	D_7
Shift Right	X	L	L	H	L	Z	L	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	Q_6
	X	H	L	H	L	Z	H	L	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5
Shift Left	L	X	H	L	L	Z	L	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	L
	H	X	H	L	L	Z	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	L	H
Hold	X	X	H	H	L	Z	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	L	H
	X	X	H	H	L	Z	Q_0	Q_1	Q_2	Q_3	Q_4	Q_5	L	H
Reset	X	X	X	X	H	X	L	L	L	L	L	L	L	L

DC ELECTRICAL CHARACTERISTICS

V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
I_{IH}	Input HIGH Current	—	—	150	—	—	150	—	—	150	µA	—
I_{EE}	Power Supply Current										mA	—
	10E	—	131	157	—	131	157	—	131	157		
	100E	—	131	157	—	131	157	—	151	181		

AC ELECTRICAL CHARACTERISTICS

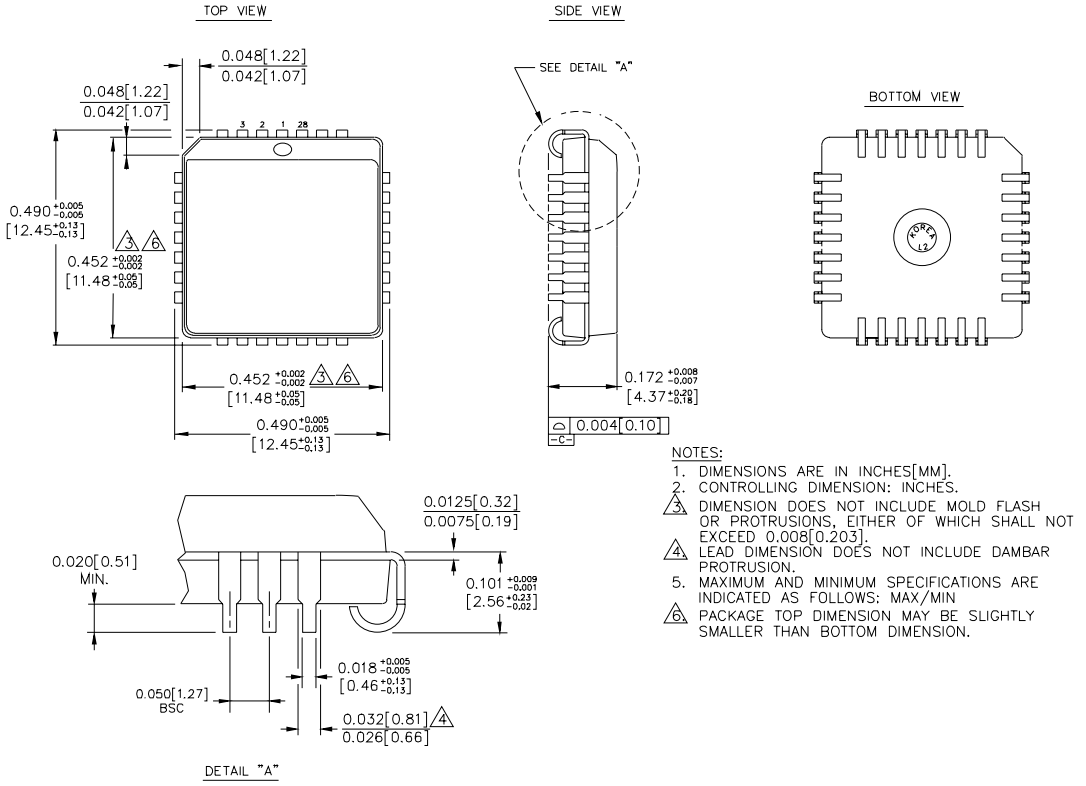
V_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T_A = 0°C			T_A = +25°C			T_A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
f_{SHIFT}	Max. Shift Frequency	700	900	—	700	900	—	700	900	—	MHz	—
t_{PD}	Propagation Delay to Output										ps	—
	CLK	625	750	975	625	750	975	625	750	975		
	MR	600	725	975	600	725	975	600	725	975		
t_S	Set-up Time										ps	—
	D	175	25	—	175	25	—	175	25	—		
	SEL_0	350	200	—	350	200	—	350	200	—		
	SEL_1	300	150	—	300	150	—	300	150	—		
t_H	Hold Time										ps	—
	D	200	–25	—	200	–25	—	200	–25	—		
	SEL_0	100	–200	—	100	–200	—	100	–200	—		
	SEL_1	100	–150	—	100	–150	—	100	–150	—		
t_{RR}	Reset Recovery Time	900	700	—	900	700	—	900	700	—	ps	—
t_{PW}	Minimum Pulse Width CLK, MR	400	—	—	400	—	—	400	—	—	ps	—
t_{skew}	Within-Device Skew	—	60	—	—	60	—	—	60	—	ps	1
t_r t_f	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.

28-PIN PLCC (J28-1)



NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008[0.203].
4. LEAD DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION.
5. MAXIMUM AND MINIMUM SPECIFICATIONS ARE INDICATED AS FOLLOWS: MAX/MIN
6. PACKAGE TOP DIMENSION MAY BE SLIGHTLY SMALLER THAN BOTTOM DIMENSION.

Rev. 03

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