



**9-BIT SHIFT REGISTER**

**SY10E142  
SY100E142**

**FEATURES**

- 700MHz min. shift frequency
- Extended 100E VEE range of -4.2V to -5.5V
- 9 bits wide for byte-parity applications
- Asynchronous Master Reset
- Dual clocks
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E142
- Available in 28-pin PLCC package

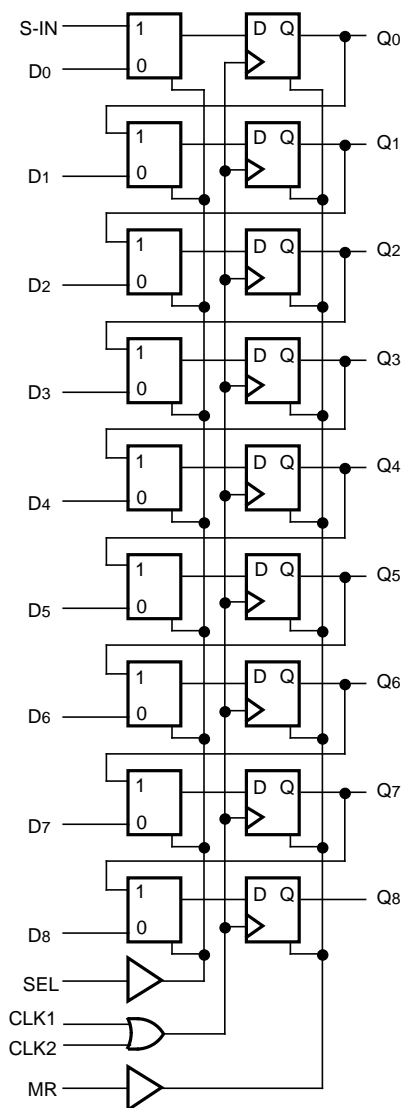
**DESCRIPTION**

The SY10/100E142 are high-speed 9-bit shift registers designed for use in new, high-performance ECL systems. The E142 can accept serial or parallel data to be shifted out in one direction as both serial and parallel outputs. The nine inputs, D0-D8, accept parallel input data, while S-IN accepts serial input data.

The SEL (Select) control pin serves to determine the mode of operation, either SHIFT or LOAD. The shift direction is from bit 0 to bit 8. The input data has to meet the set-up time before being clocked into the nine input registers on the rising edge of CLK1 or CLK2. Shifting is also performed on the rising edge of either CLK1 or CLK2. The MR (Master Reset) control signal asynchronously resets all nine registers to a logic LOW when a logic HIGH is applied to MR.

The E142 is designed for applications such as diagnostic scan registers, parallel-to-serial conversions and is also suitable for byte-wide parity.

**BLOCK DIAGRAM**

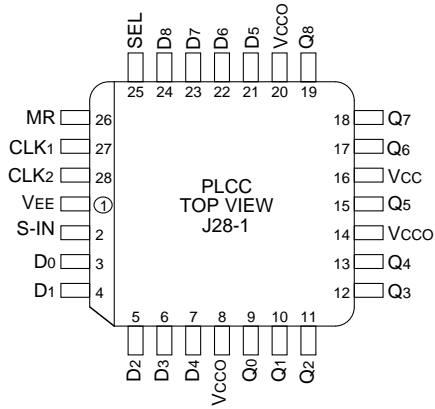


**PIN NAMES**

Pin	Function
D0-D8	Parallel Data Inputs
S-IN	Serial Data Input
SEL	Mode Select Input
CLK1, CLK2	Clock Inputs
MR	Master Reset
Q0-Q8	Data Outputs
VCCO	Vcc to Output

**PACKAGE/ORDERING INFORMATION**

**Ordering Information<sup>(1)</sup>**



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

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E142JC	J28-1	Commercial	SY10E142JC	Sn-Pb
SY10E142JCTR <sup>(2)</sup>	J28-1	Commercial	SY10E142JC	Sn-Pb
SY100E142JC	J28-1	Commercial	SY100E142JC	Sn-Pb
SY100E142JCTR <sup>(2)</sup>	J28-1	Commercial	SY100E142JC	Sn-Pb
SY10E142JY <sup>(3)</sup>	J28-1	Industrial	SY10E142JY with Pb-Free bar-line indicator	Matte-Sn
SY10E142JYTR <sup>(2, 3)</sup>	J28-1	Industrial	SY10E142JY with Pb-Free bar-line indicator	Matte-Sn
SY100E142JZ <sup>(3)</sup>	J28-1	Commercial	SY100E142JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E142JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY100E142JZ with Pb-Free bar-line indicator	Matte-Sn

**Notes:**

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

**TRUTH TABLE**

SEL	MODE
L	LOAD
H	SHIFT

**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	—	—	—	—	—	—	—	—	—	mA	—
		10E	120	145	120	145	120	145	120	145		
		100E	120	145	120	145	138	165				

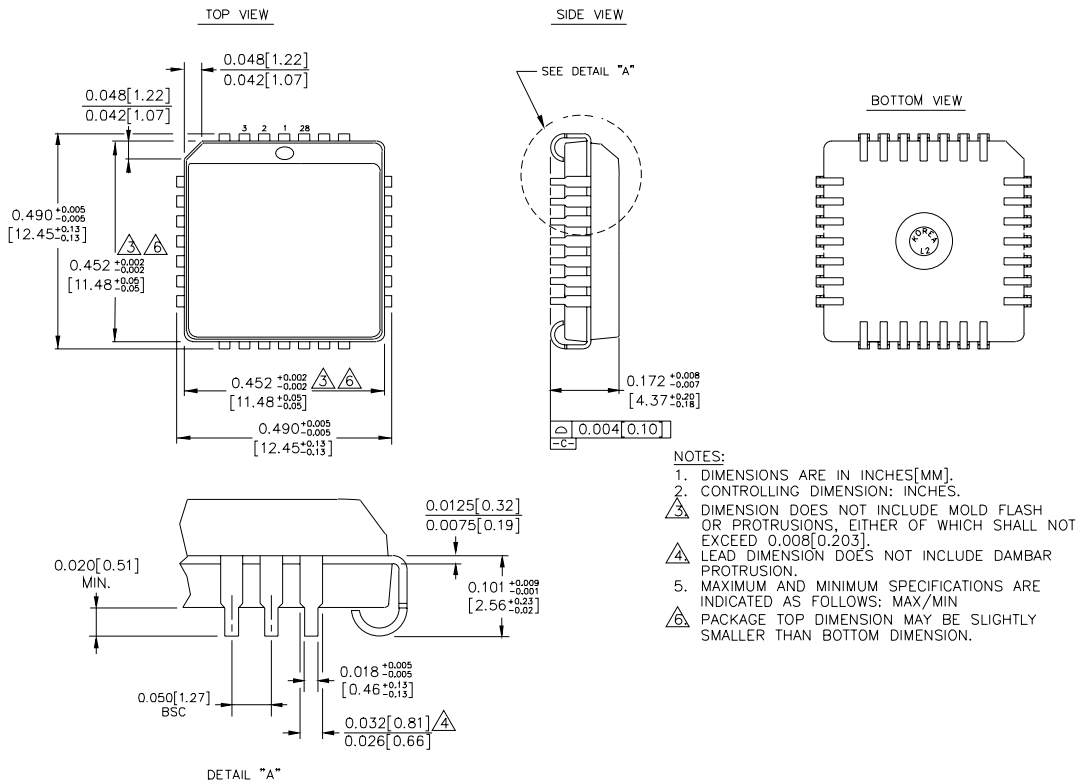
**AC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CC0</sub> = GND

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>PD</sub>	Propagation Delay to Output CLK MR	600	800	1000	600	800	1000	600	800	1000	ps	—
		600	800	1000	600	800	1000	600	800	1000		
t <sub>s</sub>	Set-up Time D SEL	50	-100	—	50	-100	—	50	-100	—	ps	—
		300	150	—	300	150	—	300	150	—		
t <sub>H</sub>	Hold Time D SEL	300	100	—	300	100	—	300	100	—	ps	—
		75	-150	—	75	-150	—	75	-150	—		
t <sub>RR</sub>	Reset Recovery Time	900	700	—	900	700	—	900	700	—	ps	—
t <sub>PW</sub>	Minimum Pulse Width CLK, MR	400	—	—	400	—	—	400	—	—	ps	—
t <sub>skew</sub>	Within-Device Skew	—	75	—	—	75	—	—	75	—	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.

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



Rev. 03

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