



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

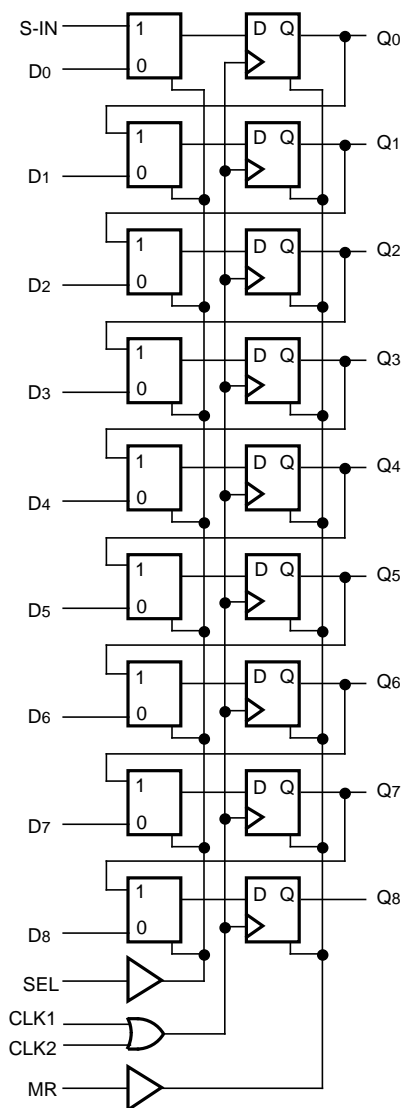
DESCRIPTION

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.

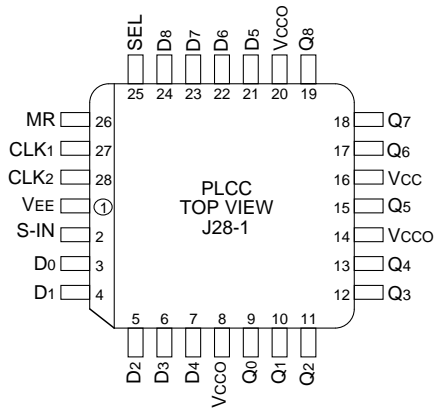
BLOCK DIAGRAM



PIN NAMES

Pin	Function
D ₀ -D ₈	Parallel Data Inputs
S-IN	Serial Data Input
SEL	Mode Select Input
CLK ₁ , CLK ₂	Clock Inputs
MR	Master Reset
Q ₀ -Q ₈	Data Outputs
V _{CCO}	V _{CC} to Output

PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information⁽¹⁾

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

SEL	MODE
L	LOAD
H	SHIFT

DC ELECTRICAL CHARACTERISTICSV_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CC0} = 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	120	145	120	145	120	145	120	145		
		100E	120	145	120	145	138	165				

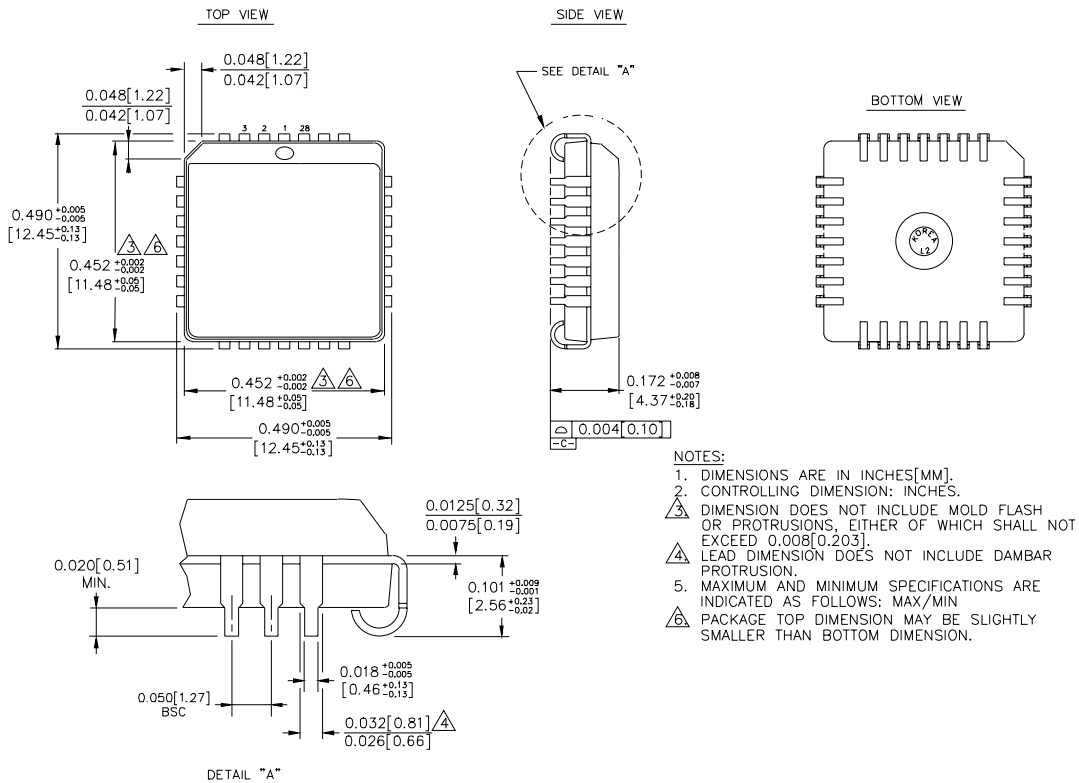
AC ELECTRICAL CHARACTERISTICSV_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CC0} = GND

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 CLK MR	600	800	1000	600	800	1000	600	800	1000	ps	—
		600	800	1000	600	800	1000	600	800	1000		
t _s	Set-up Time D SEL	50	-100	—	50	-100	—	50	-100	—	ps	—
		300	150	—	300	150	—	300	150	—		
t _H	Hold Time D SEL	300	100	—	300	100	—	300	100	—	ps	—
		75	-150	—	75	-150	—	75	-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	—	75	—	—	75	—	—	75	—	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)



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