6-BIT REGISTER DIFFERENTIAL DATA CLOCK

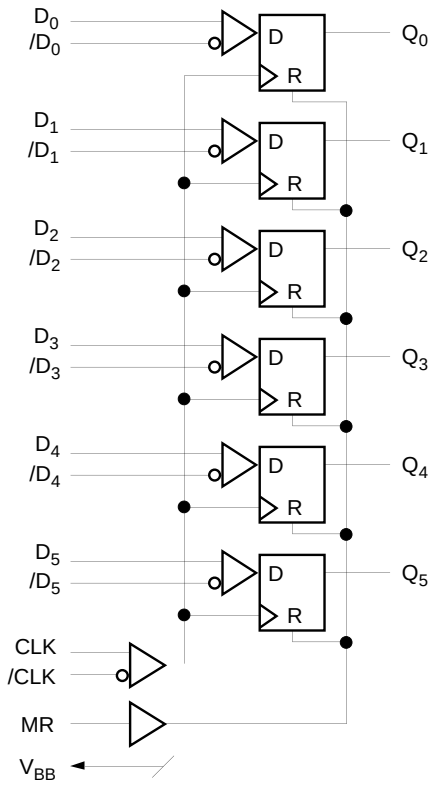
SY10E451
SY100E451

1100MHz min. toggle frequency

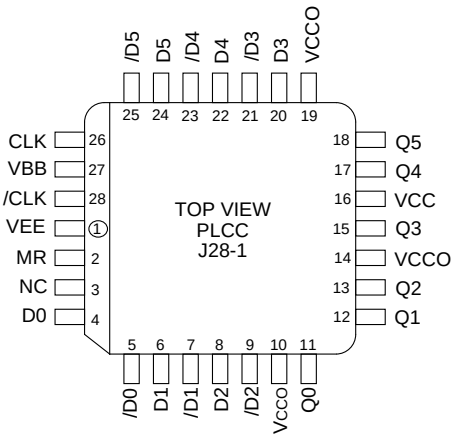
- **Extended 100E V_{EE} range of –4.2V to –5.5V**
- **Differential inputs: data and clock**
- **V_{BB} output for single-ended use**
- **Asynchronous Master Reset**
- **Fully compatible with industry standard 10KH, 100K ECL levels**
- **Internal 75KΩ input pulldown resistors**
- **Fully compatible with Motorola MC10E/100E451**
- **Available in 28-pin PLCC package**

ended outputs and differential data and clock inputs, designed for use in new, high-performance ECL systems. The registers are triggered by the rising edge of the CLK input.

A logic HIGH on the Master Reset (MR) input resets all outputs to a logic LOW. The V_{BB} output is provided for use as a reference voltage for single-ended reception of ECL signals to that device only. When used for this purpose, it is recommended that V_{BB} is decoupled to V_{CC} via a 0.01µF capacitor.



Pin	Function
D0–D5	+ Data Input
/D0–/D5	– Data Input
CLK	+ Clock Input
/CLK	– Clock Input
Q0–Q5	Data Outputs
MR	Master Reset Input
V_{BB}	V_{BB} Output
V_{CCO}	V_{CC} to Output



28-Pin PLCC (J28-1)

(1)

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E451JI	J28-1	Industrial	SY10E451JI	Sn-Pb
SY10E451JITR[2]	J28-1	Industrial	SY10E451JI	Sn-Pb
SY100E451JI	J28-1	Industrial	SY100E451JI	Sn-Pb
SY100E451JITR[2]	J28-1	Industrial	SY100E451JI	Sn-Pb
SY10E451JC	J28-1	Commercial	SY10E451JC	Sn-Pb
SY10E451JCTR[2]	J28-1	Commercial	SY10E451JC	Sn-Pb
SY100E451JC	J28-1	Commercial	SY100E451JC	Sn-Pb
SY100E451JCTR[2]	J28-1	Commercial	SY100E451JC	Sn-Pb
SY10E451JY[3]	J28-1	Industiral	SY10E451JY with Pb-Free bar-line indicator	Matte-Sn
SY10E451JYTR[2, 3]	J28-1	Industrial	SY10E451JY with Pb-Free bar-line indicator	Matte-Sn
SY100E451JY[3]	J28-1	Industrial	SY100E451JY with Pb-Free bar-line indicator	Matte-Sn
SY100E451JYTR[2, 3]	J28-1	Industrial	SY100E451JY 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.

10E Series DC Electrical Characteristics

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

Symbol	Parameter		$T_A = -40°C$			$T_A = 0°C$			$T_A = 25°C$			$T_A = +85°C$			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
V_{BB}	Output Reference Voltage	10E				–1.38	—	–1.27	–1.35	—	–1.25	–1.31	—	–1.19	V
		100E				–1.38	—	–1.26	–1.38	—	–1.26	–1.38	—	–1.26	
I_{IH}	Input HIGH Current					—	—	150	—	—	150	—	—	150	µA
I_{EE}	Power Supply Current	10E				—	84	101	—	84	101	—	84	101	mA
		100E				—	84	101	—	84	101	—	97	116	
V_{CMR}	Common Mode Range[1]					–2.0	—	–0.4	–2.0	—	–0.4	–2.0	—	–0.4	V

Note:

1. V_{CMR} is referenced to the most psitive side of the differential input signal. Normal operation is obtained when the "HIGH" input is within the V_{CMR} range and the input swing is greater than V_{PP} (min) and < 1V.

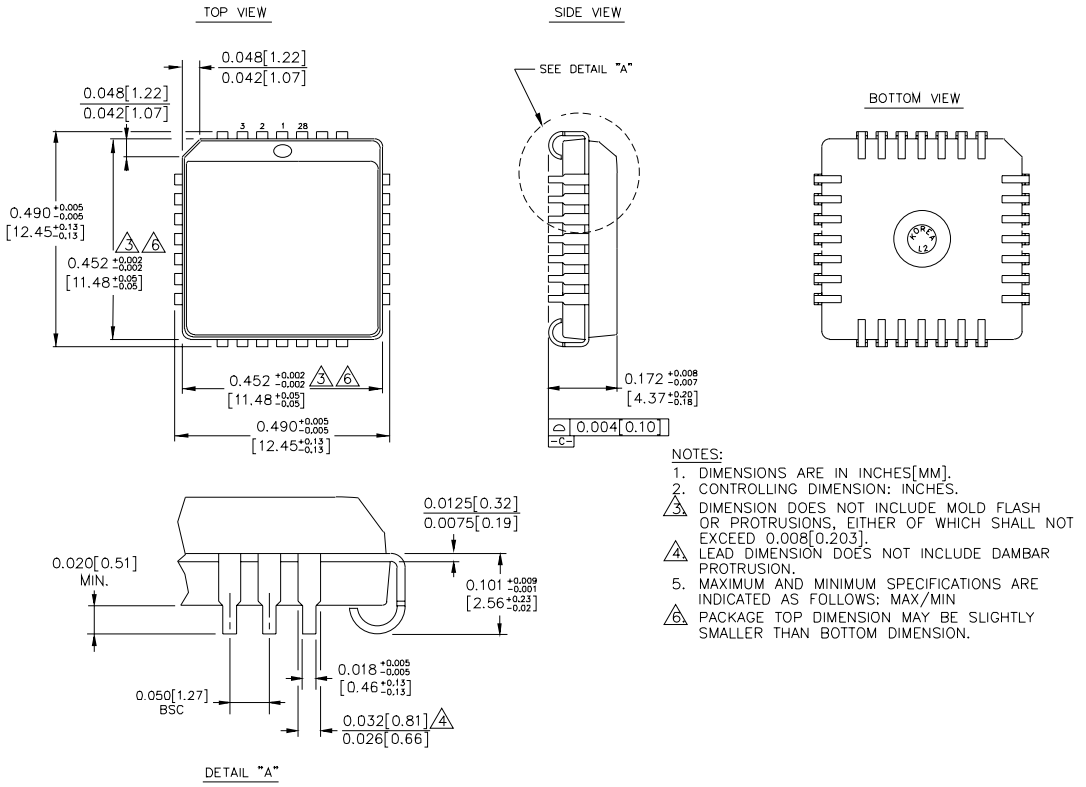
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		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
f_{MAX}	Max. Toggle Frequency				1100	1400	—	1100	1400	—	1100	1400	—	MHz
t_{PD}	Propagation Delay to Output CLK (Diff)				475	650	800	475	650	800	475	650	800	ps
	CLK (SE)				425	650	850	425	650	850	425	650	850	
	MR				425	600	850	425	600	850	425	600	850	
t_S	Set-up Time D				150	–100	—	150	–100	—	150	–100	—	ps
t_H	Hold Time D				250	100	—	250	100	—	250	100	—	ps
$V_{PP\ (AC)}$	Minimum Input Swing[1]				150	—	—	150	—	—	150	—	—	mV
t_{RR}	Reset Recovery Time				750	600	—	750	600	—	750	600	—	ps
t_{PW}	Minimum Pulse Width CLK, MR				400	—	—	400	—	—	400	—	—	ps
t_{skew}	Within-Device Skew[2]				—	100	—	—	100	—	—	100	—	ps
t_r t_f	Rise/Fall Time 20% to 80%				275	450	800	275	450	800	275	450	800	ps

Notes:

1. Minimum input voltage for which AC parameters are guaranteed.
2. Within-device skew is defined as identical transitions on similar paths through a device.



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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