

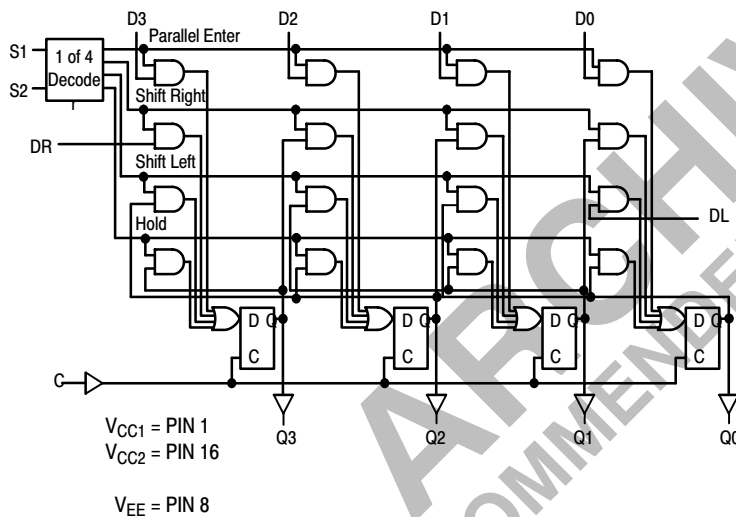
MC10141

Four Bit Universal Shift Register

The MC10141 is a four-bit universal shift register which performs shift left, or shift right, serial/parallel in, and serial/parallel out operations with no external gating. Inputs S1 and S2 control the four possible operations of the register without external gating of the clock. The flip-flops shift information on the positive edge of the clock. The four operations are stop shift, shift left, shift right, and parallel entry of data. The other six inputs are all data type inputs; four for parallel entry data, and one for shifting in from the left (DL) and one for shifting in from the right (DR).

- $P_D = 425 \text{ mW typ/pkg (No Load)}$
- $f_{\text{Shift}} = 200 \text{ MHz typ}$
- $t_r, t_f = 2.0 \text{ ns typ (20\%–80\%)}$

LOGIC DIAGRAM

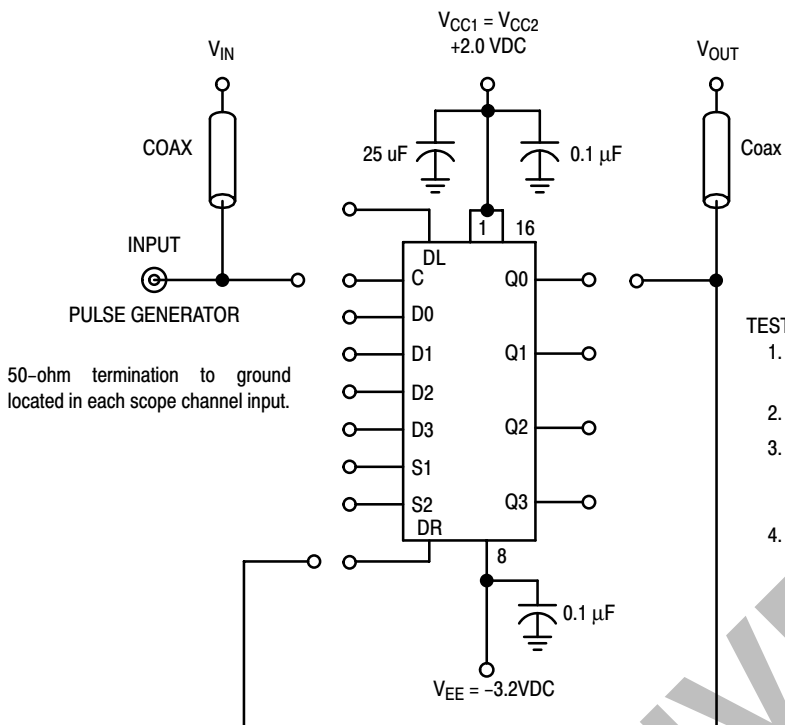


TRUTH TABLE

SELECT		OPERATING MODE	OUTPUTS			
S1	S2		$Q0_{n+1}$	$Q1_{n+1}$	$Q2_{n+1}$	$Q3_{n+1}$
L	L	Parallel Entry	D0	D1	D2	D3
L	H	Shift Right*	$Q1_n$	$Q2_n$	$Q3_n$	DR
H	L	Shift Left*	DL	$Q0_n$	$Q1_n$	$Q2_n$
H	H	Stop Shift	$Q0_n$	Q		

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SHIFT FREQUENCY TEST CIRCUIT



All input and output cables to the scope are equal lengths of 50-ohm coaxial cable. Wire length should be < 1/4 inch from TP_{in} to input pin and TP_{out} to output pin.

TEST PROCEDURES:

1. SET D1, D2, D3 = +0.31 VDC (LOGIC L)
D0 = +1.11 VDC (LOGIC H)
2. APPLY CLOCK PULSE  TO SET Q0 HIGH.
3. MAINTAIN CLOCK LOW.
SET S1 = +0.31 VDC (LOGIC L)
S2 = +1.11 VDC (LOGIC H)
4. TEST SHIFT FREQUENCY

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Pin Under Test	Test Limits							Unit	
			-30°C		+25°C			+85°C			
			Min	Max	Min	Typ	Max	Min	Max		
Power Supply Drain Current	I_E	8		112		82	102		112	mAdc	
Input Current	I_{inH}	5 6 7 4		350 350 390 425			220 220 245 265		220 220 245 265	μ Adc	
	I_{inL}	12	0.5		0.5			0.3		μ Adc	
Output Voltage Logic 1	V_{OH}	3	-1.060	-0.890	-0.960		-0.810	-0.890	-0.700	Vdc	
Output Voltage Logic 0	V_{OL}	3	-1.890	-1.675	-1.850		-1.650	-1.825	-1.615	Vdc	
Threshold Voltage Logic 1	V_{OHA} (Note 1.)	3	-1.080		-0.980			-0.910		Vdc	
		3	-1.080		-0.980			-0.910			
		3	-1.080		-0.980			-0			

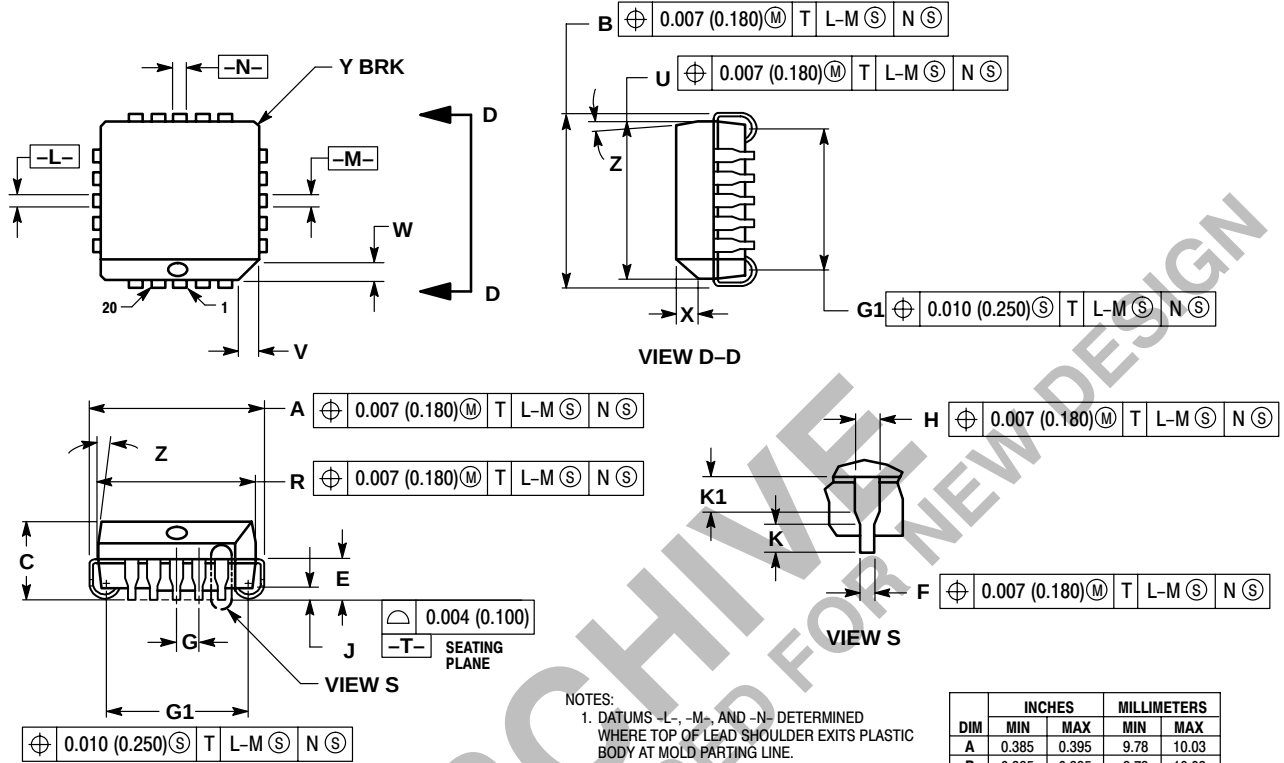
ELECTRICAL CHARACTERISTICS (continued)

@ Test Temperature			TEST VOLTAGE VALUES (Volts)					P1	P2	P3	(V _{CC}) Gnd
			V _{IHmax}	V _{ILmin}	V _{IHAmin}	V _{ILAmx}	V _{EE}				
			–30°C	–0.890	–1.890	–1.205	–1.500	–5.2			
			+25°C	–0.810	–1.850	–1.105	–1.475	–5.2			
			+85°C	–0.700	–1.825	–1.035	–1.440	–5.2			
Characteristic	Symbol	Pin Under Test	TEST VOLTAGE APPLIED TO PINS LISTED BELOW					P1	P2	P3	(V _{CC}) Gnd
			V _{IHmax}	V _{ILmin}	V _{IHAmin}	V _{ILAmx}	V _{EE}				
Power Supply Drain Current	I _E	8					8				1, 16
Input Current	I _{inH}	5									

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PACKAGE DIMENSIONS

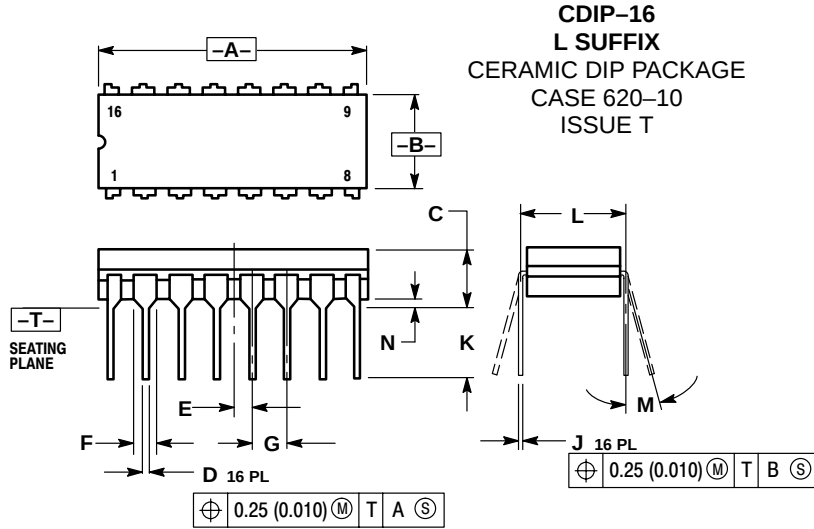
PLCC-20
FN SUFFIX
PLASTIC PLCC PACKAGE
CASE 775-02
ISSUE C



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.385	0.395	9.	

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PACKAGE DIMENSIONS



Notes

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