1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

PECL Power Supply Voltage (Vcc) (Note 1)	+8V
NECL Power Supply Voltage (VEE) (Note 2)	
PECL Mode Input Voltage (VIN) (Note 3)	+6V
NECL Mode Input Voltage (VIN) (Note 4)	6V
Continuous Output Currrent (IOUT)	50mA
Surge Output Currrent (IOUT)	100mA

† Notice: Stresses above those listed under "Absolute Maximum ratings" may cause permanent damage to the device. Exposure to maximum rating conditions for extended periods may affect device reliability.

Note 1: VEE = 0V

2: Vcc = 0V

3: VEE = 0V, VIN ≤ VCC

4: VCC = 0V, VIN ≥ VEE

TABLE 1-1: DC ELECTRICAL CHARACTERISTICS

Electrical Characteristics PECL: Vcc = 3.0V to 3.8V; VEE = 0V; TA = -40°C to 85°C, unless otherwise stated (Note 1)

Parameter	Symbol	Min.	Тур.	Max.	Units	Test Condition
Power Supply Voltage	Vcc	3.0	3.3	3.8	V	
Davies County Courses	1	_	27	33		TA = -40°C to +25°C
Power Supply Current	lee	_	31	37	mA	TA = +85°C
Output High Voltage (Note 2)	Mou	Vcc - 1.085	Vcc - 1.005	Vcc - 0.88	V	TA = -40°C
Output High Voltage (Note 2)	Vон	Vcc - 1.025	Vcc - 0.955	Vcc - 0.88		TA = 0°C to 85°C
Output Low Voltage (Note 2)	Vol	Vcc - 1.830	Vcc - 1.695	Vcc - 1.555	V	TA = -40°C
		Vcc - 1.810	Vcc - 1.705	Vcc - 1.620		TA = 0°C to 85°C
Input High Voltage (Single Ended)	VIH	Vcc – 1.165	_	Vcc - 0.880	V	
Input Low Voltage (Single Ended)	VIL	Vcc - 1.810	_	Vcc – 1.475	V	
Output Reference Voltage	VBB	Vcc - 1.38	_	Vcc - 1.26	V	
Input High Current	lін	_	_	150	μΑ	
Input Low Current	lı∟	0.5	_	_	μA	VIN = VIL (Min)

Note 1: Devices are designed to meet the DC specifications shown in the above table after thermal equilibration has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500lfpm is maintained.

2: Outputs are terminated through a 50 Ω resistor to VCC – 2.0V.

TABLE 1-2: DC ELECTRICAL CHARACTERISTICS

Electrical Characteristics NECL: VEE = -3.8V to -3.0V; Vcc = 0V; TA = -40°C to 85°C, unless otherwise stated (Note 1)

Parameter	Symbol	Min.	Тур.	Max.	Units	Test Condition
Power Supply Voltage	VEE	-3.8	-3.3	-3	V	
Dower Supply Current	lee	1	27	33	mA	TA = -40°C to +25°C
Power Supply Current	lee	_	31	37		TA = +85°C
Output High Valtage (Nata 2)	Vон	-1.085	-1.005	-0.88	V	TA = -40°C
Output High Voltage (Note 2)	VOH	-1.025	-0.955	-0.88	V	TA = 0°C to 85°C
Output Low Voltage (Note 2)	Vol	-1.830	-1.695	-1.555	٧	TA = -40°C
		-1.810	-1.705	-1.620		TA = 0°C to 85°C
Input High Voltage (Single Ended)	VIH	-1.165	_	-0.880	V	
Input Low Voltage (Single Ended)	VIL	-1.810	_	-1.475	V	
Output Reference Voltage	Vвв	-1.380	_	-1.260	V	
Input High Current	Іін		_	150	μA	
Input Low Current	lıL	0.5	_	_	μA	VIN = VIL (Min)

Note 1: Devices are designed to meet the DC specifications shown in the above table after thermal equilibration has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500lfpm is maintained.

TABLE 1-3: AC ELECTRICAL CHARACTERISTICS⁽¹⁾

Electrical Characteristics: VCC = 3.0V to 3.8V; VEE = 0V or VEE = -3.8V to -3.0V; VCC = 0V; $TA = -40^{\circ}C$ to $85^{\circ}C$, unless otherwise stated

Parameter	Symbol	Min.	Тур.	Max.	Units	Test Condition
Maximum Toggle Frequency	f _{MAX}	3.8	4.2	_	GHz	
	t _{PD} 490 630 770 540 630 720 550 640 730 590 670 760	490	630	770	ps	TA = -40°C
Dran Dalay Cl K to C		720	ps	TA = 0°C		
Prop. Delay CLK to Q		550	640	730	ps	TA = +25°C
		590	670	760	ps	TA = +85°C
Propagation Delay RESET to Q	t _{PD}	310	460	610	ps	TA = -40°C
		360	460	560	ps	TA = 0°C to +25°C
		380	480	580	ps	TA = +85°C
Input Swing (Note 1)	V _{PP}	100	_	1000	mV	
Output Rise/Fall Time Q (20% to 80%)	t _{r/} t _f	100	225	350	ps	

Note 1: Input swing for which AC parameters are ensured.

TEMPERATURE SPECIFICATIONS

Parameters	Sym.	Min.	Тур.	Max.	Units	Conditions
Temperature Ranges						
Operating Temperature Range	T _A	-40	_	+85	°C	_
Storage Temperature	T _S	-65	_	+150	°C	_
Lead Temperature	T _{LEAD}	_	_	+260	°C	Soldering, 20 sec.

^{2:} Outputs are terminated through a 50 Ω resistor to Vcc – 2.0V.

2.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 2-1.

TABLE 2-1: PIN FUNCTION TABLE

Pin Number	Pin Name	Description				
1	Reset	Asynchronous Reset				
2, 3	CLK, /CLK	Clock Inputs				
4	V_{BB}	Reference Voltage Output				
5	V_{EE}	Negative Power Supply				
6, 7	Q, /Q	Data Outputs				
8	V _{CC}	Positive Power Supply				

3.0 PACKAGING INFORMATION

3.1 Package Marking Information

8-Lead SOIC*

XXXXX WNNN Example

Legend: XX...X Product code or customer-specific information

Y Year code (last digit of calendar year)
YY Year code (last 2 digits of calendar year)
WW Week code (week of January 1 is week '01')

NNN Alphanumeric traceability code

e3 Pb-free JEDEC® designator for Matte Tin (Sn)

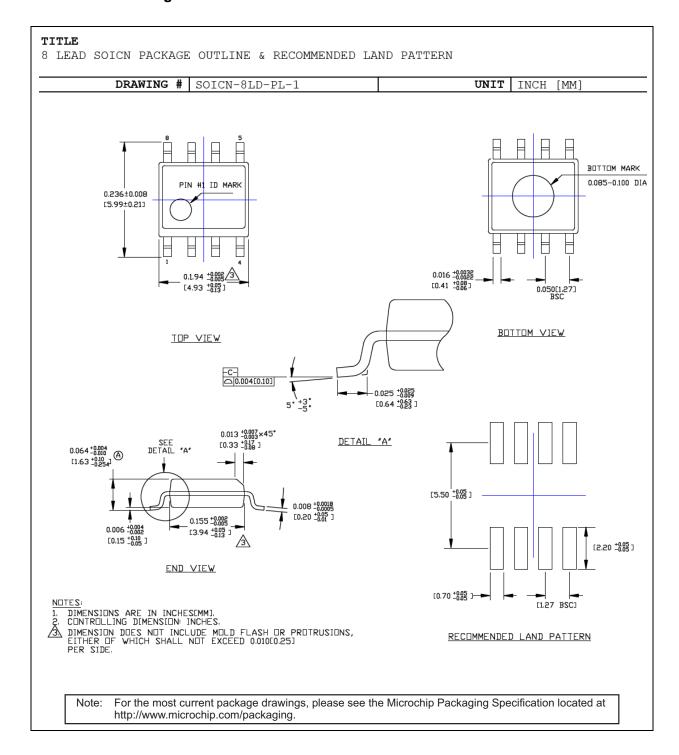
This package is Pb-free. The Pb-free JEDEC designator (e3) can be found on the outer packaging for this package.

•, ▲, ▼ Pin one index is identified by a dot, delta up, or delta down (triangle mark).

Note: In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo.

Underbar (_) and/or Overbar (¯) symbol may not be to scale.

8-Lead SOIC Package Outline and Recommended Land Pattern



PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

PART NO. X X -XX

Device Package Temperature Special Range Processing

3.3V ÷ 4 Divider

Device: SY100EL33L

Package Z = 8-Lead SOIC

Temperature G = -40° C to $+85^{\circ}$ C (Pb-Free NiPdAu)

Range:

Special

Processing:

TR = 1,000/Reel

Note 1: Contact factory for die availability. Dice are ensured at $T_A = 25$ °C, DC

Electricals only.
2: Tape and Reel.

3: Pb-Free package is recommended for new designs.

Examples:

b)

SY100EL33LZG⁽³⁾ 8-L

SY100EL33LZG-TR^(2,3)

8-Lead SOIC (Z8-1) package, -40°C to +85°C Industrial Temp. (Pb-Free

NiPdAu), 95/Tube

8-Lead SOIC (Z8-1) package, -40°C to +85°C Industrial Temp. (Pb-Free

NiPdAu), 1,000/Reel

Note:

Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

APPENDIX A: REVISION HISTORY

Revision A (September 2018)

- Converted Micrel document SY100EL33L to Microchip data sheet DS20006076A.
- · Minor text changes throughout.
- Removed all reference to the EOL SY10EL33 and SY100EL33 versions.

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