ARIZONA MICROTEK, INC.

AZ10EL01
AZ100EL01

ECL/PECL 4-Input OR/NOR

FEATURES

- 230ps Propagation Delay
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- Direct Replacement for ON Semiconductor MC10EL01 & MC100EL01

PACKAGE AVAILABILITY

PACKAGE	PART NO.	MARKING
SOIC 8	AZ10EL01D	AZM10EL01
SOIC 8 T&R	AZ10EL01DR1	AZM10EL01
SOIC 8 T&R	AZ10EL01DR2	AZM10EL01
SOIC 8	AZ100EL01D	AZM100EL01
SOIC 8 T&R	AZ100EL01DR1	AZM100EL01
SOIC 8 T&R	AZ100EL01DR2	AZM100EL01
TSSOP 8	AZ10EL01T	AZTEL01
TSSOP 8 T&R	AZ10EL01TR1	AZTEL01
TSSOP 8 T&R	AZ10EL01TR2	AZTEL01
TSSOP 8	AZ100EL01T	AZHEL01
TSSOP 8 T&R	AZ100EL01TR1	AZHEL01
TSSOP 8 T&R	AZ100EL01TR2	AZHEL01

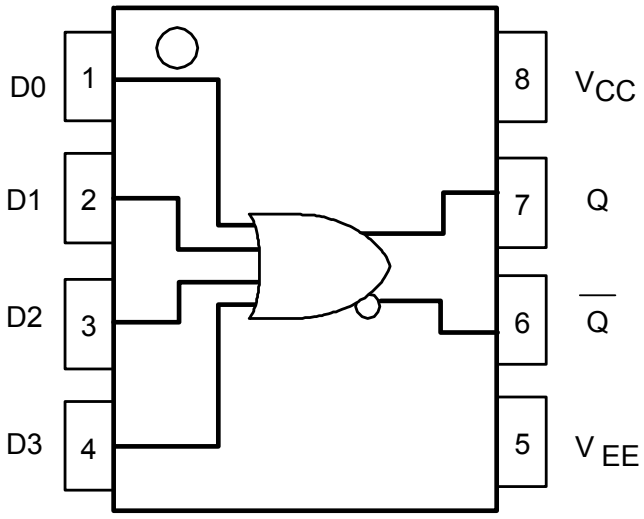
DESCRIPTION

The AZ10/100EL01 is a 4-input OR/NOR gate. The device is functionally equivalent to the E101 device with higher performance capabilities. With propagation delays and output transition times significantly faster than the E101, the EL01 is ideally suited for those applications that require the ultimate in AC performance.
NOTE: Specifications in ECL/PECL tables are valid when thermal equilibrium is established.

PIN DESCRIPTION

PIN	FUNCTION
D0 - D3	Data Inputs
Q, $\overline{Q}$	Data Outputs
V_{CC}	Positive Supply
V_{EE}	Negative Supply

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



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Absolute Maximum Ratings are those values beyond which device life may be impaired.

Symbol	Characteristic	Rating	Unit
V_{CC}	PECL Power Supply (V_{EE} = 0V)	0 to +8.0	Vdc
V_I	PECL Input Voltage (V_{EE} = 0V)	0 to +6.0	Vdc
V_{EE}	ECL Power Supply (V_{CC} = 0V)	-8.0 to 0	Vdc
V_I	ECL Input Voltage (V_{CC} = 0V)	-6.0 to 0	Vdc
I_{OUT}	Output Current --- Continuous --- Surge	50 100	mA
T_A	Operating Temperature Range	-40 to +85	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C

10K ECL DC Characteristics (V_{EE} = -4.75V to -5.5V, V_{CC} = GND)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{OH}	Output HIGH Voltage[1]	-1080		-890	-1020		-840	-980		-810	-910		-720	mV
V_{OL}	Output LOW Voltage[1]	-1950		-1650	-1950		-1630	-1950		-1630	-1950		-1595	mV
V_{IH}	Input HIGH Voltage	-1230		-890	-1170		-840	-1130		-810	-1060		-720	mV
V_{IL}	Input LOW Voltage	-1950		-1500	-1950		-1480	-1950		-1480	-1950		-1445	mV
I_{IH}	Input HIGH Current			150			150			150			150	µA
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{EE}	Power Supply Current		14	17		14	17		14	17		14	17	mA

1. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

10K PECL DC Characteristics (V_{EE} = GND, V_{CC} = +5.0V)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{OH}	Output HIGH Voltage[1,2]	3920		4110	3980		4160	4020		4190	4090		4280	mV
V_{OL}	Output LOW Voltage[1,2]	3050		3350	3050		3370	3050		3370	3050		3405	mV
V_{IH}	Input HIGH Voltage[1]	3770		4110	3830		4160	3870		4190	3940		4280	mV
V_{IL}	Input LOW Voltage[1]	3050		3500	3050		3520	3050		3520	3050		3555	mV
I_{IH}	Input HIGH Current			150			150			150			150	µA
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{EE}	Power Supply Current		14	17		14	17		14	17		14	17	mA

1. For supply voltages other that 5.0V, use the ECL table values and ADD supply voltage value.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

100K ECL DC Characteristics (V_{EE} = -4.2V to -5.5V, V_{CC} = GND)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{OH}	Output HIGH Voltage[1]	-1085	-1005	-880	-1025	-955	-880	-1025	-955	-880	-1025	-955	-880	mV
V_{OL}	Output LOW Voltage[1]	-1830	-1695	-1555	-1810	-1705	-1620	-1810	-1705	-1620	-1810	-1705	-1620	mV
V_{IH}	Input HIGH Voltage	-1165		-880	-1165		-880	-1165		-880	-1165		-880	mV
V_{IL}	Input LOW Voltage	-1810		-1475	-1810		-1475	-1810		-1475	-1810		-1475	mV
I_{IH}	Input HIGH Current			150			150			150			150	µA
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{EE}	Power Supply Current		14	17		14	17		14	17		16	20	mA

1. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

100K PECL DC Characteristics (V_{EE} = GND, V_{CC} = +5.0V)

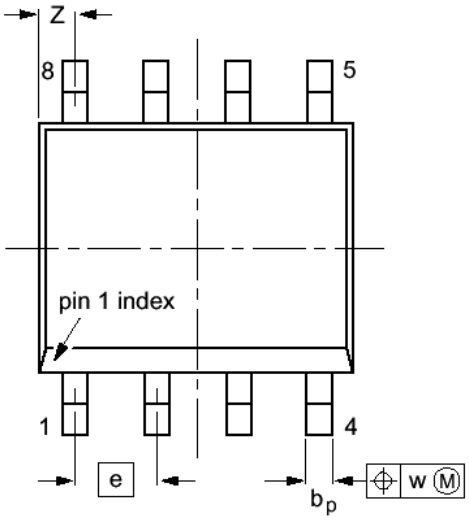
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{OH}	Output HIGH Voltage[1,2]	3915	3995	4120	3975	4045	4120	3975	4045	4120	3975	4045	4120	mV
V_{OL}	Output LOW Voltage[1,2]	3170	3305	3445	3190	3295	3380	3190	3295	3380	3190	3295	3380	mV
V_{IH}	Input HIGH Voltage[1]	3835		4120	3835		4120	3835		4120	3835		4120	mV
V_{IL}	Input LOW Voltage[1]	3190		3525	3190		3525	3190		3525	3190		3525	mV
V_{BB}	Reference Voltage[1]	3620		3740	3620		3740	3620		3740	3620		3740	mV
I_{IH}	Input HIGH Current			150			150			150			150	µA
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{EE}	Power Supply Current		14	17		14	17		14	17		16	20	mA

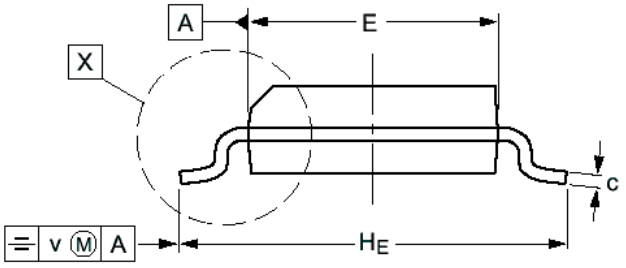
1. For supply voltages other that 5.0V, use the ECL table values and ADD supply voltage value.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

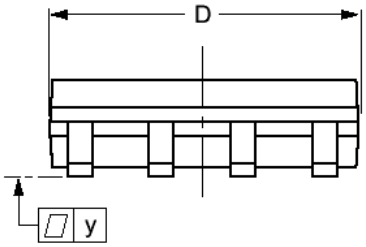
AC Characteristics (V_{EE} =10E(-4.75V to -5.5V), 100E(-4.2V to -5.5V); V_{CC} =GND or V_{EE} =GND, V_{CC} =10E(+4.75V to +5.5V), 100E(+4.2V to +5.5V))

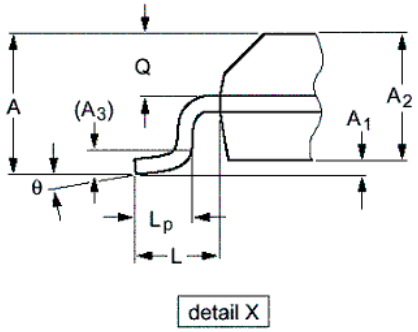
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH} / t_{PHL}	Propagation Delay to Output	70	220	370	120	220	320	130	230	330	150	250	350	ps
t_r / t_f	Rise/Fall Time 20 – 80%	100		350	100		350	100		350	100		350	ps

PACKAGE DIAGRAM
SOIC 8





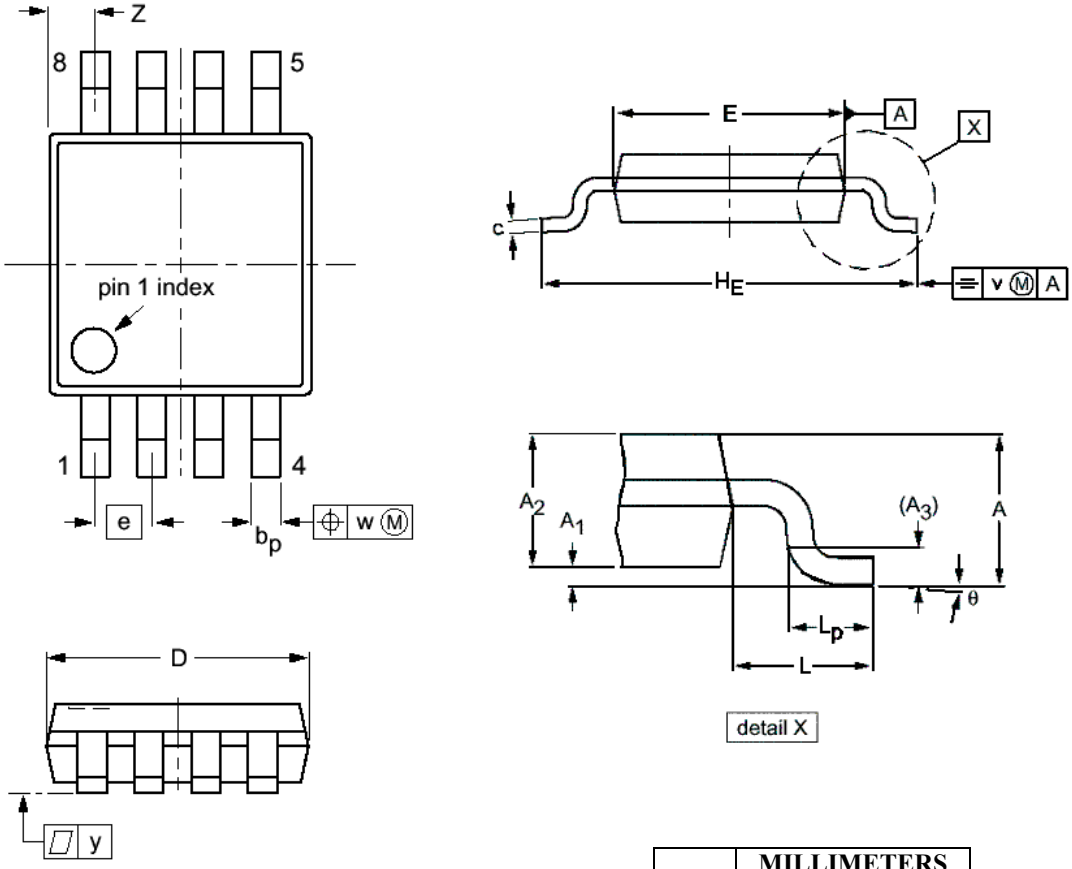




DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A		1.75		0.069
A_1	0.10	0.25	0.004	0.010
A_2	1.25	1.45	0.049	0.057
A_3	0.25		0.01	
b_p	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.8	5.0	0.19	0.20
E	3.8	4.0	0.15	0.16
e	1.27		0.050	
H_E	5.80	6.20	0.228	0.244
L	1.05		0.041	
L_p	0.40	1.00	0.016	0.039
Q	0.60	0.70	0.024	0.028
v	0.25		0.01	
w	0.25		0.01	
y	0.10		0.004	
Z	0.30	0.70	0.012	0.028
θ	0^O	8^O	0^O	8^O

NOTES:
1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

PACKAGE DIAGRAM
TSSOP 8



NOTES:
1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

DIM	MILLIMETERS	
	MIN	MAX
A		1.10
A_1	0.05	0.15
A_2	0.80	0.95
A_3	0.25	
b_p	0.25	0.45
c	0.15	0.28
D	2.90	3.10
E	2.90	3.10
e	0.65	
H_E	4.70	5.10
L	0.94	
L_p	0.40	0.70
v	0.10	
w	0.10	
y	0.10	
Z	0.35	0.70
θ	0^O	6^O

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