

# AZ10EL58 AZ100EL58

## ECL/PECL 2:1 Multiplexer

### FEATURES

- 230ps Propagation Delay
- High Bandwidth Output Transitions
- 75k $\Omega$  Internal Input Pulldown Resistors
- Direct Replacement for ON Semiconductor MC10EL58 & MC100EL58

### PACKAGE AVAILABILITY

PACKAGE	PART NUMBER	MARKING	NOTES
SOIC 8	AZ10EL58D	AZM10EL58	1,2
SOIC 8	AZ100EL58D	AZM100EL58	1,2
TSSOP 8	AZ10EL58T	AZTEL58	1,2
TSSOP 8	AZ100EL58T	AZHEL58	1,2

- 1 Add R1 at end of part number for 7 inch (1K parts), R2 for 13 inch (2.5K parts) Tape & Reel.
- 2 Date Code "YWW" on underside of part.

### DESCRIPTION

The AZ10/100EL58 is a 2:1 multiplexer. The device is functionally equivalent to the E158 device with higher performance capabilities. With propagation delays and output transition times significantly faster than the E158, the EL58 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.

### FUNCTION TABLE

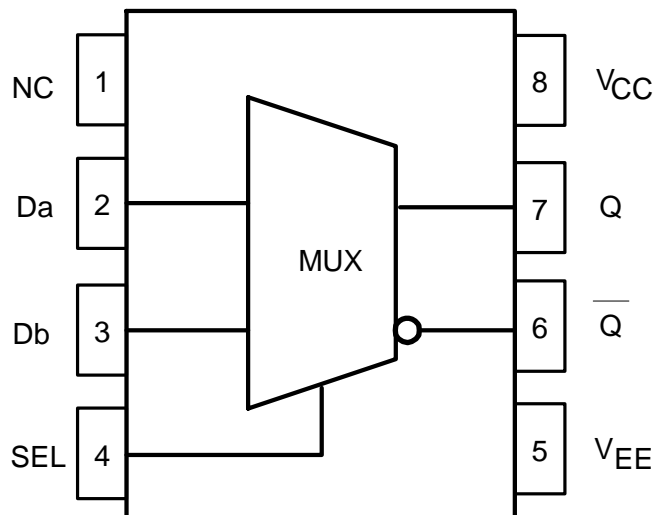
SEL*	Q
H	Da
L	Db

\* Pin will default low when left open.

### PIN DESCRIPTION

PIN	FUNCTION
Da, Db	Data Inputs
Q, Q	Data Outputs
SEL	Select
V <sub>CC</sub>	Positive Supply
V <sub>EE</sub>	Negative Supply
NC	No Connect

### LOGIC DIAGRAM AND PINOUT ASSIGNMENT



# AZ10EL58

## AZ100EL58

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

Symbol	Characteristic	Rating	Unit
V <sub>CC</sub>	PECL Power Supply (V <sub>EE</sub> = 0V)	0 to +8.0	Vdc
V <sub>I</sub>	PECL Input Voltage (V <sub>EE</sub> = 0V)	0 to +6.0	Vdc
V <sub>EE</sub>	ECL Power Supply (V <sub>CC</sub> = 0V)	-8.0 to 0	Vdc
V <sub>I</sub>	ECL Input Voltage (V <sub>CC</sub> = 0V)	-6.0 to 0	Vdc
I <sub>OUT</sub>	Output Current --- Continuous --- Surge	50 100	mA
T <sub>A</sub>	Operating Temperature Range	-40 to +85	°C
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C

### 10K ECL DC Characteristics (V<sub>EE</sub> = -4.75V to -5.5V, V<sub>CC</sub> = 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 <sub>OH</sub>	Output HIGH Voltage <sup>1</sup>	-1080		-890	-1020		-840	-980		-810	-910		-720	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1</sup>	-1950		-1650	-1950		-1630	-1950		-1630	-1950		-1595	mV
V <sub>IH</sub>	Input HIGH Voltage	-1230		-890	-1170		-840	-1130		-810	-1060		-720	mV
V <sub>IL</sub>	Input LOW Voltage	-1950		-1500	-1950		-1480	-1950		-1480	-1950		-1445	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			μA
I <sub>EE</sub>	Power Supply Current		14	17		14	17		14	17		14	17	mA

- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.

### 10K PECL DC Characteristics (V<sub>EE</sub> = GND, V<sub>CC</sub> = +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 <sub>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	3920		4110	3980		4160	4020		4190	4090		4280	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	3050		3350	3050		3370	3050		3370	3050		3405	mV
V <sub>IH</sub>	Input HIGH Voltage <sup>1</sup>	3770		4110	3830		4160	3870		4190	3940		4280	mV
V <sub>IL</sub>	Input LOW Voltage <sup>1</sup>	3050		3500	3050		3520	3050		3520	3050		3555	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			μA
I <sub>EE</sub>	Power Supply Current		14	17		14	17		14	17		14	17	mA

- For supply voltages other than 5.0V, use the ECL table values and ADD supply voltage value.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.

### 100K ECL DC Characteristics (V<sub>EE</sub> = -4.2V to -5.5V, V<sub>CC</sub> = 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 <sub>OH</sub>	Output HIGH Voltage <sup>1</sup>	-1085	-1005	-880	-1025	-955	-880	-1025	-955	-880	-1025	-955	-880	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1</sup>	-1830	-1695	-1555	-1810	-1705	-1620	-1810	-1705	-1620	-1810	-1705	-1620	mV
V <sub>IH</sub>	Input HIGH Voltage	-1165		-880	-1165		-880	-1165		-880	-1165		-880	mV
V <sub>IL</sub>	Input LOW Voltage	-1810		-1475	-1810		-1475	-1810		-1475	-1810		-1475	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			μA
I <sub>EE</sub>	Power Supply Current		14	17		14	17		14	17		16	19	mA

- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.

### 100K PECL DC Characteristics (V<sub>EE</sub> = GND, V<sub>CC</sub> = +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 <sub>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	3915	3995	4120	3975	4045	4120	3975	4045	4120	3975	4045	4120	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	3170	3305	3445	3190	3295	3380	3190	3295	3380	3190	3295	3380	mV
V <sub>IH</sub>	Input HIGH Voltage <sup>1</sup>	3835		4120	3835		4120	3835		4120	3835		4120	mV
V <sub>IL</sub>	Input LOW Voltage <sup>1</sup>	3190		3525	3190		3525	3190		3525	3190		3525	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			μA
I <sub>EE</sub>	Power Supply Current		14	17		14	17		14	17		16	19	mA

- For supply voltages other than 5.0V, use the ECL table values and ADD supply voltage value.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.

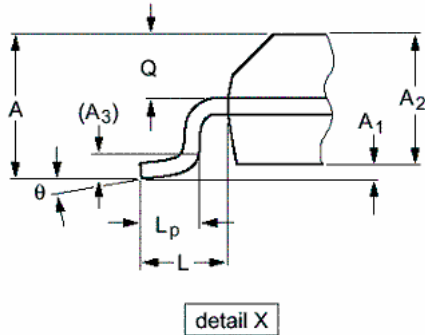
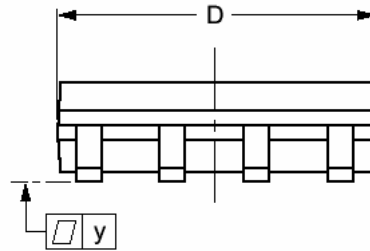
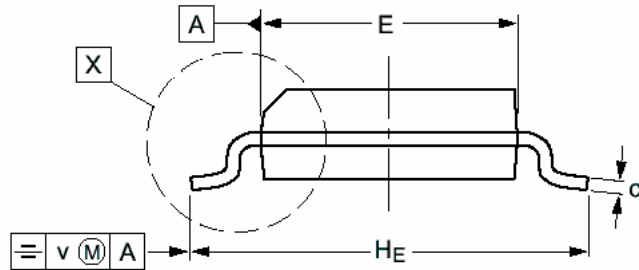
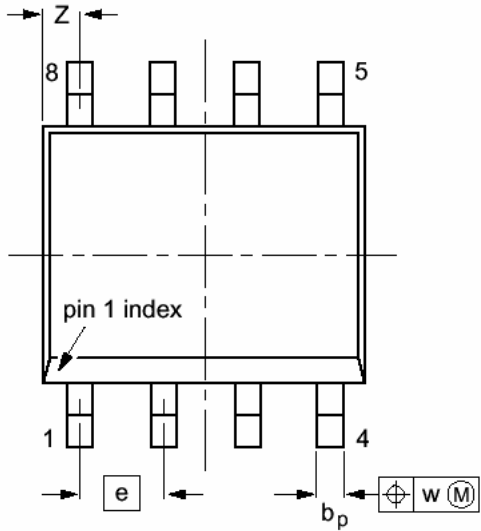
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**AC Characteristics** ( $V_{EE} = 10E(-4.75V \text{ to } -5.5V)$ ,  $100E(-4.2V \text{ to } -5.5V)$ ;  $V_{CC} = GND$  or  $V_{EE} = GND$ ,  $V_{CC} = 10E(+4.75V \text{ to } +5.5V)$ ,  $100E(+4.2V \text{ to } +5.5V)$ )

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	60	220	380	110	220	330	120	230	340	140	250	360	ps
	D to Q SEL to Q	90	250	410	140	250	360	150	260	370	170	280	390	
$t_r / t_f$	Rise/Fall Time 20 – 80%	100		350	100		350	100		350	100		350	ps

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**PACKAGE DIAGRAM  
SOIC 8**



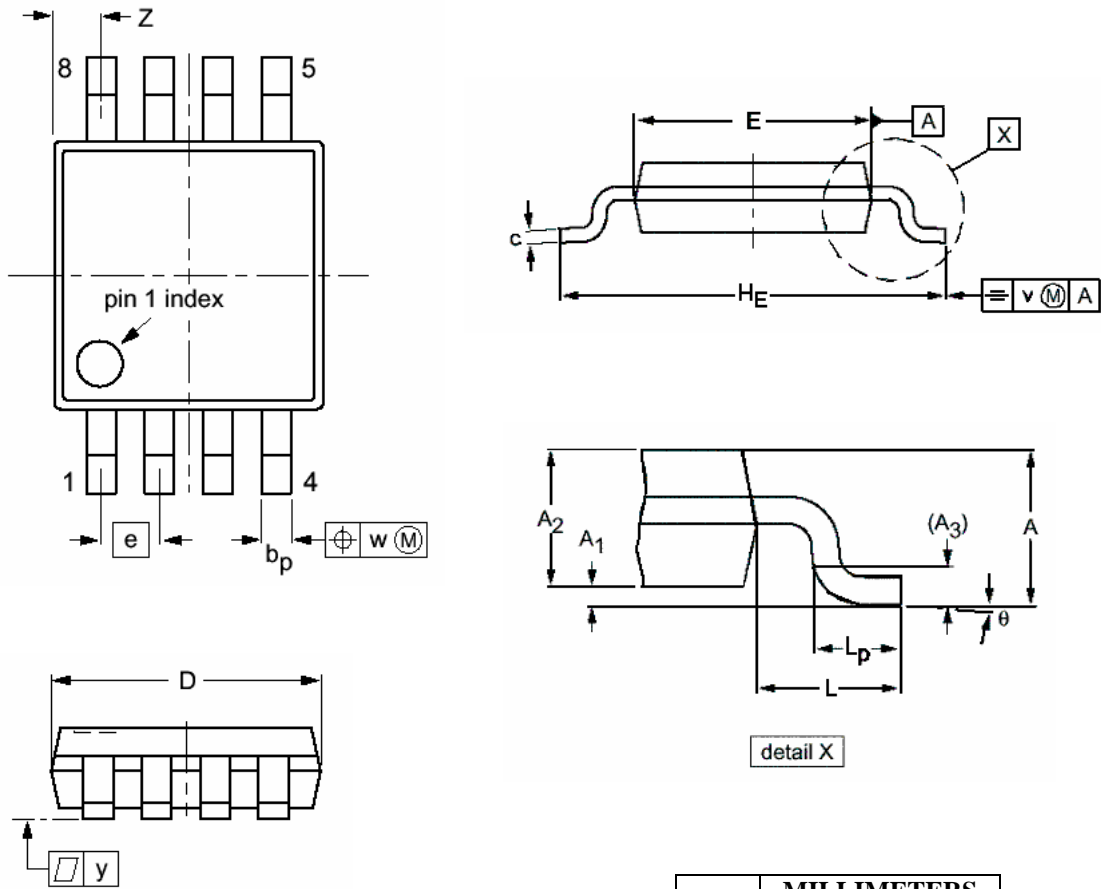
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A		1.75		0.069
A <sub>1</sub>	0.10	0.25	0.004	0.010
A <sub>2</sub>	1.25	1.45	0.049	0.057
A <sub>3</sub>	0.25		0.01	
b <sub>p</sub>	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.8	5.0	0.19	0.20
E	3.8	4.0	0.15	0.16
e	1.27		0.050	
H <sub>E</sub>	5.80	6.20	0.228	0.244
L	1.05		0.041	
L <sub>p</sub>	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°	8°	0°	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.

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**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 <sub>1</sub>	0.05	0.15
A <sub>2</sub>	0.80	0.95
A <sub>3</sub>	0.25	
b <sub>p</sub>	0.25	0.45
c	0.15	0.28
D	2.90	3.10
E	2.90	3.10
e	0.65	
H <sub>E</sub>	4.70	5.10
L	0.94	
L <sub>p</sub>	0.40	0.70
v	0.10	
w	0.10	
y	0.10	
Z	0.35	0.70
θ	0°	6°

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