

# AZ100LVEL58

## ECL/PECL 2:1 Multiplexer

### FEATURES

- Green / RoHS Compliant / Lead (Pb) Free Packages Available
- 440ps Propagation Delay
- Operating Range of 3.0V to 5.5V
- Internal Input Pulldown Resistors
- Q Output will Default LOW with Inputs Open or at  $V_{EE}$
- Transistor Count = 58 Devices
- Direct Replacement for ON Semiconductor MC100LVEL58

### PACKAGE AVAILABILITY

PACKAGE	PART NO.	MARKING	NOTES
SOIC 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100LVEL58DG	AZM100G LVEL58	1,2,3
MSOP 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100LVEL58TG	AZHG LV58	1,2,3
MLP 8 (2x2) RoHS Compliant / Lead (Pb) Free	AZ100LVEL58N+	L5+ <Date Code>	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 format: "Y" for year followed by "WW" for week.
- 3 Date code "YWW" or "YYWW" on underside of part.

### DESCRIPTION

The AZ100LVEL58 is a 2:1 multiplexer. The device is pin and functionally equivalent to the EL58. With AC performance similar to the EL58 device, the LVEL58 is ideal for the low voltage applications that require the ultimate in AC performance. If desired, the select input can be directly driven from a CMOS output.

NOTE: Specifications in the ECL/PECL tables are valid when thermal equilibrium is established.

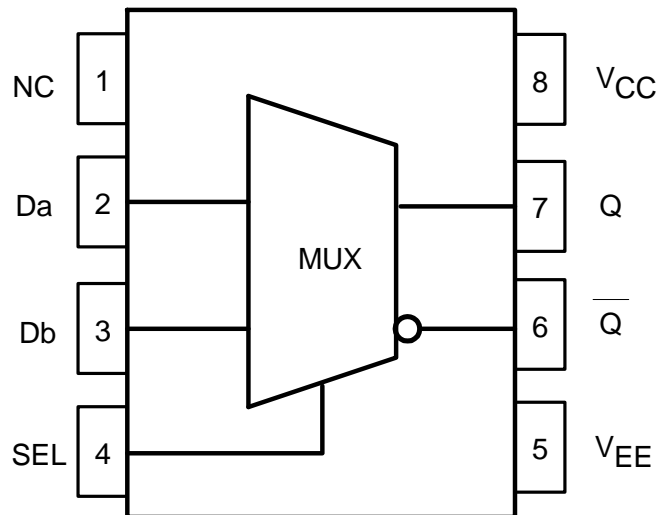
FUNCTION TABLE

SEL	Q
H	Da
L	Db

PIN DESCRIPTION

PIN	FUNCTION
Da, Db	Data Inputs
Q, $\bar{Q}$	Differential Outputs
SEL	Select Input
$V_{CC}$	Positive Supply
$V_{EE}$	Negative Supply
NC	No Connect

### LOGIC DIAGRAM AND PINOUT ASSIGNMENT



# AZ100LVEL58

**Absolute Maximum Ratings are those values 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

## ECL DC Characteristics (V<sub>EE</sub> = -3.3V, 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	-150			-150			-150			-150			μA
I <sub>EE</sub>	Power Supply Current		21	28		21	28		21	28		23	30	mA

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

## LVPECL DC Characteristics (V<sub>EE</sub> = GND, V<sub>CC</sub> = +3.3V)

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>	2215	2295	2420	2275	2345	2420	2275	2345	2420	2275	2345	2420	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	1470	1605	1745	1490	1595	1680	1490	1595	1680	1490	1595	1680	mV
V <sub>IH</sub>	Input HIGH Voltage <sup>1</sup>	2135		2420	2135		2420	2135		2420	2135		2420	mV
V <sub>IL</sub>	Input LOW Voltage <sup>1</sup>	1490		1825	1490		1825	1490		1825	1490		1825	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	-150			-150			-150			-150			μA
I <sub>EE</sub>	Power Supply Current		21	28		21	28		21	28		23	30	mA

1. These values are for V<sub>CC</sub> = 3.3V. For supply voltages other than 3.3V, use the ECL table values and ADD supply voltage value.

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

## 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
V <sub>BB</sub>	Reference Voltage <sup>1</sup>	3620		3740	3620		3740	3620		3740	3620		3740	mV
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA
I <sub>IL</sub>	Input LOW Current	-150			-150			-150			-150		150	μA
I <sub>EE</sub>	Power Supply Current		27	33		27	33		27	33		31	37	mA

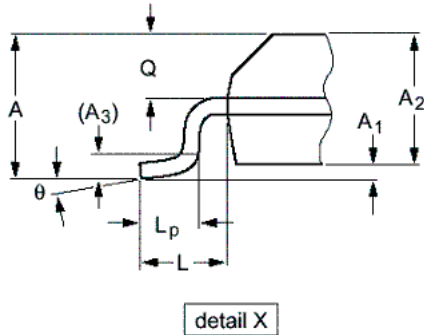
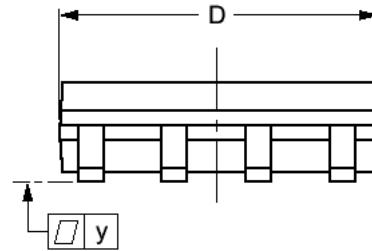
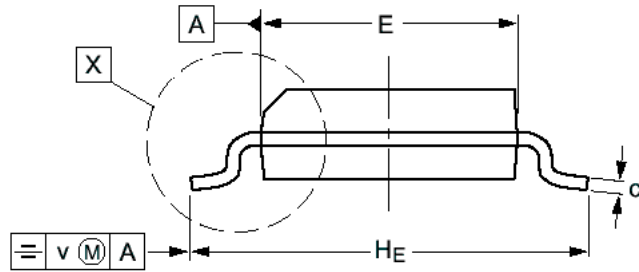
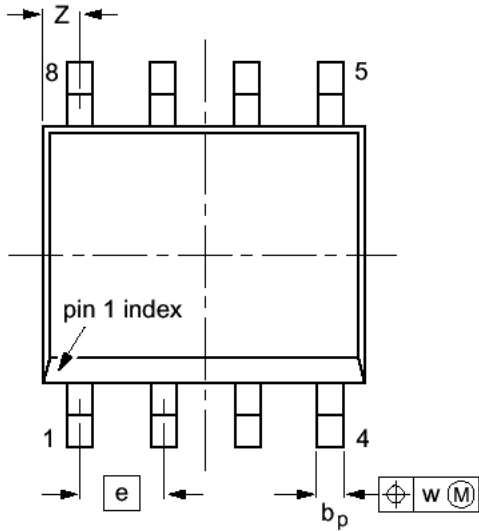
1. For supply voltages other than 5.0V, use the ECL table values and ADD supply voltage value.

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

## AC Characteristics (V<sub>EE</sub> = -3.0V to -5.5V, V<sub>CC</sub> = GND or V<sub>EE</sub> GND, V<sub>CC</sub> = +3.0V 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 <sub>PLH</sub> / t <sub>PHL</sub>	Propagation Delay to Output D to Q	340	435	560				350	440	570	370	450	590	ps
	SEL to Q	540	455	570				360	460	580	380	470	600	
f <sub>max</sub>	Maximum Toggle Frequency							1.5						GHz
t <sub>r</sub> / t <sub>f</sub>	Rise/Fall Time 20 - 80%	100		260	100		260	100		260	100		260	ps

**PACKAGE DIAGRAM  
SOIC 8**

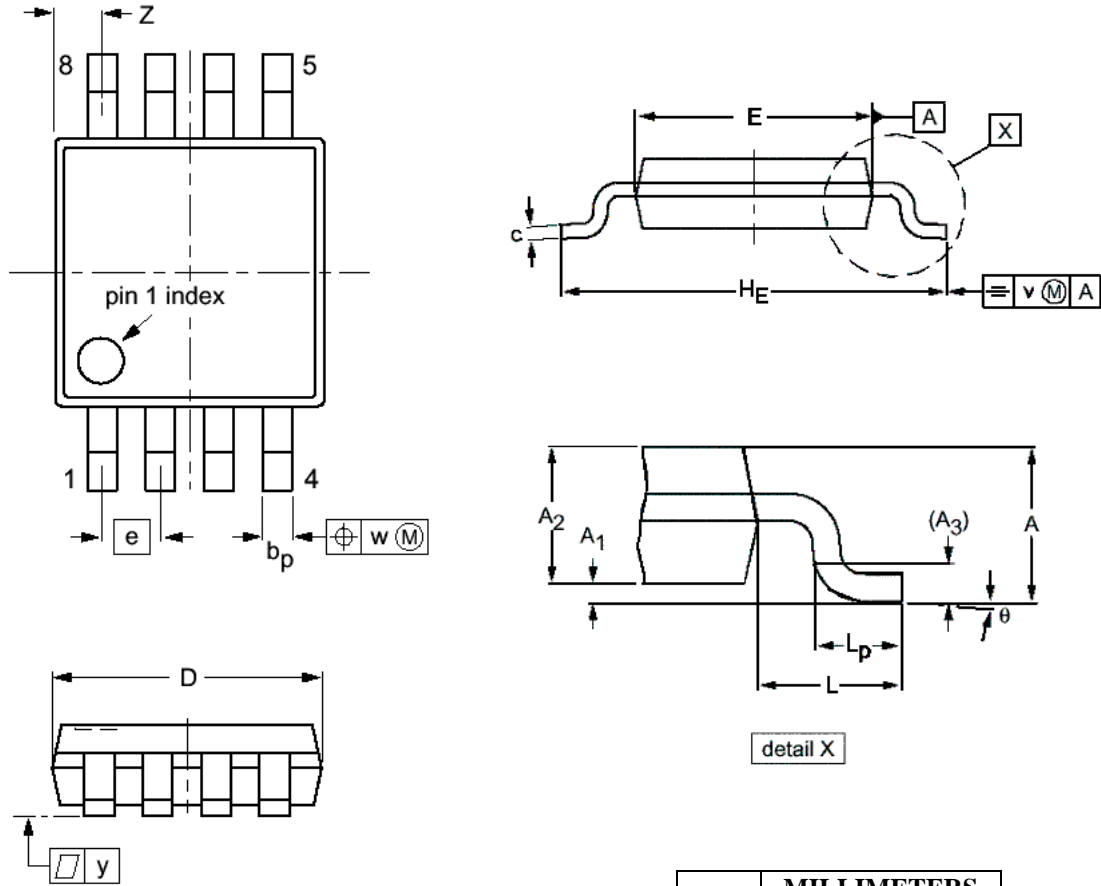


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A		1.75		0.069
A <sub>1</sub>	0.10	0.25	0.004	0.010
A <sub>2</sub>	1.25	1.45	0.049	0.057
A <sub>3</sub>	0.25		0.01	
b <sub>p</sub>	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.8	5.0	0.19	0.20
E	3.8	4.0	0.15	0.16
e	1.27		0.050	
H <sub>E</sub>	5.80	6.20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

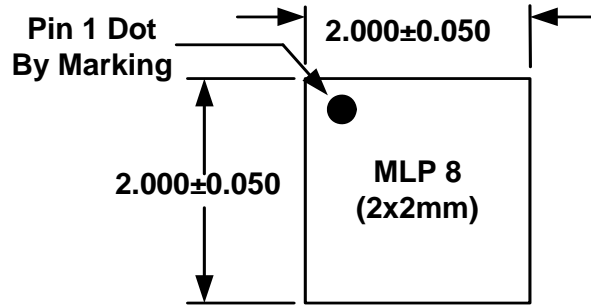
**PACKAGE DIAGRAM  
MSOP 8**



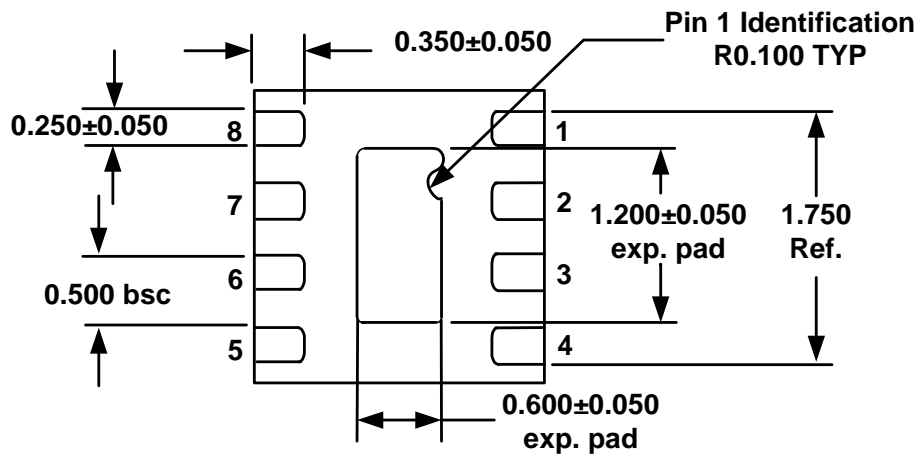
- NOTES:
1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
  2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
  3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

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°

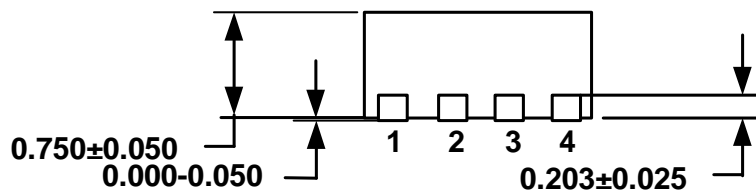
**PACKAGE DIAGRAM**  
**MLP 8 2x2mm**



TOP VIEW



BOTTOM VIEW



SIDE VIEW

**Note: All dimensions are in mm**

## AZ100LEVEL58

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