

AZ100LVEL11

ECL/PECL 1:2 Differential Fanout Buffer

FEATURES

- 265ps Propagation Delay
- 5ps Skew Between Outputs
- High Bandwidth Output Transitions
- Internal Input Pulldown Resistors
- Operating Range of 3.0V to 5.5V
- Direct Replacement for ON Semi MC100LVEL11 & MC100EL11
- Transistor Count = 51
- >2 kV HBM ESD Protection
- Additional ESD Data Available on Arizona Microtek Website

PACKAGE AVAILABILITY

PACKAGE	PART NUMBER	MARKING	NOTES
MLP 8 (2x2x0.75) Green / RoHS Compliant / Lead (Pb) Free	AZ100LVEL11NG	L1G <Date code>	1,2
SOIC 8 RoHS Compliant / Lead (Pb) Free	AZ100LVEL11D+	AZM100+ LVEL11	1,2
MSOP 8 RoHS Green / Compliant / Lead (Pb) Free	AZ100LVEL11TG	AZHG LV11	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" or "YYWW" on underside of part.

DESCRIPTION

The AZ100LVEL11 is a differential 1:2 fanout gate. The device is functionally similar to the E111 device but with higher performance capabilities. Having within-device skews and output transition times significantly improved over the E111, the AZ100LVEL11 is ideally suited for those applications that require the ultimate in AC performance.

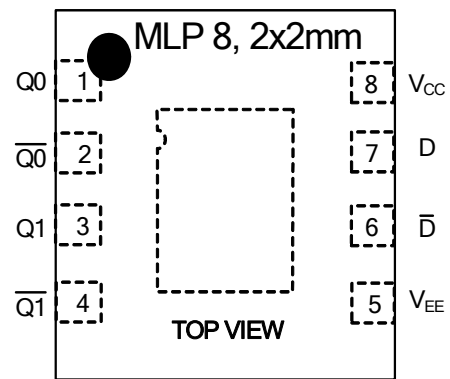
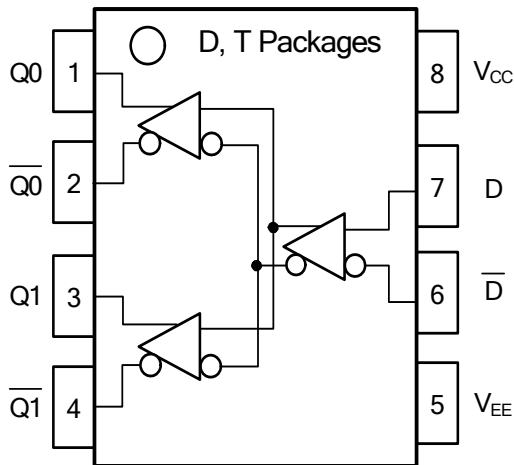
The differential inputs of the AZ100LVEL11 employ clamping circuitry to maintain stability under open input conditions. If the inputs are left open, the Q outputs will go LOW.

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

LOGIC DIAGRAM AND PINOUT ASSIGNMENT

PIN DESCRIPTION

PIN	FUNCTION
D, \bar{D}	Data Inputs
Q0, $\bar{Q0}$, Q1, $\bar{Q1}$	Data Outputs
V _{CC}	Positive Supply
V _{EE}	Negative Supply



Leave Center Bottom Pad open or connect to V_{EE}.

AZ100LEVEL11

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

ECL DC Characteristics (V_{EE} = -3.0V 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 _{IL}	Input LOW Current	-150			-150			-150			-150			µA
I _{IH}	Input HIGH Current			150			150			150			150	µA
I _{EE}	Power Supply Current		22	31		23	31		24	31		28	34	mA

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

LVPECL DC Characteristics (V_{EE} = GND, V_{CC} = +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 _{OH}	Output HIGH Voltage ^{1,2}	2215	2295	2420	2275	2345	2420	2275	2345	2420	2275	2345	2420	mV
V _{OL}	Output LOW Voltage ^{1,2}	1470	1605	1745	1490	1595	1680	1490	1595	1680	1490	1595	1680	mV
V _{IH}	Input HIGH Voltage ¹	2135		2420	2135		2420	2135		2420	2135		2420	mV
V _{IL}	Input LOW Voltage ¹	1490		1825	1490		1825	1490		1825	1490		1825	mV
I _{IL}	Input LOW Current	-150			-150			-150			-150			µA
I _{IH}	Input HIGH Current			150			150			150			150	µA
I _{EE}	Power Supply Current		22	31		23	31		24	31		28	34	mA

- For supply voltages other than 3.3V, use the ECL table values and ADD supply voltage value.
- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

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
I _{IL}	Input LOW Current	-150			-150			-150			-150			µA
I _{IH}	Input HIGH Current			150			150			150			150	µA
I _{EE}	Power Supply Current		22	31		23	31		24	31		28	34	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_{CC} - 2V.

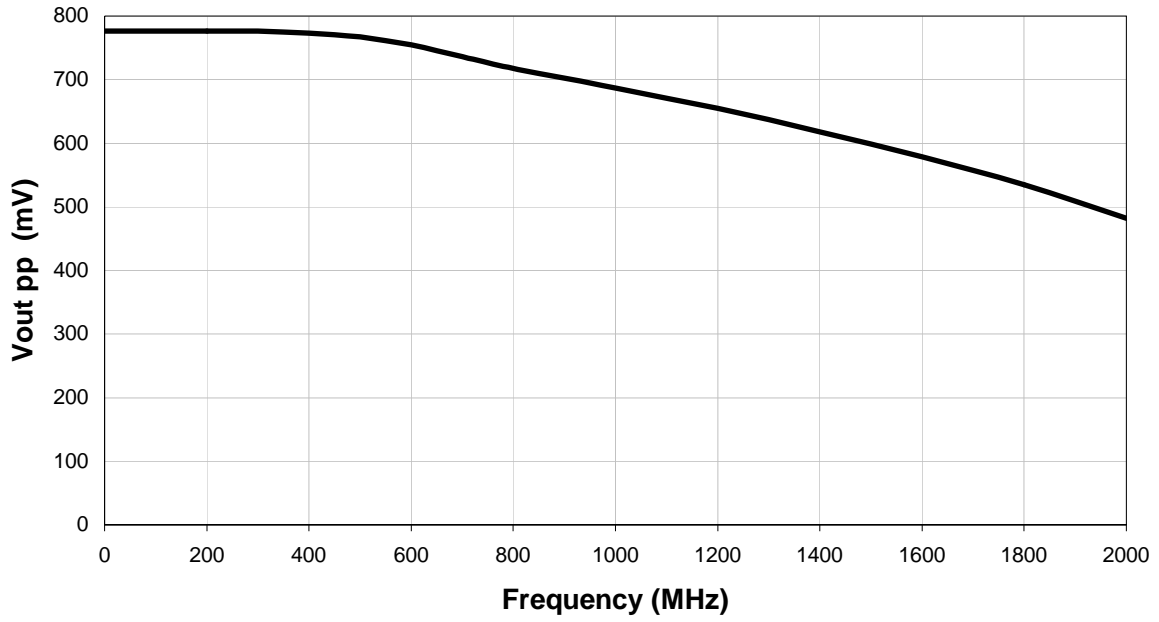
AZ100LVEL11

AC Characteristics ($V_{EE} = -3.0V$ to $-5.5V$, $V_{CC} = GND$ or $V_{EE} = GND$, $V_{CC} = +3.0V$ to $+5.5V$)

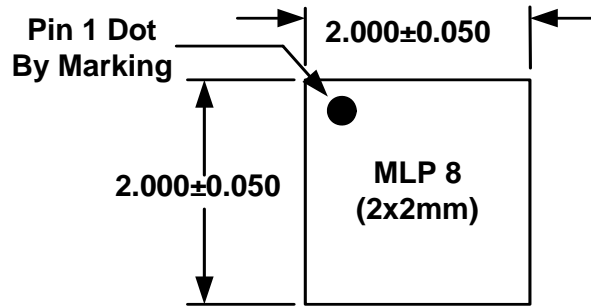
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH} / t_{PHL}	Propagation Delay to Output	135	260	335	185	260	335	190	265	340	215	310	365	ps
t_{SKEW}	Within-Device Skew ¹ Duty Cycle Skew ²		5 5			5 5	20 20		5 5	20 20		5 5	20 20	ps
$V_{PP} (AC)$	Minimum Input Swing ³	150			150			150			150			mV
V_{CMR}	Common Mode Range ⁴	$V_{EE} + 1.2$		$V_{CC} - 0.2$	$V_{EE} + 1.2$		$V_{CC} - 0.2$	$V_{EE} + 1.2$		$V_{CC} - 0.2$	$V_{EE} + 1.2$		$V_{CC} - 0.2$	V
t_r / t_f	Rise/Fall Time 20 – 80%	100		260	100		260	100		260	100		260	ps

1. Within-device skew defined as identical transitions on similar paths through a device.
2. Duty cycle skew is the difference between a t_{PLH} and t_{PHL} propagation delay through a device.
3. V_{PP} is the minimum peak-to-peak differential input swing for which AC parameters guaranteed. The device has a DC gain of ≈ 40 .
4. The V_{CMR} range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{PP} (min) and 1V.

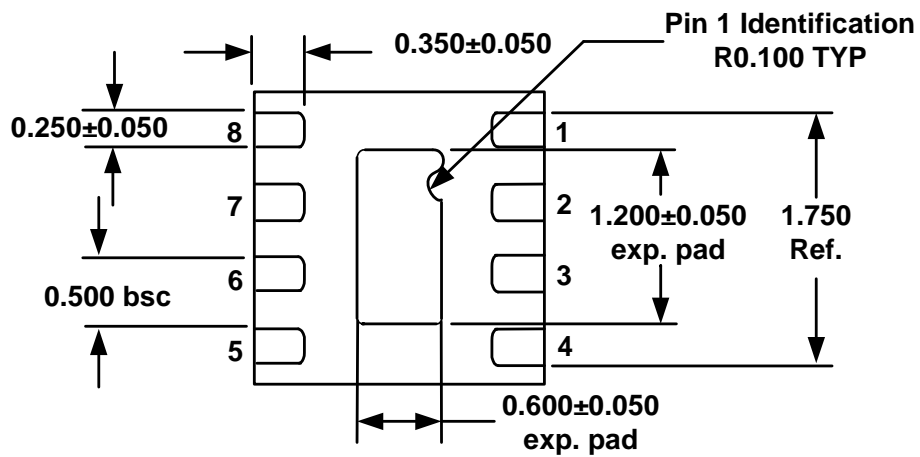
Fig. 1 Typical Output Swing Versus Frequency for AZ100LVEL11



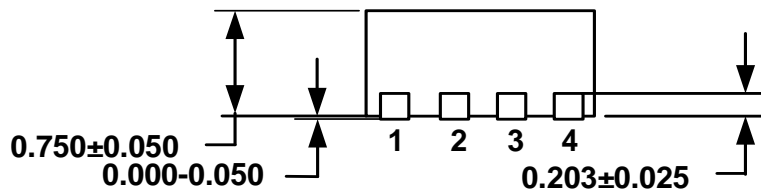
PACKAGE DIAGRAM
MLP 8 2x2mm



TOP VIEW



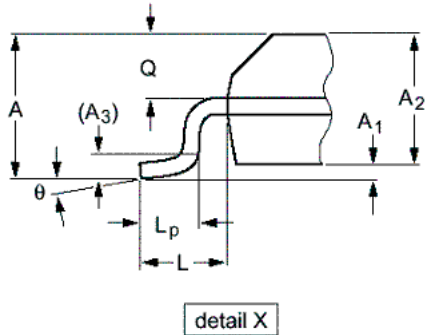
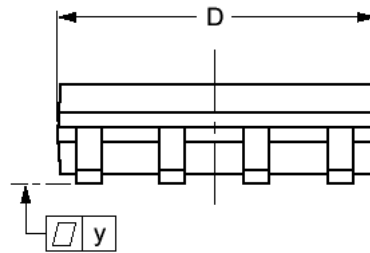
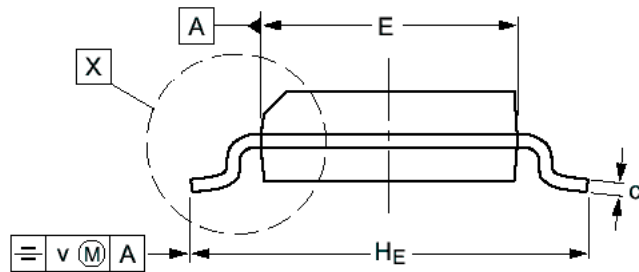
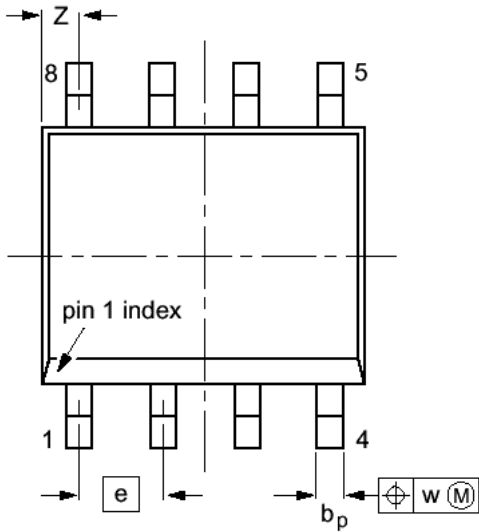
BOTTOM VIEW



SIDE VIEW

Note: All dimensions are in mm

**PACKAGE DIAGRAM
SOIC 8**

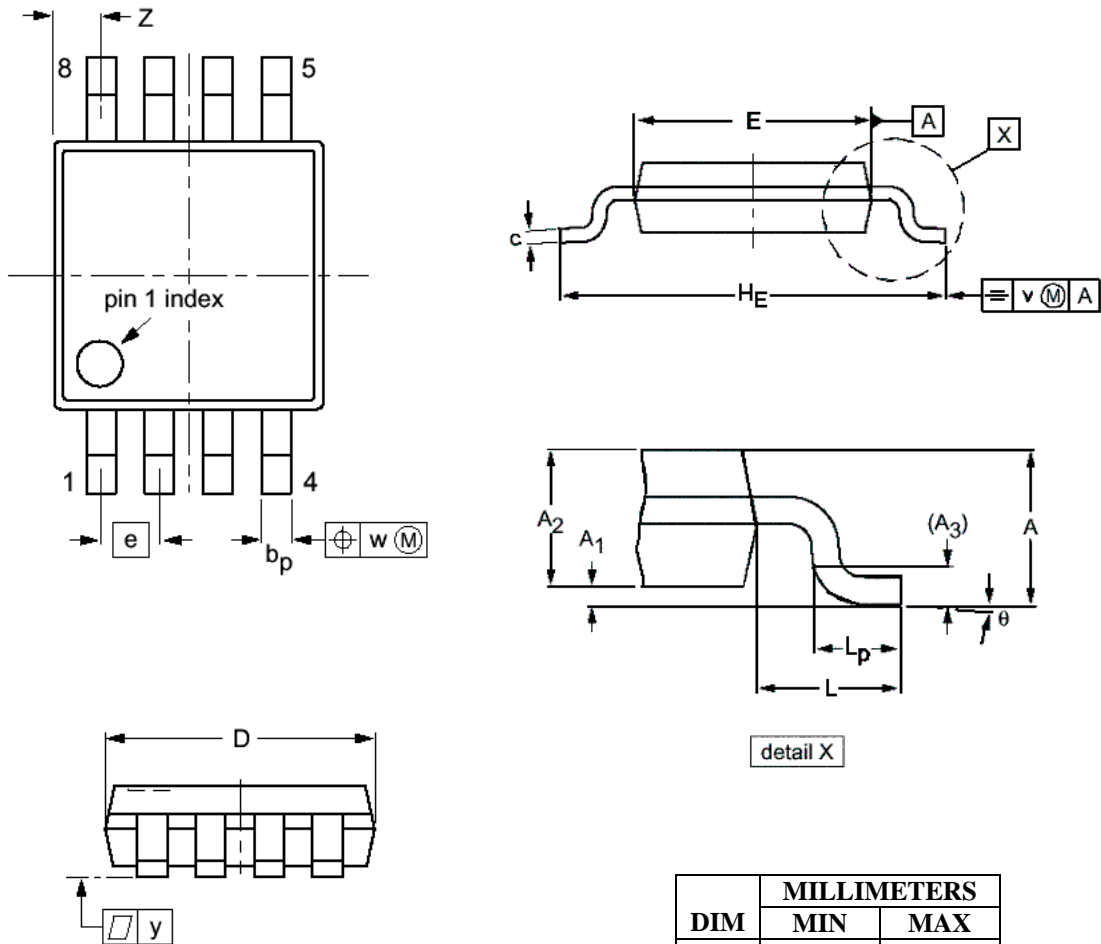


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A		1.75		0.069
A ₁	0.10	0.25	0.004	0.010
A ₂	1.25	1.45	0.049	0.057
A ₃	0.25		0.01	
b _p	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.8	5.0	0.19	0.20
E	3.8	4.0	0.15	0.16
e	1.27		0.050	
H _E	5.80	6.20	0.228	0.244
L	1.05		0.041	
L _p	0.40	1.00	0.016	0.039
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°	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 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°	6°

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