

# AZ100LVEL16

## PECL/ECL Differential Receiver

[www.azmicrotek.com](http://www.azmicrotek.com)

### DESCRIPTION

The [AZ100LVEL16](#) is a differential receiver with an internal input clamp. It is ideally suited for interfacing with high frequency sources. Under open input conditions, the internal input clamp will force the Q output LOW and the Q HIGH.

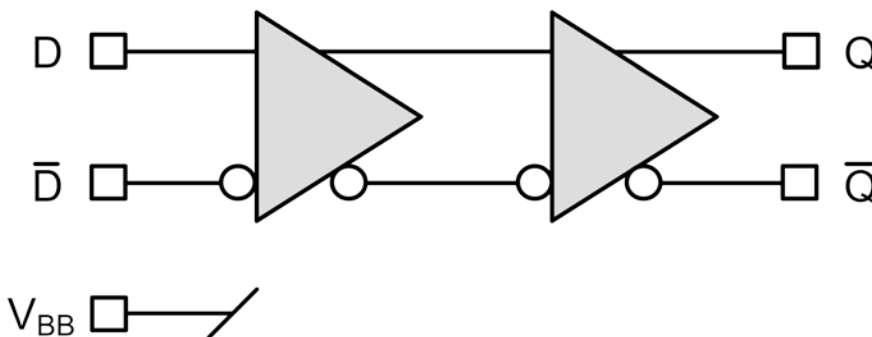
The AZ100LVEL16 provides a  $V_{BB}$  output for single-ended use or a DC bias reference for AC coupling to the device.

The AZ100LVEL16 is a direct replacement for the On Semiconductor MC100EL16 & MC100LVEL16

### FEATURES

- High Bandwidth Output Transitions
- 250ps Propagation Delay
- 3V to 5.5V Power Supply
- Internal Input Pulldown Resistors

### BLOCK DIAGRAM



### APPLICATIONS

- General Applications

### PACKAGE AVAILABILITY

- MLP8
- MSOP8
- SOIC8
- Green/RoHS Compliant/Pb-Free

Part Number (PN)	Package	Marking
AZ100LVEL16NG <sup>1</sup>	MLP8	Q6G <Date Code> <sup>2</sup>
AZ100LVEL16T+ <sup>1</sup>	MSOP8	AZH+LV16 <sup>2</sup>
AZ100LVEL16DG <sup>1</sup>	SOIC8	AZM100GLVEL16 <sup>2</sup>

<sup>1</sup> [Tape & Reel](#) - Add 'R1' at end of PN for 7in (1k parts), 'R2' (2.5k) for 13in

<sup>2</sup> See [www.azmicrotek.com](http://www.azmicrotek.com) for [date code format](#)

## PIN DESCRIPTION AND CONFIGURATION

Table 1 - Pin Description AZ100LVEL16N

Pin	Name	Type	Function
1	NC	-	N/A
2	D	Input	Data Input
3	D	Input	Inverting Data Input
4	V <sub>BB</sub>	Output	Reference Voltage
5	V <sub>EE</sub>	Power	Negative Supply
6	Q	Output	Inverting PECL Output
7	Q	Output	PECL Output
8	V <sub>CC</sub>	Power	Positive Supply

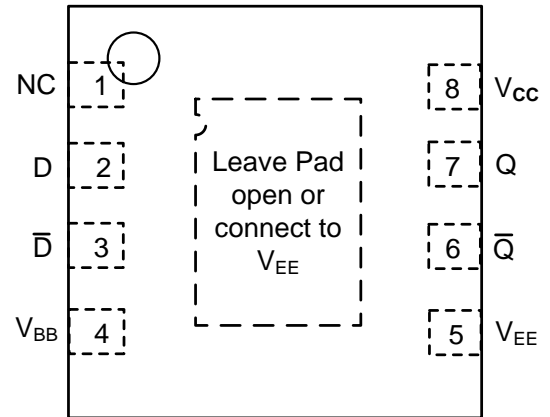


Figure 1 - Pin Configuration  
AZ100LVEL16N

Table 2 - Pin Description AZ100LVEL16T & AZ100LVEL16D

Pin	Name	Type	Function
1	NC	-	N/A
2	D	Input	Data Input
3	D	Input	Inverting Data Input
4	V <sub>BB</sub>	Output	Reference Voltage
5	V <sub>EE</sub>	Power	Negative Supply
6	Q	Output	Inverting PECL Output
7	Q	Output	PECL Output
8	V <sub>CC</sub>	Power	Positive Supply

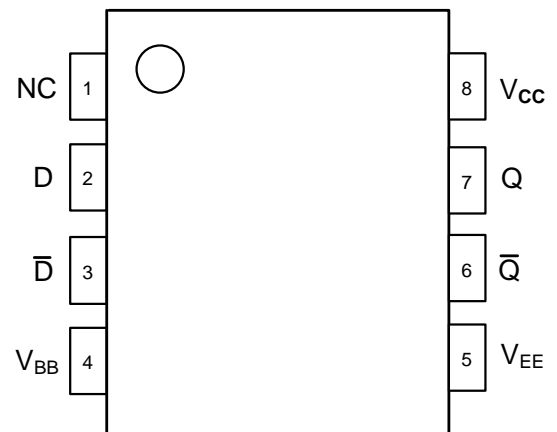


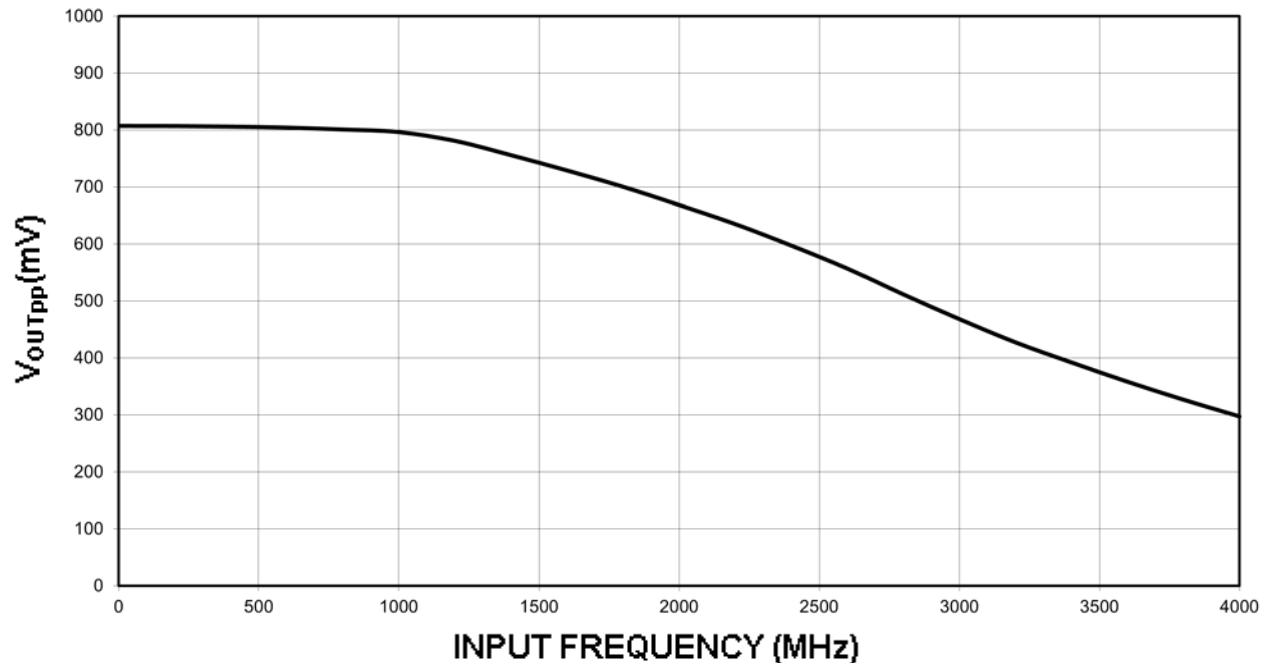
Figure 2 - Pin Configuration  
AZ100LVEL16T & AZ100LVEL16D

## ENGINEERING NOTES

The AZ100LVEL16 is a differential receiver. The device is functionally equivalent to the E116 device with higher performance capabilities. With output transition times significantly faster than the E116, the AZ100LVEL16 is ideally suited for interfacing with high frequency sources.

The AZ100LVEL16 provides a  $V_{BB}$  output for single-ended use or a DC bias reference for AC coupling to the device. For single-ended input applications, the  $V_{BB}$  reference should be connected to one side of the D/D differential input pair. The input signal is then fed to the other D/D input. The  $V_{BB}$  pin can support 1.5 mA sink/source current. When used, the  $V_{BB}$  pin should be bypassed to ground via a 0.01  $\mu$ F capacitor.

Under open input conditions internal input clamps will force the Q output LOW.



Measured with 750mv differential input, Q/Q each terminated to  $V_{CC}-2V$  via 50  $\Omega$  resistors.

Figure 3 – AZ100LVEL16 typical large signal output swing graph

**PERFORMANCE DATA****Table 3 – Absolute Maximum Ratings**

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

Symbol	Characteristic	Condition	Rating	Unit
$V_{CC}$	Power Supply	$V_{EE} = 0V$	0 to + 6.0	V
$V_I$	Input Voltage	$V_{EE} = 0V$	0 to + 6.0	V
$V_{D/D\_SE}$	Single Ended D/D Input Voltage	Referenced to $V_{BB}$	$\pm 1.2$	V
$I_{OUT}$	Output Current	Continuous	50	mA
		Surge	100	
$T_A$	Operating Temperature Range	-	-40 to +85	$^{\circ}C$
$T_{STG}$	Storage Temperature Range	-	-65 to +150	$^{\circ}C$
$ESD_{HBM}$	Human Body Model Electro Static Discharge	-	2500	V
$ESD_{MM}$	Machine Model Electro Static Discharge	-	200	V
$ESD_{CDM}$	Charged Device Model Electro Static Discharge	-	2000	V

**Table 4 - ECL DC Characteristics**

**ECL DC Characteristics ( $V_{EE} = -3.0V$  to  $-5.5V$ ,  $V_{CC} = GND$ )**

Symbol	Characteristic	$-40^{\circ}C$		$0^{\circ}C$		$25^{\circ}C$		$85^{\circ}C$		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
$V_{OH}$	Output HIGH Voltage <sup>1</sup>	-1085	-880	-1025	-880	-1025	-880	-1025	-880	mV
$V_{OL}$	Output LOW Voltage <sup>1</sup>	-1830	-1555	-1810	-1620	-1810	-1620	-1810	-1620	mV
$V_{BB}$	Reference Voltage	-1380	-1260	-1380	-1260	-1380	-1260	-1380	-1260	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	$\mu A$
$I_{IL}$	Input LOW Current	-150		-150		-150		-150		$\mu A$
$I_{EE}$	Power Supply Current		22		22		22		24	mA

1. Each output is terminated through a  $50\Omega$  resistor to  $V_{CC} - 2V$ .

Table 5 – LVPECL DC Characteristics

LVPECL DC Characteristics ( $V_{EE} = \text{GND}$ ,  $V_{CC} = +3.3\text{V}$ )

Symbol	Characteristic	-40°C		0°C		25°C		85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
$V_{OH}$	Output HIGH Voltage <sup>1,2</sup>	2215	2420	2275	2420	2275	2420	2275	2420	mV
$V_{OL}$	Output LOW Voltage <sup>1,2</sup>	1470	1745	1490	1680	1490	1680	1490	1680	mV
$V_{BB}$	Reference Voltage <sup>1</sup>	1920	2040	1920	2040	1920	2040	1920	2040	mV
$V_{IH}$	Input HIGH Voltage <sup>1</sup>	2135	2420	2135	2420	2135	2420	2135	2420	mV
$V_{IL}$	Input LOW Voltage <sup>1</sup>	1490	1825	1490	1825	1490	1825	1490	1825	mV
$I_{IH}$	Input HIGH Current		150		150		150		150	μA
$I_{IL}$	Input LOW Current	-150		-150		-150		-150		μA
$I_{EE}$	Power Supply Current		22		22		22		24	mA

1. 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  $V_{CC} - 2\text{V}$ .

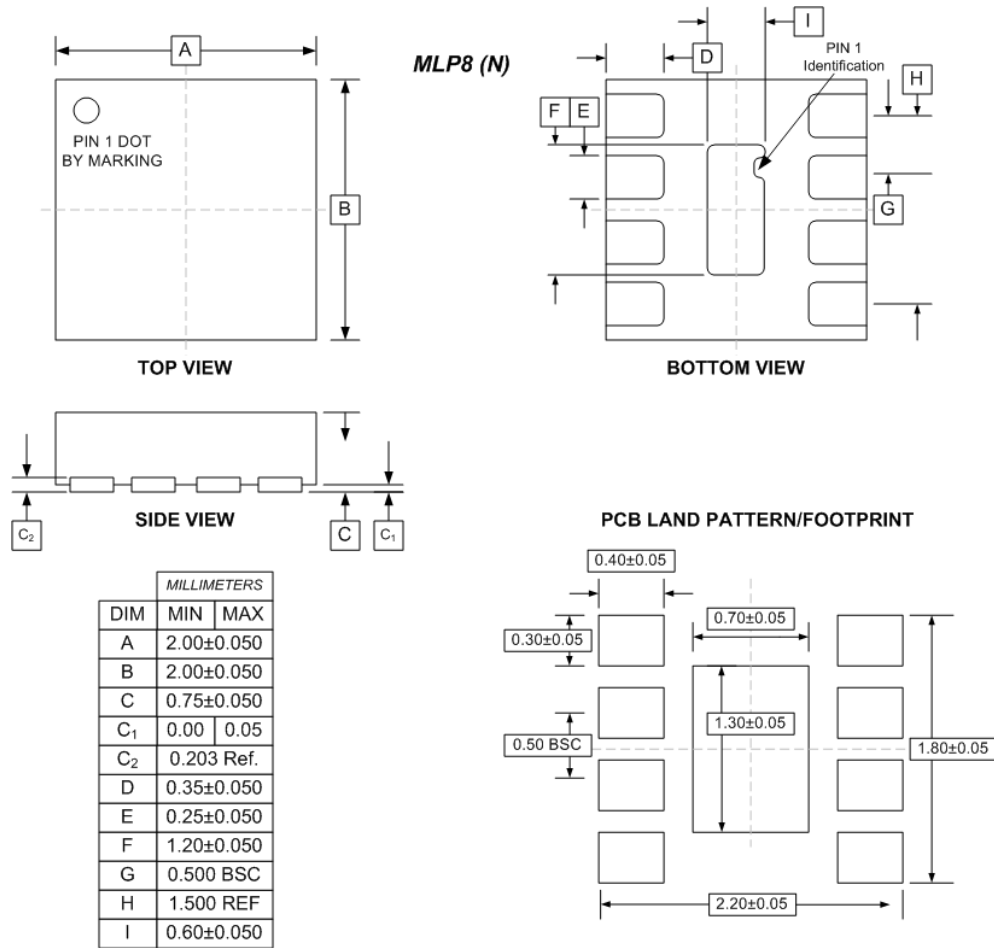
Table 6 – PECL DC Characteristics

PECL DC Characteristics ( $V_{EE} = \text{GND}$ ,  $V_{CC} = +5.0\text{V}$ )

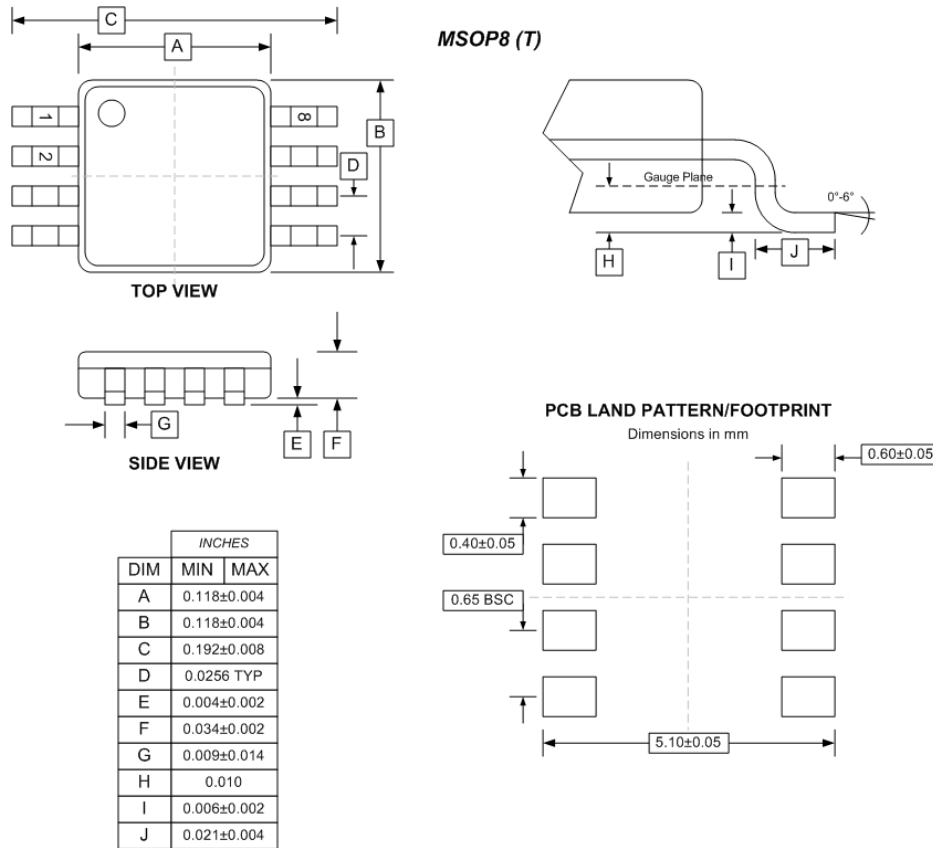
Symbol	Characteristic	-40°C		0°C		25°C		85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
$V_{OH}$	Output HIGH Voltage <sup>1,2</sup>	3915	4120	3975	4120	3975	4120	3975	4120	mV
$V_{OL}$	Output LOW Voltage <sup>1,2</sup>	3170	3445	3190	3380	3190	3380	3190	3380	mV
$V_{BB}$	Reference Voltage <sup>1</sup>	3620	3740	3620	3740	3620	3740	3620	3740	mV
$V_{IH}$	Input HIGH Voltage <sup>1</sup>	3835	4120	3835	4120	3835	4120	3835	4120	mV
$V_{IL}$	Input LOW Voltage <sup>1</sup>	3190	3525	3190	3525	3190	3525	3190	3525	mV
$I_{IH}$	Input HIGH Current		150		150		150		150	μA
$I_{IL}$	Input LOW Current	-150		-150		-150		-150		μA
$I_{EE}$	Power Supply Current		22		22		22		24	mA

1. 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  $V_{CC} - 2\text{V}$ .

**PACKAGE DIAGRAM**  
MLP8  
Green/RoHS compliant/Pb-Free  
MSL=1



**PACKAGE DIAGRAM**  
MSOP8  
RoHS compliant/Pb-Free



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