AZ100LVEL16

PECL/ECL Differential Receiver

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 $\overline{Q}$ HIGH.

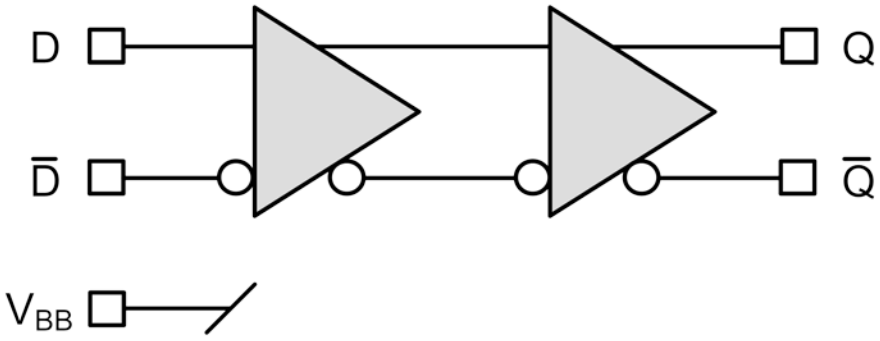
The AZ100LVEL16 provides a V_{BB} output for single-ended use or a DC bias reference for AC coupling to the device.

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[1]	MLP8	Q6G <Date Code>[2]
AZ100LVEL16T+[1]	MSOP8	AZH+LV16[2]
AZ100LVEL16DG[1]	SOIC8	AZM100GLVEL16[2]

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

[2] See 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	$\overline{D}$	Input	Inverting Data Input
4	V_{BB}	Output	Reference Voltage
5	V_{EE}	Power	Negative Supply
6	$\overline{Q}$	Output	Inverting PECL Output
7	Q	Output	PECL Output
8	V_{CC}	Power	Positive Supply

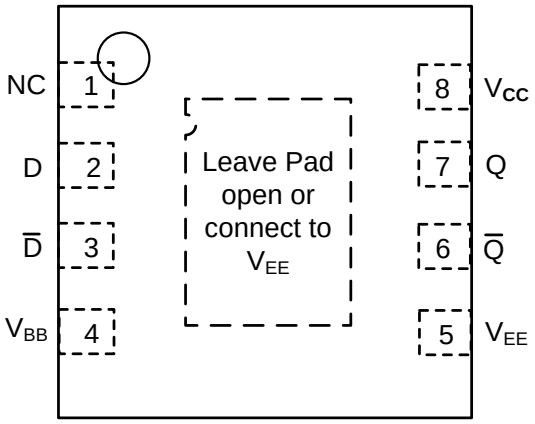


Figure 1 - Pin Configuration AZ100LVEL16N

Table 2 - Pin Description AZ100LVEL16T & AZ100LVEL16D

Pin	Name	Type	Function
1	NC	-	N/A
2	D	Input	Data Input
3	$\overline{D}$	Input	Inverting Data Input
4	V_{BB}	Output	Reference Voltage
5	V_{EE}	Power	Negative Supply
6	$\overline{Q}$	Output	Inverting PECL Output
7	Q	Output	PECL Output
8	V_{CC}	Power	Positive Supply

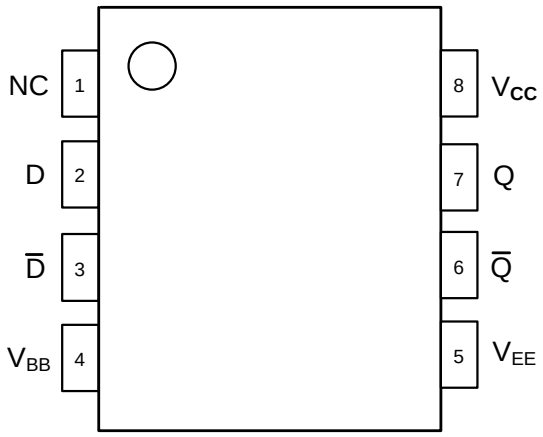


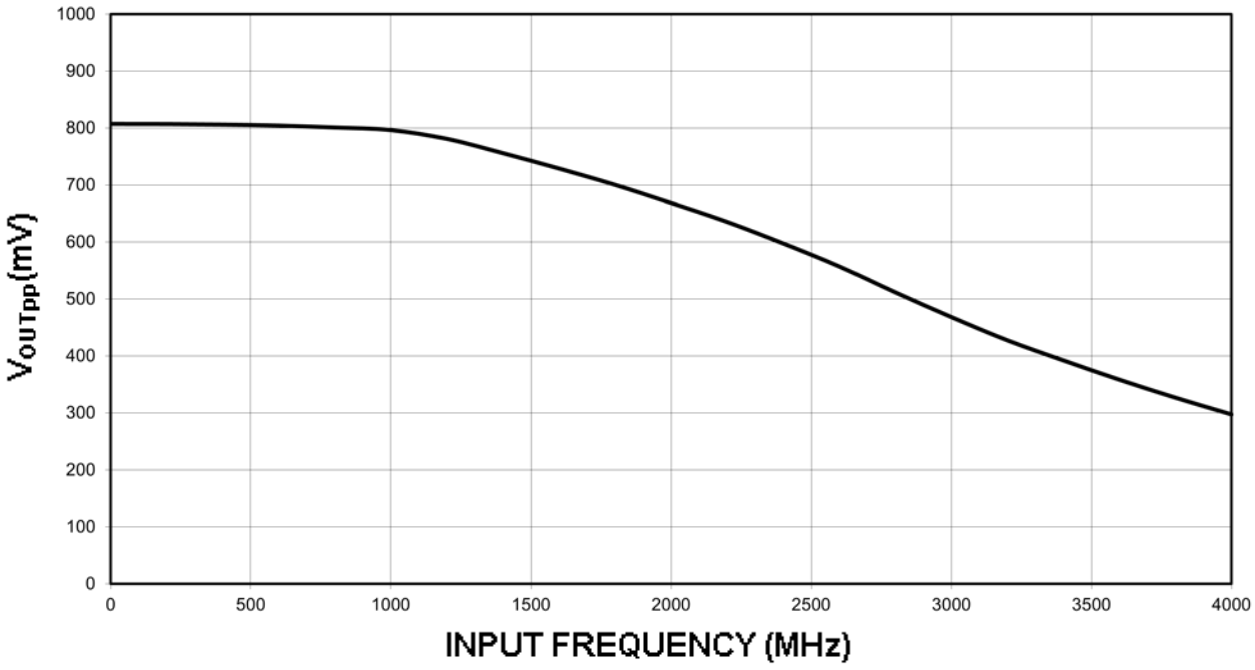
Figure 2 - Pin Configuration AZ100LVEL16T & AZ100LVEL16D

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/$\overline{D}$ differential input pair. The input signal is then fed to the other D/$\overline{D}$ 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 µF capacitor.

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



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

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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
$V_{D/\bar{D}\_SE}$	Single Ended D/$\bar{D}$ Input Voltage	Referenced to V_{BB}	±1.2	V
I_{OUT}	Output Current	Continuous	50	mA
		Surge	100	
T_A	Operating Temperature Range	-	-40 to +85	°C
T_{STG}	Storage Temperature Range	-	-65 to +150	°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°C		0°C		25°C		85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
V_{OH}	Output HIGH Voltage[1]	-1085	-880	-1025	-880	-1025	-880	-1025	-880	mV
V_{OL}	Output LOW Voltage[1]	-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	µA
I_{IL}	Input LOW Current	-150		-150		-150		-150		µA
I_{EE}	Power Supply Current		22		22		22		24	mA

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

Table 5 – LVPECL DC Characteristics

LVPECL DC Characteristics (V_{EE} = GND, VCC = +3.3V)

Symbol	Characteristic	-40°C		0°C		25°C		85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
V_{OH}	Output HIGH Voltage[1,2]	2215	2420	2275	2420	2275	2420	2275	2420	mV
V_{OL}	Output LOW Voltage[1,2]	1470	1745	1490	1680	1490	1680	1490	1680	mV
V_{BB}	Reference Voltage[1]	1920	2040	1920	2040	1920	2040	1920	2040	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_{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 that 3.3V, use the ECL table values and ADD supply voltage value.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

Table 6 – PECL DC Characteristics

PECL DC Characteristics (V_{EE} = GND, VCC = +5.0V)

Symbol	Characteristic	-40°C		0°C		25°C		85°C		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
V_{OH}	Output HIGH Voltage[1,2]	3915	4120	3975	4120	3975	4120	3975	4120	mV
V_{OL}	Output LOW Voltage[1,2]	3170	3445	3190	3380	3190	3380	3190	3380	mV
V_{BB}	Reference Voltage[1]	3620	3740	3620	3740	3620	3740	3620	3740	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_{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

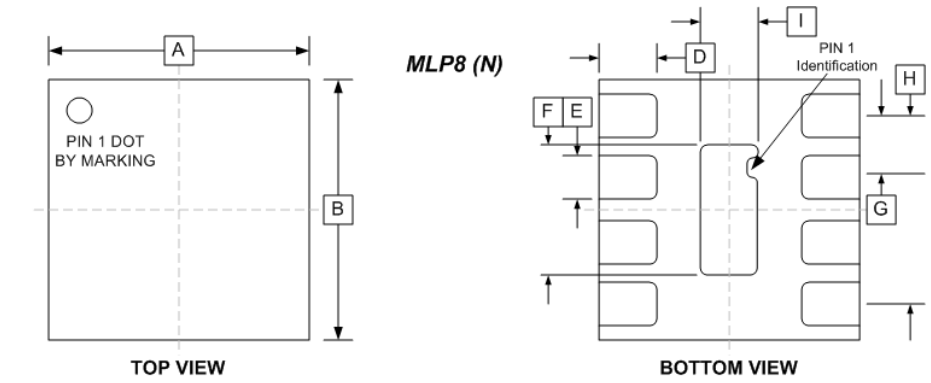
1. For supply voltages other that 3.3V, use the ECL table values and ADD supply voltage value.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.

PACKAGE DIAGRAM

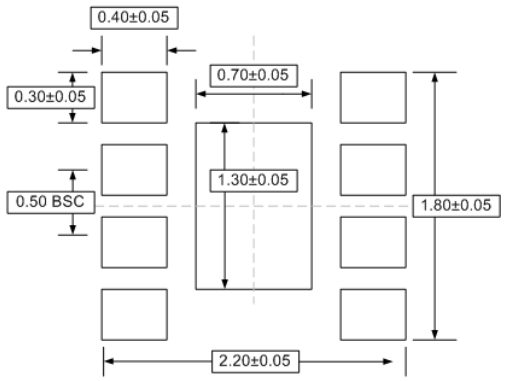
MLP8

Green/RoHS compliant/Pb-Free

MSL=1



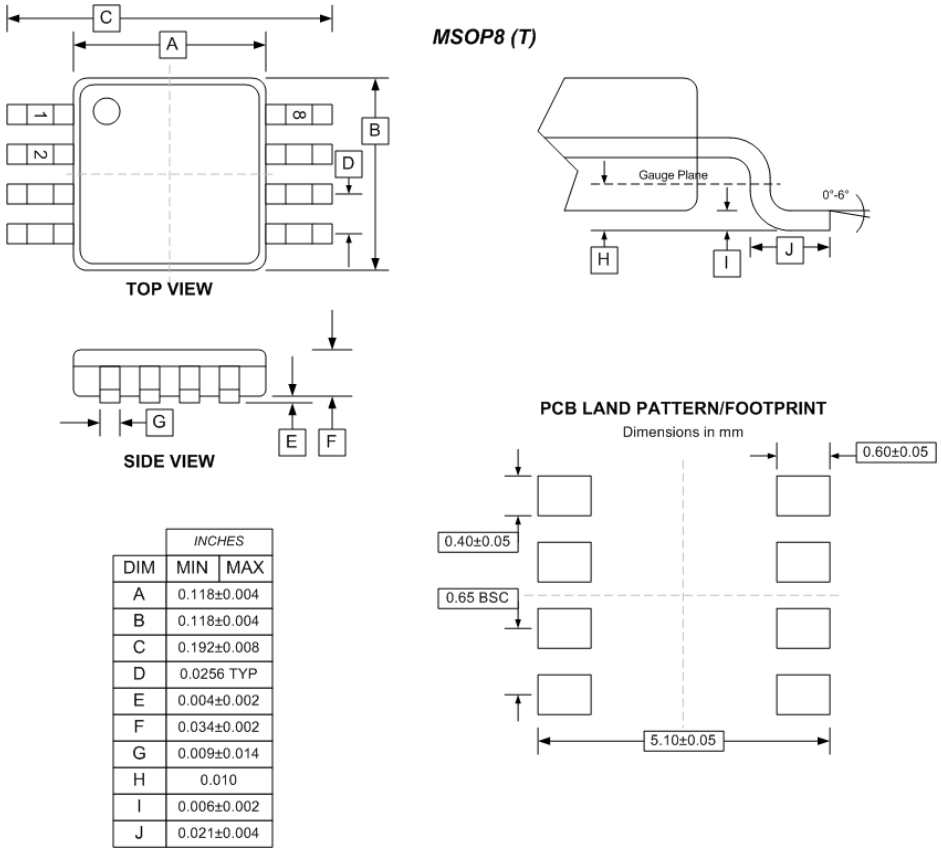
	MILLIMETERS	
DIM	MIN	MAX
A	2.00±0.050	
B	2.00±0.050	
C	0.75±0.050	
C_1	0.00	0.05
C_2	0.203 Ref.	
D	0.35±0.050	
E	0.25±0.050	
F	1.20±0.050	
G	0.500 BSC	
H	1.500 REF	
I	0.60±0.050	



PACKAGE DIAGRAM

MSOP8

RoHS compliant/Pb-Free



	INCHES	
DIM	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	