

AZ88923

High Speed Limiting Post Amplifier

www.azmicrotek.com

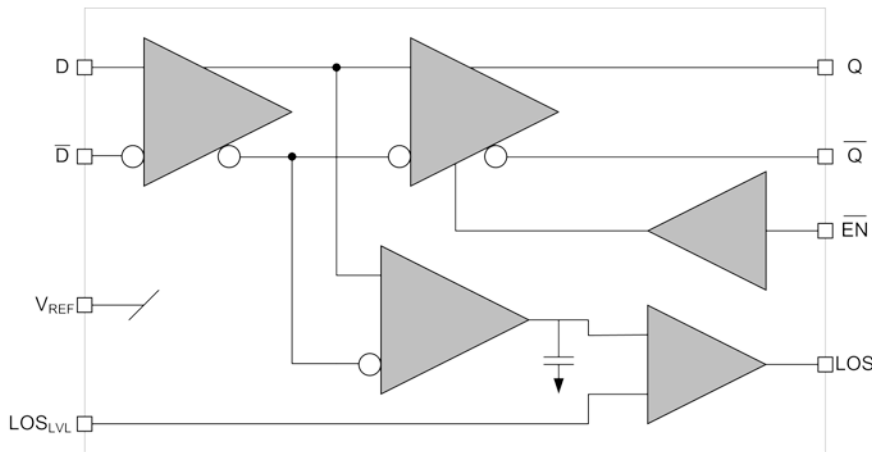
DESCRIPTION

The [AZ88923](#) is a limiting post amplifier usable at data rates up to 2.5Gbps. It is ideal for use as a post amplifier following a transimpedance amplifier.

The AZ88923 contains a programmable loss of signal detect function to determine when the input signal has been lost. This information can be used with the $\overline{\text{EN}}$ input pin to disable the output under LOS conditions. The detect threshold can be set with a resistor divider between V_{CC} and V_{REF} . The LOS output is an open drain compatible with CMOS and TTL.

The outputs produce standard PECL 100K voltage compensated levels.

BLOCK DIAGRAM



FEATURES

- Up to 2.5Gbps operation
- Differential PECL Inputs
- Differential PECL Outputs
- Open Drain TTL/CMOS LOS output
- TTL/CMOS Enable input
- High Speed SiGe Process

APPLICATIONS

- General applications

PACKAGE AVAILABILITY

- MSOP10
- Green/RoHS Compliant/Pb-Free

Order Number	Package	Marking
AZ88923U ¹	MSOP10	AZ88923 ²

¹ [Tape & Reel](#) - Add 'R1' at end of order number 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

Pin	Name	Type	Function
1	$\overline{\text{EN}}$	Input	Output Enable
2	D	Input	Data Input
3	$\overline{\text{D}}$	Input	Data Input
4	V_{REF}	Input	Select Input
5	LOS_{LVL}	Input	LOS Threshold
6	GND	Power	Ground
7	LOS	Output	LOS Output
8	$\overline{\text{Q}}$	Output	PECL Output
9	Q	Output	PECL Output
10	V_{CC}	Power	Positive Supply

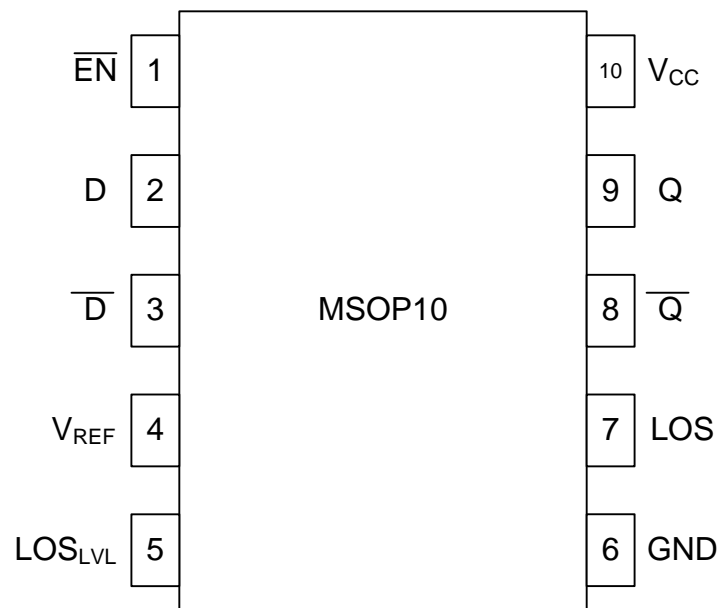


Figure 1 - Pin Configuration for MSOP10

ENGINEERING NOTES

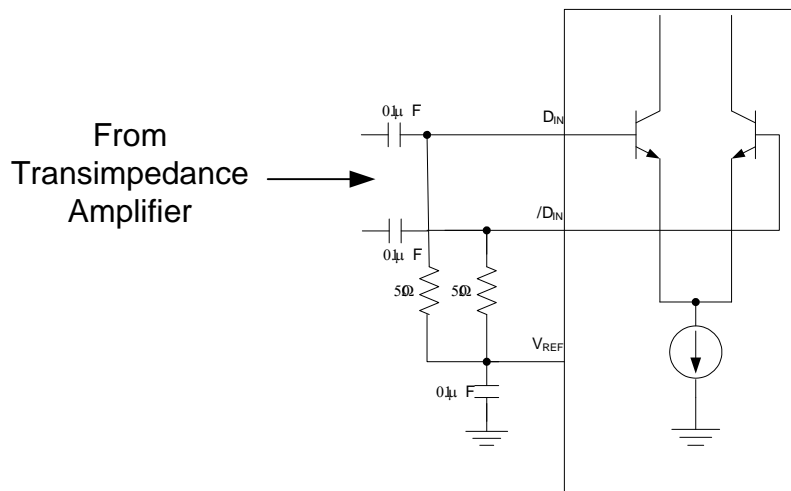


Figure 2 - Differential Input Configuration

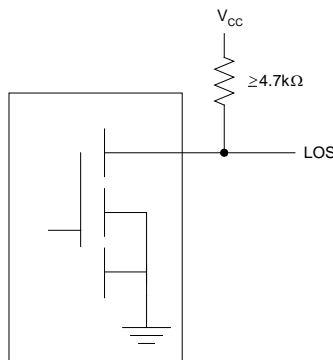


Figure 3 - LOS Output

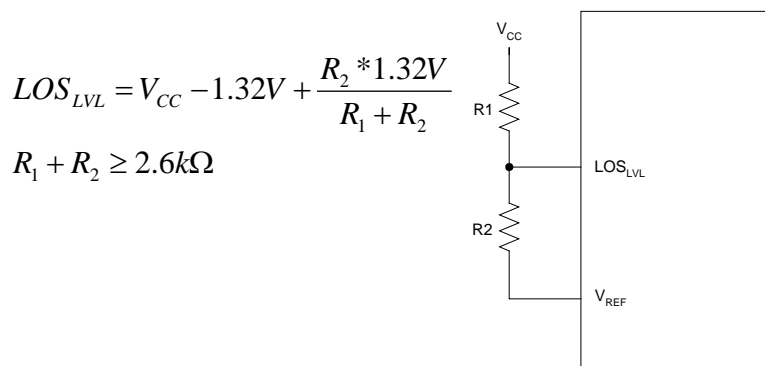


Figure 4 - LOS_{LVL} Circuit

PERFORMANCE DATA**Table 2 – Absolute Maximum Ratings**

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

Symbol	Characteristic	Condition	Rating	Unit
V _{CC}	DC Supply Voltage	Referenced to GND	0 to +4.5	V
V _I	Input Voltage	In Free Air	0 to V _{CC}	V
V _O	Output Voltage		V _{CC} -2V to V _{CC}	V
T _A	Operating Temperature Range		-40 to +85	°C
T _{STG}	Storage Temperature Range		-65 to +150	°C
ESD _{HBM}	Human Body Model		2500	V
ESD _{MM}	Machine Model		200	V
ESD _{CDM}	Charged Device Model		2500	V

Table 3 - DC CharacteristicsDC Characteristics (V_{CC} = 3.0V to 3.6V, R_{LOAD}=50Ω to V_{CC}-2V)

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	V _{CC} -1085		V _{CC} -880	V _{CC} -1025		V _{CC} -880	V _{CC} -1025	V _{CC} -955	V _{CC} -880	V _{CC} -1025		V _{CC} -880	mV
V _{OL}	Output LOW Voltage	V _{CC} -1830		V _{CC} -1555	V _{CC} -1810		V _{CC} -1620	V _{CC} -1810	V _{CC} -1705	V _{CC} -1620	V _{CC} -1810		V _{CC} -1620	mV
V _{IH}	Input HIGH Voltage	2			2			2			2			V
V _{IL}	Input LOW Voltage	0.8			0.8			0.8			0.8			V
V _{OL}	LOS Output LOW Voltage ²			0.5			0.5			0.5			0.5	V
V _{REF}	Reference Voltage	V _{CC} -1.38		V _{CC} -1.26	V _{CC} -1.38		V _{CC} -1.26	V _{CC} -1.38		V _{CC} -1.26	V _{CC} -1.38		V _{CC} -1.26	V
V _{CMR}	Common Mode Range	GND + 2		V _{CC}	GND + 2		V _{CC}	GND + 2		V _{CC}	GND + 2		V _{CC}	V
I _{IH}	Input HIGH Current			100			100			100			100	μA
I _{EE}	Power Supply Current ¹			40			40		30	40			45	mA

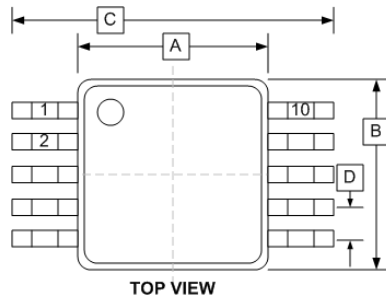
¹ No Output Load² I_{OL} = +2mA

Table 4 - AC Characteristics

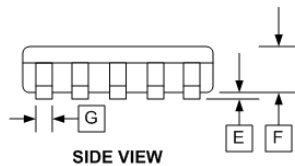
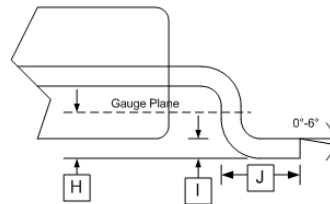
AC Characteristics ($V_{CC} = 3.0V$ to $3.6V$, $R_{LOAD} = 50\Omega$ to $V_{CC} - 2V$)

Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{ID}	Input Voltage Range	5		1800	5		1800	5		1800	5		1800	mV
t_r / t_f	Rise/Fall Time			150			150			150			150	ps
V_{OD}	Diff - V_{ID} - 15mVp-p								600					mVpp
	SE - V_{ID} - 5mVp-p								200					
HYS	LOS Hysteresis	2		8	2		8	2	4.6	8	2		8	dB
t_{OFFL}	LOS Release Time Min Input			0.5			0.5		0.1	0.5			0.5	μ s
t_{OFFH}	LOS Release Time Max Input			0.5			0.5		0.1	0.5			0.5	μ s
t_{ONL}	LOS Assert Time			0.5			0.5		0.2	0.5			0.5	μ s
V_{SR}	LOS Sensitivity Range	5		50	5		50	5		50	5		50	mVpp

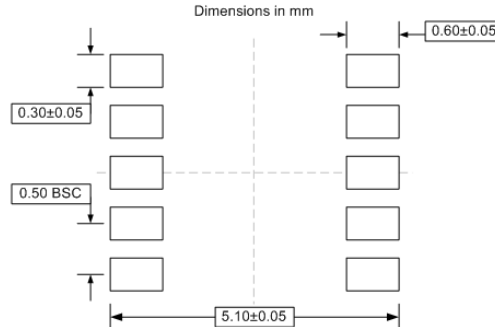
PACKAGE DIAGRAM
MSOP10
 Green/RoHS compliant/Pb-Free
 MSL=1



MSOP10 (U)



PCB LAND PATTERN/FOOTPRINT



DIM	INCHES	
	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0197 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.007±0.0106	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	

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