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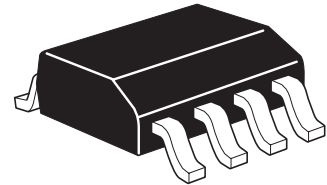
# ZLNB1001

## DBS tone and polarity multiplex controller

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### Description

The ZLNB1001 multiplex controller is one of a wide range of satellite receiver LNB and IF distribution support circuits available from Zetex. It supports a single IF path providing logic outputs to select one of four IF switch input channels, which typically using PIN diodes. It is intended for use in multi-switch applications for selection and distribution of universal LNB IF output signals, replacing many discrete components including the voltage regulator to save both manufacturing cost and PCB size whilst improving reliability.



The highly accurate control input of the ZLNB1001 has both voltage and tone control for the four required states. The voltage threshold is nominally 14.5 V and to meet the demanding requirements of some broadcasters it has a switching range of 14.0 V to 15 V. The threshold is temperature compensated to minimize drift. This features a low and stable input current that enables transient protection to be achieved with the addition of only a single resistor.

The outputs are configured to deliver a positive regulated voltage drive of 7 V when a desired channel is selected, and 0V when de-selected.

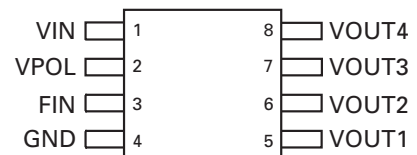
### Features

- Precision voltage and tone detectors
- Temperature compensated
- Low cost solution
- Integrated tone filter
- Powered from STB: no additional power requirement
- Direct drive to PIN diodes
- SO8 SMD package

### Applications

- Switch boxes for satellite IF distribution
- LNB receivers

### Pin out - top view



## Absolute maximum ratings

Input voltage	25V
Output current	50mA
Operating temperature	-40 to 85°C
Storage temperature	-50 to 150°C

## Electrical characteristics

Test conditions (unless otherwise stated):  $V_{in} = 10V$  to  $21V$  via series resistor as test circuit,  $T_{amb} = 25^{\circ}C$

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
$I_S$	Supply current	$I_{OUT} = 0$	1.5	3.2	5.5	mA
$I_{POL}$	Input current at $V_{POL}$	$V_{POL} = 15V$ $V_{in} = 15V$	130	220	350	$\mu A$
$V_{TVPOL}^*$	Threshold voltage	$T_{amb} = -40$ to $80^{\circ}C$ $V_{in} = 15V$	14	14.5	15	V
$V_{TFIN}$	Tone threshold	$f = 22kHz^{\dagger}$	100	170	350	mV p-p
$V_{OUTH}$	Output voltage "high"	For selected output, $I_{OUT} = 20$ mA (source)	6.5	7	7.5	V
		For selected output, $I_{OUT} = 0$	7.5	8	8.5	V
$V_{OUTL}$	Output voltage "low"	For unselected output, $I_{OUT} = -1$ mA (sink)		0.15	0.5	V
$T_{SW}$	Switching speed				10	ms

### NOTES:

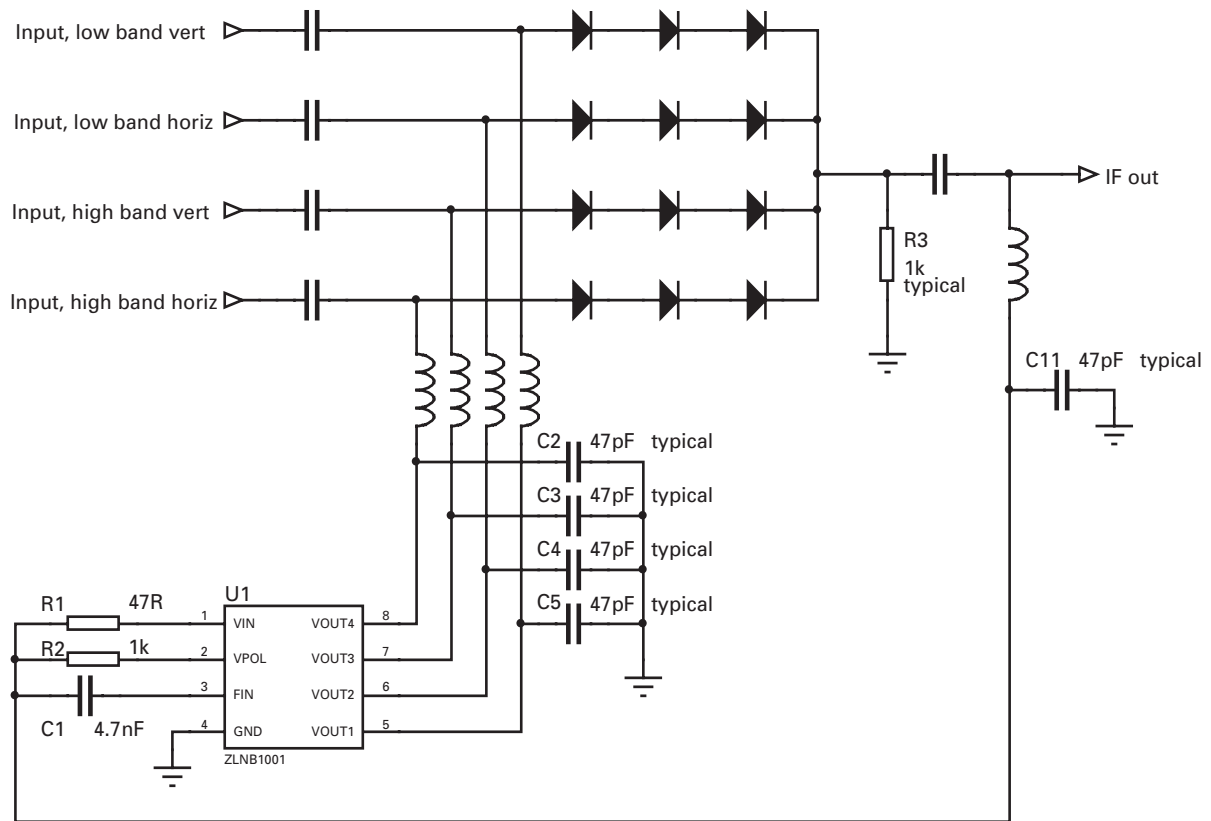
\* Threshold voltage is adjustable using external resistor.

† Waveform of 22 kHz tone is shown in test circuit diagram.

## Truth table

Tone	$V_{POL}$	Output 1	Output 2	Output 3	Output 4	Satellite signal
Off	$< V_{TVPOL}$	<b>High</b>	Low	Low	Low	<b>Low band Vert</b>
Off	$> V_{TVPOL}$	Low	<b>High</b>	Low	Low	<b>Low band Horiz</b>
On	$< V_{TVPOL}$	Low	Low	<b>High</b>	Low	<b>High band Vert</b>
On	$> V_{TVPOL}$	Low	Low	Low	<b>High</b>	<b>High band Horiz</b>

## Typical application circuit using pin diodes

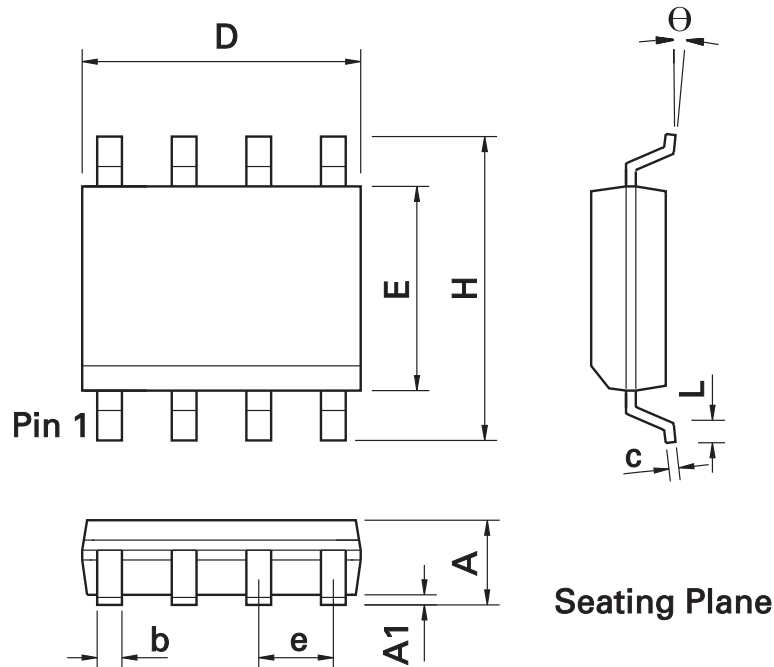


## Application information

The schematic diagram above shows the typical application driving RF signal PIN diodes. Values of suitable external components are shown. R1 R2 and C1 are required to achieve specified operation. Values of other components are typical of the application. When one signal path is selected according to the Truth Table, the selected signal diodes carry a forward current set by R3. The other signal diodes are biased off, R3 providing a degree of reverse bias.

In order to limit the peak current in the device, it is recommended that the output decoupling capacitor value, including C2, C3, C4 and C5, should not be excessive. Normally this total is expected to be less than a few hundred pF in the intended application.

## Package details - SO8



## Package dimensions

Dimensions in inches are control dimensions, dimensions in millimeters are approximate.

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069	e	1.27 BSC		0.050 BSC	
A1	0.10	0.25	0.004	0.010	b	0.33	0.51	0.013	0.020
D	4.80	5.00	0.189	0.197	c	0.19	0.25	0.008	0.010
H	5.80	6.20	0.228	0.244	Θ	0°	8°	0°	8°
E	3.80	4.00	0.150	0.157	h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050	-	-	-	-	-

### Europe

Zetex GmbH  
Streitfeldstraße 19  
D-81673 München  
Germany

Telefon: (49) 89 45 49 49 0  
Fax: (49) 89 45 49 49 49  
europe.sales@zetex.com

### Americas

Zetex Inc  
700 Veterans Memorial Highway  
Hauppauge, NY 11788  
USA

Telephone: (1) 631 360 2222  
Fax: (1) 631 360 8222  
usa.sales@zetex.com

### Asia Pacific

Zetex (Asia Ltd)  
3701-04 Metroplaza Tower 1  
Hing Fong Road, Kwai Fong  
Hong Kong

Telephone: (852) 26100 611  
Fax: (852) 24250 494  
asia.sales@zetex.com

### Corporate Headquarters

Zetex Semiconductors plc  
Zetex Technology Park, Chadderton  
Oldham, OL9 9LL  
United Kingdom

Telephone (44) 161 622 4444  
Fax: (44) 161 622 4446  
hq@zetex.com

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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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