

## GENERAL DESCRIPTION

The IX499E4 is a driver featuring high speed and wide negative voltage range suited for driving all shunt PIN diode switches.

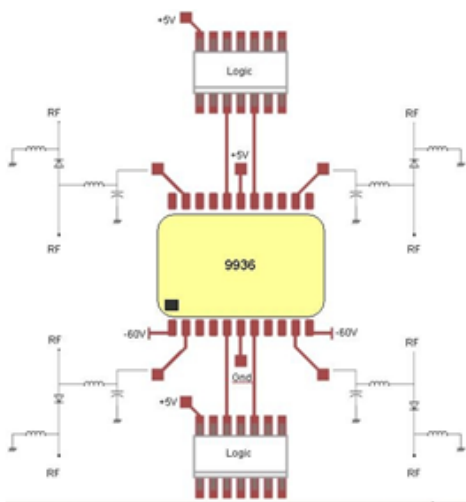
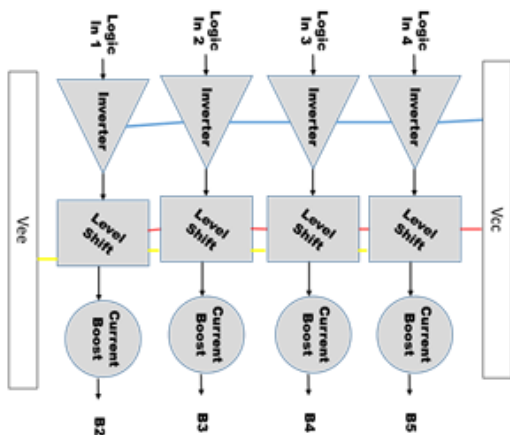
The driver is compatible with 3.3/5.0 V CMOS logic and has 4 independent channels to supply each bias line with up to +70 mA current to forward bias the PIN diode and  $-V$  from -5 to -100V to reverse bias the PIN diode.

External current limiting resistors are required to set current.

## FEATURES

- Ultra High Speed Slew 8V/8nS
- Compatible with CMOS FPGA outputs

## FUNCTION BLOCK DIAGRAM



## MECHANICAL

The IX499E4 is constructed on an alumina thin film substrate with TaN resistors and discrete wire bonded silicon bipolar transistors. The driver is housed in a hermetic .375 x .625 22 lead metal package designed for integration into an integrated microwave assembly.

IX499E4 contains no solder and is RoHS compliant.

## PIN CONNECTIONS

- 1 Vneg -5V TO -100V
- 2 NC
- 3 Output 1
- 4 NC
- 5 Output 2
- 6 NC
- 7 Output 3
- 8 NC
- 9 Output 4
- 10 NC
- 11 +5V
- 12 +5V
- 13 NC
- 14 Input 4
- 15 NC
- 16 Input 3
- 17 NC
- 18 Input 2
- 19 NC
- 20 Input 1
- 21 NC
- 22 Ground

**TRUTH TABLE**

IN1	IN2	IN3	IN4	OUT1	OUT2	OUT3	OUT4
1	1	1	1	-100V	-100V	-100V	-100V
0	1	1	1	+70mA	-100V	-100V	-100V
1	0	1	1	-100V	+70mA	-100V	-100V
1	1	0	1	-100V	-100V	+70mA	-100V
1	1	1	0	-100V	-100V	-100V	+70mA
0	0	0	0	+70mA	+70mA	+70mA	+70mA

**ELECTRICAL SPECIFICATIONS**

Vpos +5V, Vneg -100V, TEMP 25C, PRR 500KHz

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>ABSOLUTE MAXIMUMS</b>						
Vpos	Logic Supply Positive		0		+7	V
Vneg	Supply Voltage Negative		-100		0	V
To	Operating Temperature		-54		+105	Deg C
Ts	Storage Temperature		-65		+150	Deg C
<b>INPUT</b>						
VI_hi	Voltage Input High	CMOS	4.5	5	5.5	V
VI_low	Voltage Input Low	CMOS	0	.1	.3	V
<b>OUTPUT</b>						
VO_hi	Voltage Out High	open load	4.2	4.5	4.8	V
VO_low	Voltage Out Low	open load	-99.8	-99.5	-99.2	V
IO_hi	Current Out High	steady state into 1V diode load +5V Vpos, -5V Vneg			70	mA
IO_low	Current Out Low <b>**</b> (see note)	steady state into 1V diode load +5V Vpos, -5V Vneg		<b>**</b>	70	mA
lopk	Current Peak Output	sink		1.2		A
<b>SUPPLY</b>						
IQC_pos	Quiescent Current Positive	100KHz 50% duty cycle		40		mA
IQC_neg	Quiescent Current Negative	100KHz 50% duty cycle		8		mA
<b>DYNAMIC</b>						
Trise	Time Rise			25		nS
Tfall	Time Fall			25		nS
Td_rise	Delay Rise			75		nS
Td_fall	Delay Fall			75		nS
TSW_rise	Switching Speed Rise	10pF load +70mA resistive load		100		nS
TSW_fall	Switching Speed Fall	10pF load +70mA resistive load		100		nS
PRR	Pulse Repetition Rate	10pF load		150		KHz

**\*\***-100V operation intended for back bias on diodes.

**MECHANICAL SPECIFICATIONS**

"DRAWING NOT TO SCALE. DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED."

Package Code 3

Type: Housing; Lead Finish: Gold

Length .645 in MAX; Width .395 in MAX; Height .125 in MAX

**MARKING SPECIFICATIONS**

Logo: Impellimax

Part Number: IX499E4

