Dual Decoded +5V/+10V/-30V PIN Diode Switch Driver

GENERAL DESCRIPTION

The 99214 is a driver featuring high speed and wide negative and positive voltage range suited for driving PIN diode switch.

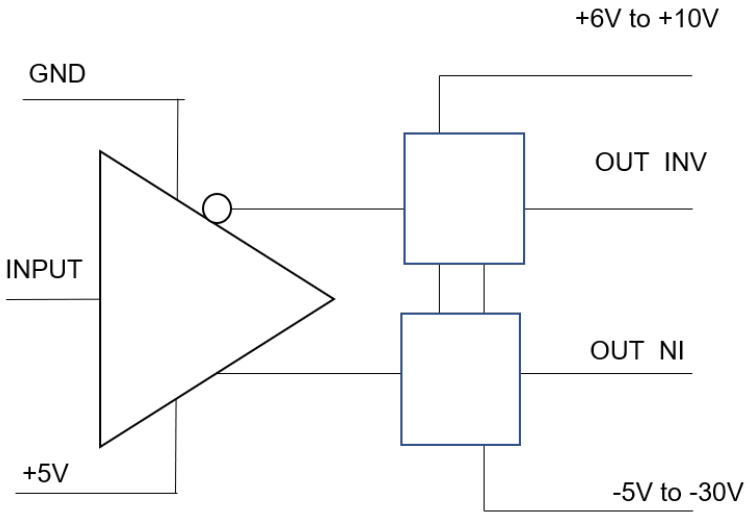
The driver is compatible with 3.3/5.0 V CMOS logic is decoded 2 channel outputs to supply each bias line with up to +100 mA current to forward bias the shunt diode and –100 mA and -5 to -30V to bias the series diode.

External current limiting resistors are required to set current.

FEATURES

- Ultra high speed <20nS
- Compatible with CMOS FPGA outputs

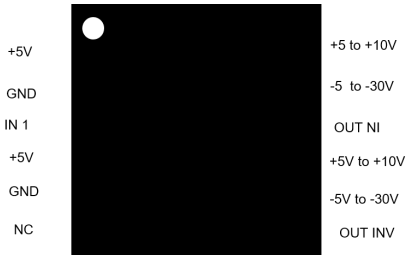
FUNCTION BLOCK DIAGRAM



MECHANICAL

The 99214 consists of monolithic silicon BJT IC wire-bonded to a laminate substrate and sealed with a dam and fill process. This forms a 8 x 8 mm 12 lead SMT assembly designed for integration into an integrated microwave assembly.

99214 contains no solder and is RoHS compliant.



PIN CONNECTIONS

Pins 1, 4 (+5V) not internally connected, need connection

Pins 2,5 (GND) are not internally connected, need connection

Pins 9, 12 (Vpos2) are not internally connected, need connection

Pins 8, 11 (Vneg) are not internally connected, need connection

Backside paddle left floating or GND. Recommend bypassing Vpos2 and Vneg with .1 uF capacitor or .01 uF minimum

1 Vpos1 +5V LOGIC SUPPLY
2 Ground
3 Input 1
4 Vpos1 +5V LOGIC SUPPLY
5 Ground
6 Input 2
7 Output 2
8 Vneg -5V TO -28V
9 Vpos2 +5V TO +10V
10 Output 1
11 Vneg -5V TO -28V
12 Vpos2 +5V TO +10V

TRUTH TABLE

IN	OUT NI	OUT INV
1	+V	-V
0	-V	+V

ELECTRICAL SPECIFICATIONS

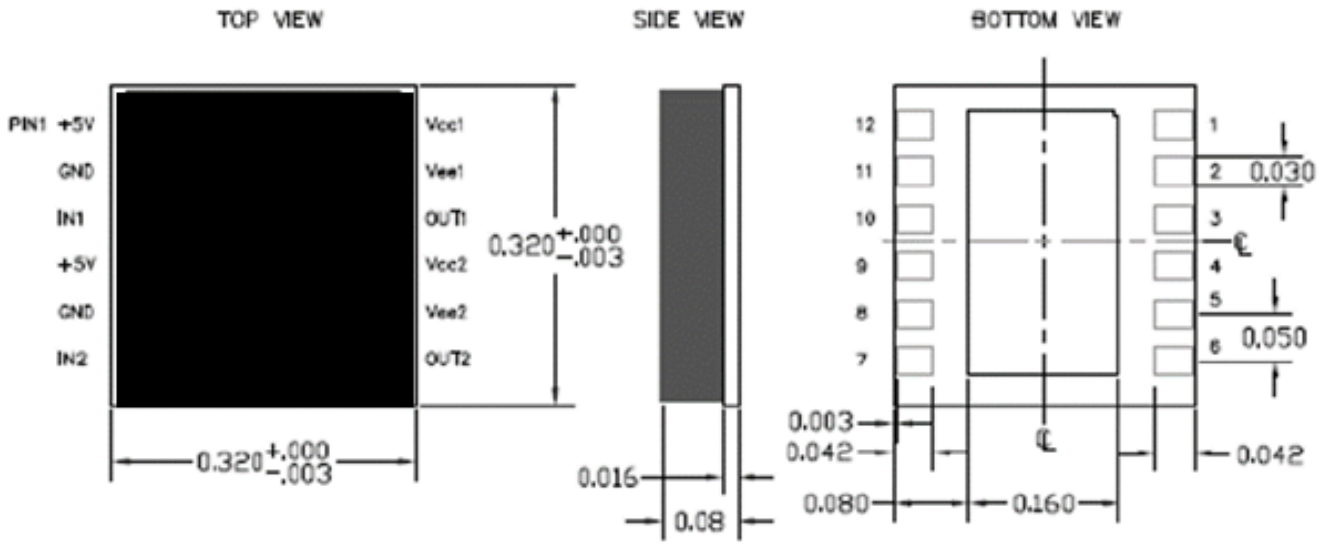
Vpos1 +5V, Vpos2 +10V, Vneg -30V, TEMP 25C, PRR .5MHz

	SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT							
	VI_hi	Voltage Input High	CMOS	2.8	4	5.5	V
	VI_low	Voltage Input Low	CMOS	0	.8	1.2	V
OUTPUT							
	VO_hi	Voltage Out High	open load	9.2	9.5	10	V
	VO_low	Voltage Out Low	open load	-29.2	-29.5	-30	V
	IO_hi	Current Out High	steady state into 1V diode load		100		mA
	IO_low	Current Out Low	steady state into 1V diode load common arm resistor		-4		mA
	Iopk	Current Peak Output	sink		-100		mA
SUPPLY							
	IQC_pos	Quiescent Current Positive	0.5MHz 50% duty cycle		9		mA
	IQC_neg	Quiescent Current Negative	0.5MHz 50% duty cycle		7		mA
DYNAMIC							
	Trise	Time Rise			9		nS
	Tfall	Time Fall			9		nS
	Td_rise	Delay Rise			6		nS
	Td_fall	Delay Fall			6		nS
	TSW_rise	Switching Speed Rise	10pF load		15		nS
	TSW_fall	Switching Speed Fall	10pF load		15		nS
	PRR	Pulse Repetition Rate	Max, 10pF load		1	5	MHz

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

MARKING SPECIFICATIONS

Dot Only Marking



CALCULATOR

Driving masw-002103 with 99107

Current Setting Calculator

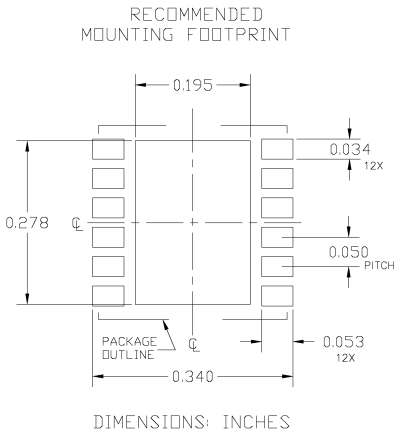
V+=6V
V-=-15v

Set R1= $(V^+ -2)/A$ A is desired current in shunt diode
example 200 ohm=(6V-2)/.02A

Set R2=$((V^- +2)/A)-R1$ A is desired current in series diode
example 125 ohm=((-15V+2)/.04A)-200 ohm

This example provides 6V of back bias to series off diode and shunt off diode

FOOTPRINT


RECOMMENDED
MOUNTING FOOTPRINT
0.195
0.034
12X
0.278
0.050
PITCH
PACKAGE
OUTLINE
0.053
12X
0.340
DIMENSIONS: INCHES