![Monzite Corporation logo]

Monzite
Corporation
603-886-9569

Dual +3.3V/-40V PIN Diode Switch Driver

DATASHEET

99199

GENERAL DESCRIPTION

The 99199 is a driver featuring high speed and wide negative voltage range suited for driving high power MASW series SP2T monolithic switches.
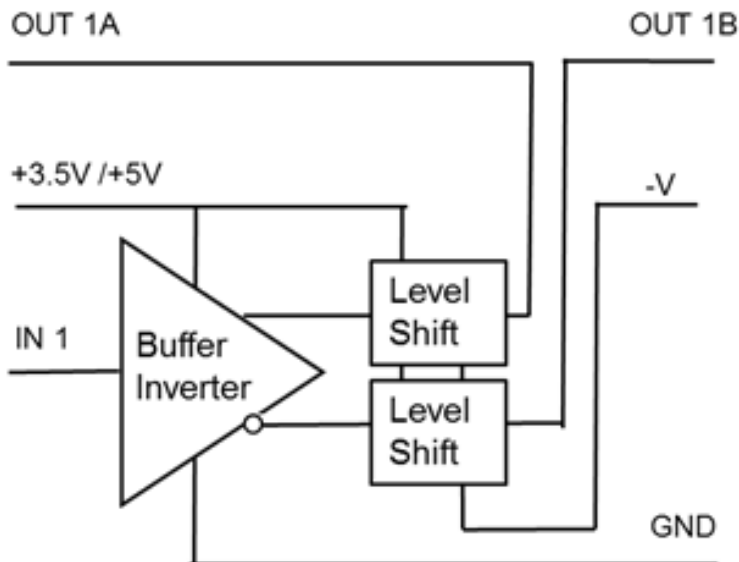
The driver is compatible with 3.3/5.0 V CMOS logic and has a single logic input and 2 outputs to supply each bias line with −V up to -40V and up to +/-40 mA current.

On-board user-modifiable output current-setting resistors and spiking caps are integrated into the unit.

FEATURES

*   Ultra high speed <25nS
*   Compatible with CMOS FPGA outputs
*   Drop-in ready module with corner 2-56 mounting holes
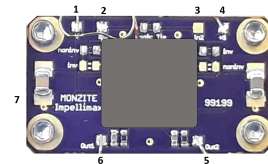
FUNCTION BLOCK DIAGRAM

MECHANICAL

The 99199 consists of silicon micro components soldered to a laminate substrate and protected with a dam and fill process. This forms a 7 x 7 mm protected area within a nominal 1" by .55" pcb, with a fully continuous grounded gold-plated backside, designed for integration into an integrated microwave assembly.

ECCN Code EAR99

99199 is RoHS 3 (EU 2015/863) compliant.

PIN CONNECTIONS

Pins 2, 9, 11 (Vneg) internally connected
Pins 5, 8 (Vpos) internally connected
PIN 11 Backside paddle is Vneg
Recommend bypassing Vpos and Vneg with .47 uF

1   -V (-5V to -40V)
2   IN1 (Input)
3   NC
4   +5V / +3.3V
5   Output 1B Inverting
6   Output 1A Non Invert
7   Ground

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TRUTH TABLE

INPUT	OUT1 INV	OUT1 NI
1	+V	-V
0	-V	+V

ELECTRICAL SPECIFICATIONS   Vpos +3.3V, Vneg -40V, TEMP 25C, PRR .5MHz

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT						
VI_hi	Voltage Input High	CMOS	2.4	3.1	3.3	V
VI_low	Voltage Input Low	CMOS	0	.2	1.2	V
OUTPUT						
VO_hi	Voltage Out High	open load	2.4	2.6	3.0	V
VO_low	Voltage Out Low	open load	-39.8	-39.5	-39.2	V
IO_hi	Current Out High	steady state into 1V diode load		40		mA
IO_low	Current Out Low	steady state into 1V diode load common arm resistor		-40		mA
Iopk	Current Peak Output	sink		-100		mA
SUPPLY						
IQC_pos	Quiescent Current Positive	0.5 KHz 50% duty cycle		3		mA
IQC_neg	Quiescent Current Negative	0.5KHz 50% duty cycle		2		mA
DYNAMIC						
Trise	Time Rise			7		nS
Tfall	Time Fall			7		nS
Td_rise	Delay Rise			5		nS
Td_fall	Delay Fall			5		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

ESD Sensitivity HBM Class 1B

MECHANICAL SPECIFICATIONS
DRAWING NOT TO SCALE. DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
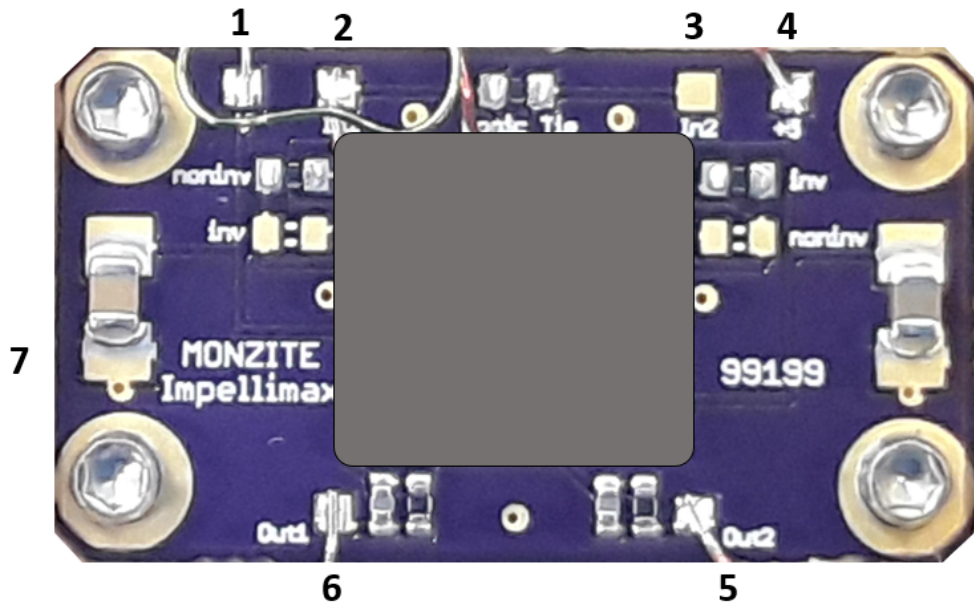
Type: Board
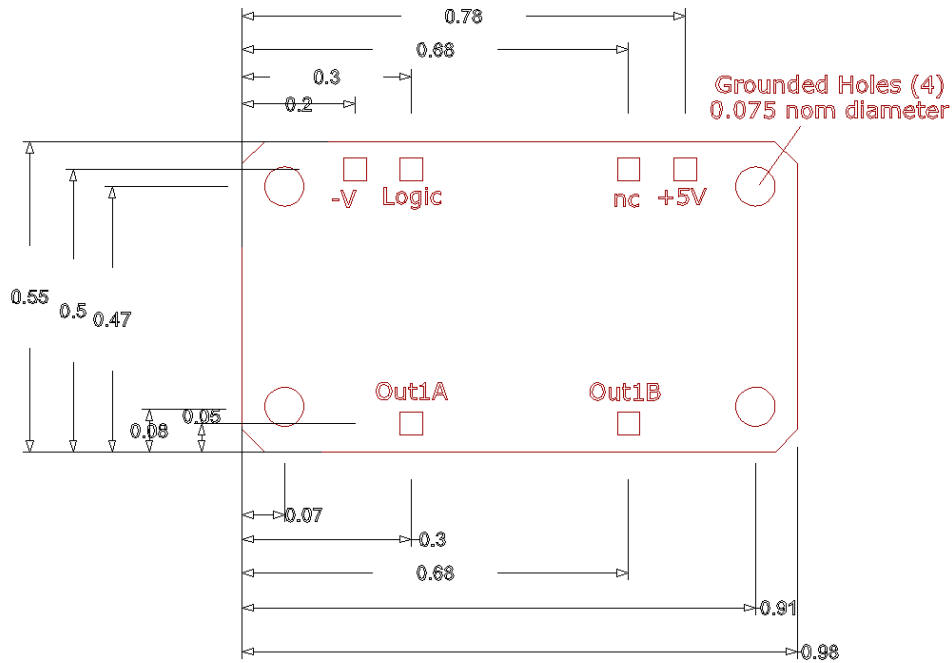Length .99 in NOM; Width .55 in NOM; Height .080 in NOM

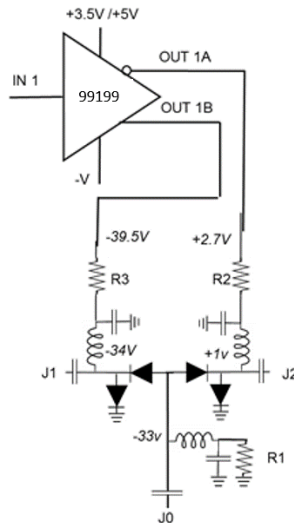## MARKING SPECIFICATIONS
Logo: Impellimax
Part Number: 99199

FOOTPRINT

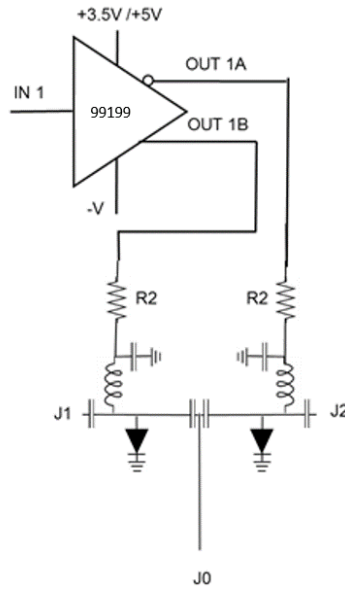## TYPICAL APPLICATION
EXAMPLE 1

Current Setting Calculator

Set R2= (Vcc -2)/A   A is desired current in shunt diode
example   43 ohm=(3.3V-2)/.03A

Set R1=((Vee +2)-A)-R2 A is desired current in series diode
example   1832 ohm=|((-39.5V+2)/.02A)-43 ohm

This example provides 34 V of back bias to series off
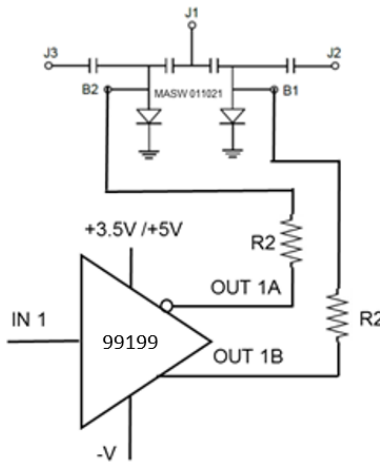diode and 35 V of back bias to shunt off diode

TYPICAL APPLICATION
EXAMPLE 2

Current Setting Calculator
Set R2= (Vcc -2)/A   A is desired current in shunt diode
example   100 ohm=(5V-2)/.03A

TYPICAL APPLICATION
EXAMPLE 3

Current Setting Calculator
Set R2= (Vcc -2)/A   A is desired current in shunt diode
example   43 ohm=(3.3V-2)/.03A