

## GENERAL DESCRIPTION

The MDD000R300D12A is a driver featuring high speed and wide negative and positive voltage range suited for driving MASW-002103 SP2T monolithic switch.

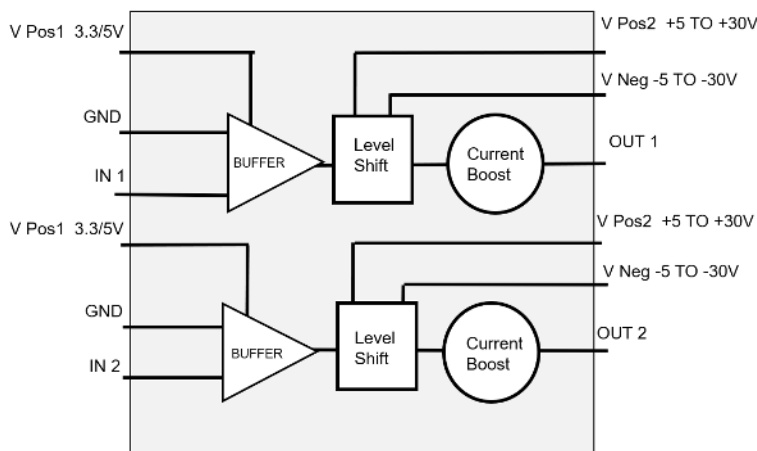
The driver is compatible with 3.3/5.0 V CMOS logic and has 2 independent channels to supply each bias line with up to +/-125 mA current bias series and shunt.

External current limiting resistors are required to set current.

## FEATURES

- Ultra high speed <25nS
- Compatible with CMOS FPGA outputs

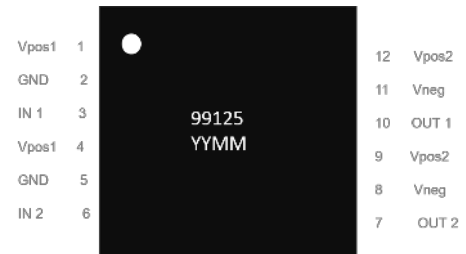
## FUNCTION BLOCK DIAGRAM



## MECHANICAL

The MDD000R300D12A consists of discrete silicon BJT IC's bonded to a laminate substrate and sealed with a dam and fill process. This forms a 8 x 8 mm 12 POS SMT assembly designed for integration into an integrated microwave assembly.

MDD000R300D12A 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 -10V  |
| 9      | Vpos2 +5V TO +30V |
| 10     | Output 1          |
| 11     | Vneg -5V TO -10V  |
| 12     | Vpos2 +5V TO +30V |

**TRUTH TABLE**

IN1	IN2	OUT1 (B2)	OUT2 (B3)
1	1	+V	+V
0	1	-V	+V
1	0	+V	-V

**ELECTRICAL SPECIFICATIONS**

Vpos1 +5V, Vpos2 +15V, Vneg -15V, TEMP 25C, PRR .5MHz

	SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>							
	VI_hi	Voltage Input High	CMOS	2.8	4	5.5	V
	VI_low	Voltage Input Low	CMOS	0	.8	1.2	V
<b>OUTPUT</b>							
	VO_hi	Voltage Out High	open load	14.0	14.3	15	V
	VO_low	Voltage Out Low	open load	-14.0	-14.2	-15.0	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		-100		mA
	lopk	Current Peak Output	sink		-200		mA
<b>SUPPLY</b>							
	IQC_pos	Quiescent Current Positive	0.5MHz 50% duty cycle		9		mA
	IQC_neg	Quiescent Current Negative	0.5MHz 50% duty cycle		7		mA
<b>DYNAMIC</b>							
	Trise	Time Rise			10		nS
	Tfall	Time Fall			10		nS
	Td_rise	Delay Rise			12		nS
	Td_fall	Delay Fall			15		nS
	TSW_rise	Switching Speed Rise	10pF load		25		nS
	TSW_fall	Switching Speed Fall	10pF load		25		nS
	PRR	Pulse Repetition Rate	Max, 10pF load		10	50	KHz

**MECHANICAL SPECIFICATIONS**

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

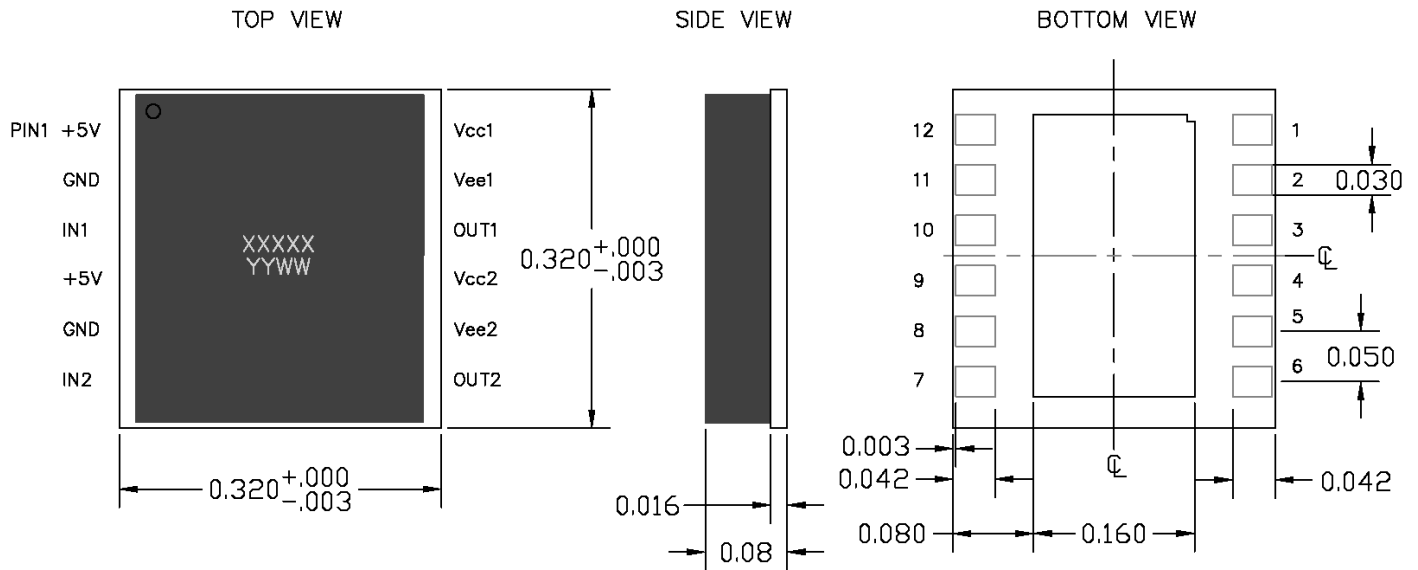
Type: Board

Length .320 in NOM; Width .320 in NOM; Height .08 in NOM

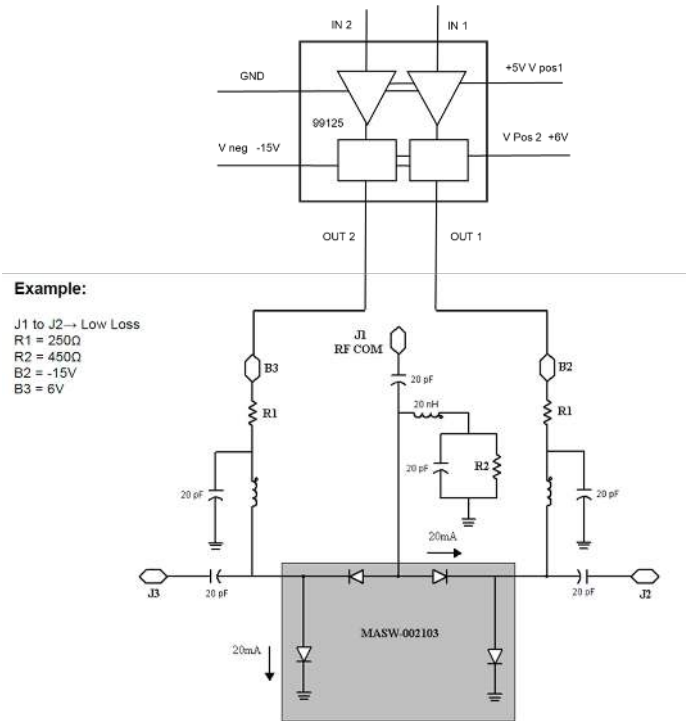
**MARKING SPECIFICATIONS**

Part Number: 99125

Date Code: YYWW



TYPICAL APPLICATION

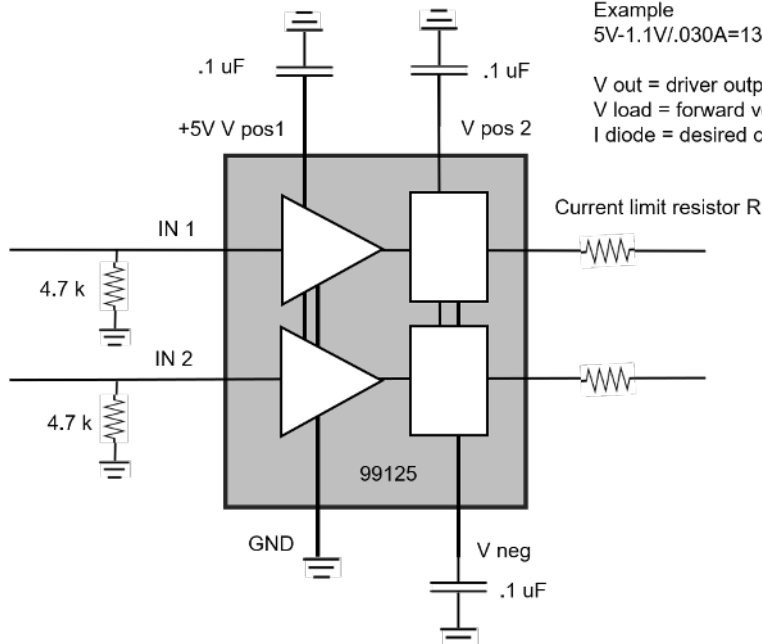


APPLICATIONS INFO

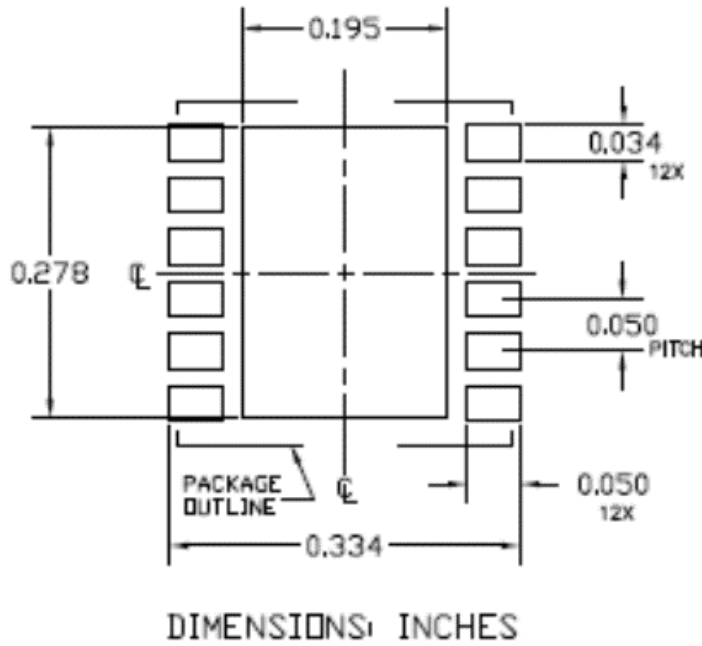
R calculator  
 $V_{out} - V_{load} / I_{diode} = R$  ohms

Example  
 $5V - 1.1V / .030A = 130$  ohm

$V_{out}$  = driver output voltage  
 $V_{load}$  = forward voltage drop PIN diode  
 $I_{diode}$  = desired current in PIN diode

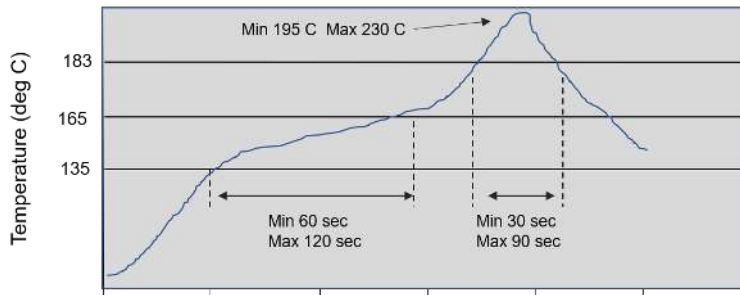


**FOOTPRINT**



**SOLDER PROFILE**

SnPb Temperature Profile example



Pb-Free Temperature Profile example

