

GENERAL DESCRIPTION

The MDD050N300D12A is a driver featuring high speed and wide negative and positive voltage range suited for driving SP2T monolithic switches.

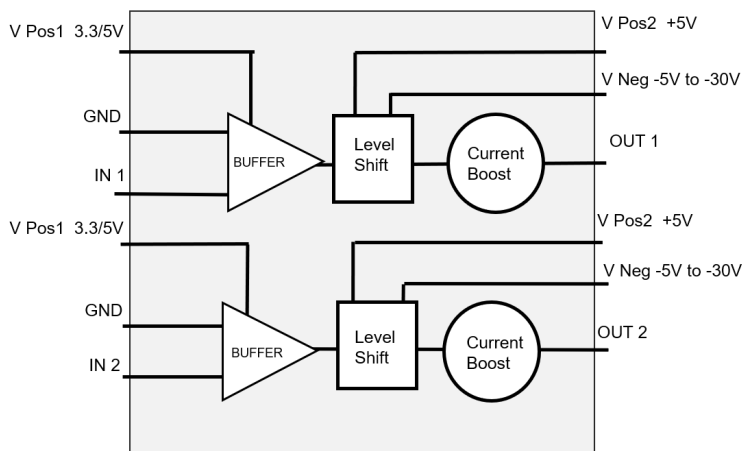
The driver is compatible with 3.3/5.0 V CMOS logic and has 2 independent channels to supply each bias line with up to +/-125 mA current bias series and shunt.

External current limiting resistors are required to set current.

FEATURES

- Ultra high speed <25nS
- Compatible with CMOS FPGA outputs
- Compatible with several Macom and Qorvo switches

FUNCTION BLOCK DIAGRAM

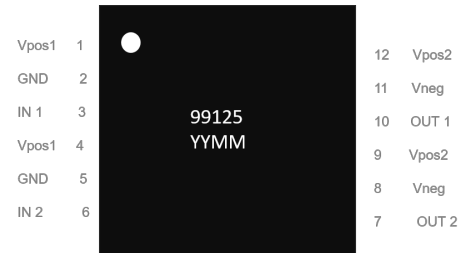


MECHANICAL

The MDD050N300D12A consists of discrete silicon BJT IC's mounted on 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.

ECCN Code EAR99

MDD050N300D12A is RoHS compliant.



PIN CONNECTIONS

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

Pins 2,5 (GND) are not internally connected

Pins 9, 12 (Vpos2) are not internally connected

Pins 8, 11 (Vneg) are not internally connected

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

*****input logic connections should never be left floating. connect to logic gate or pull down to gnd with 2.6K resistor**

- 1 Vpos1 +3.3/5V
- 2 Ground
- 3 Input 1
- 4 Vpos1 +3.5/5V
- 5 Ground
- 6 Input 2
- 7 Output 2
- 8 Vneg -5V to -30V
- 9 Vpos2 +5V
- 10 Output 1
- 11 Vneg -5V to -30V
- 12 Vpos2 +5V

TRUTH TABLE

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

ELECTRICAL SPECIFICATIONS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ENVIRONMENTAL						
	Operating Temperature		-55		125	Deg C
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	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
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			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

ESD Sensitivity HBM Class 1B

MECHANICAL SPECIFICATIONS

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

MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging

Waffle Packs/trays

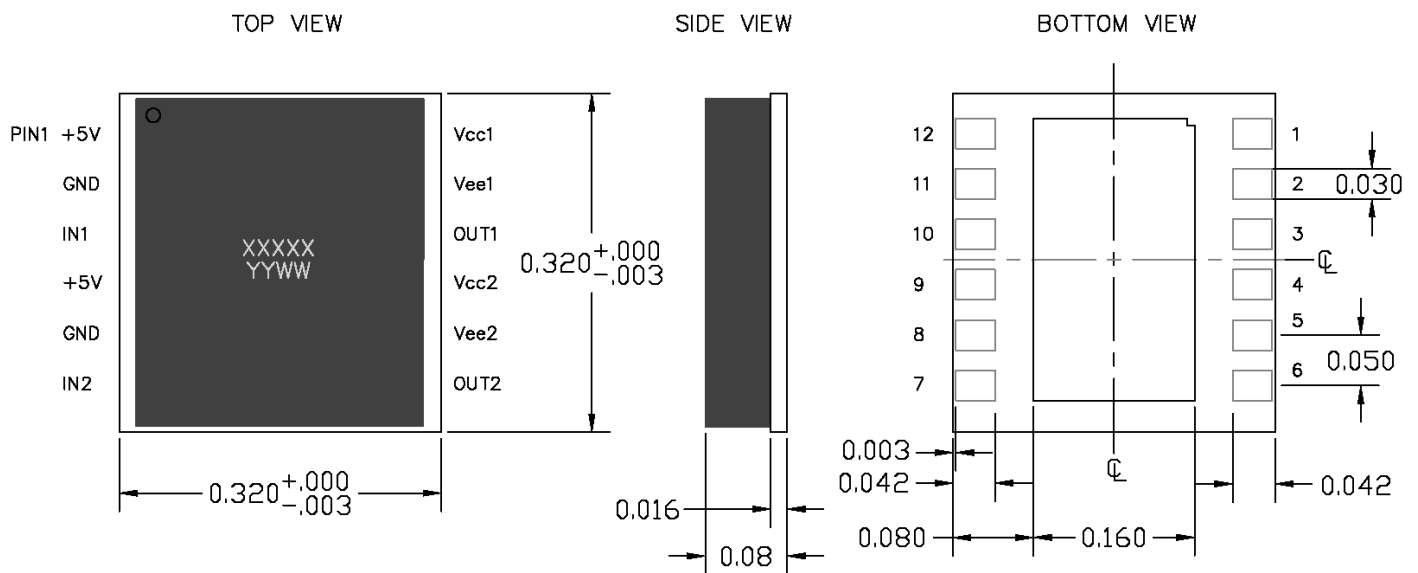
Type: Board

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

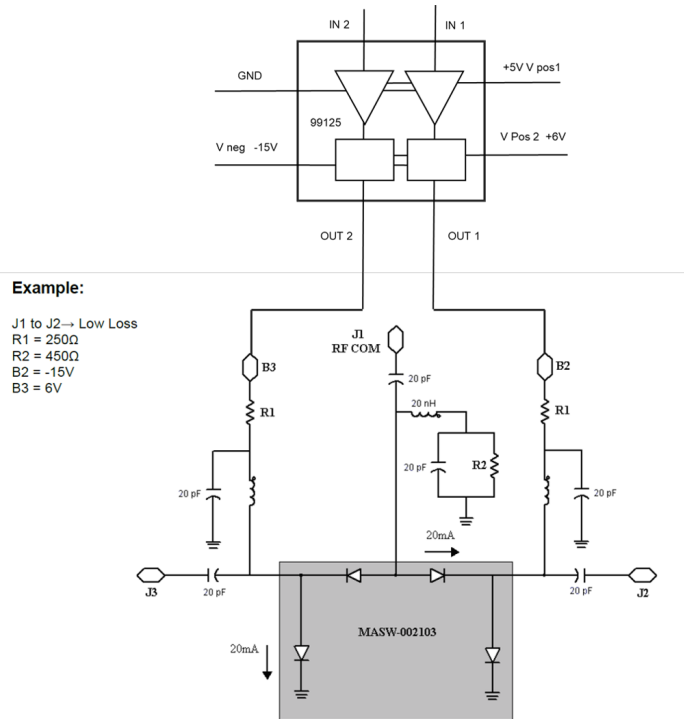
MARKING SPECIFICATIONS

Part Number: 99125

Date Code: YYWW



TYPICAL APPLICATION

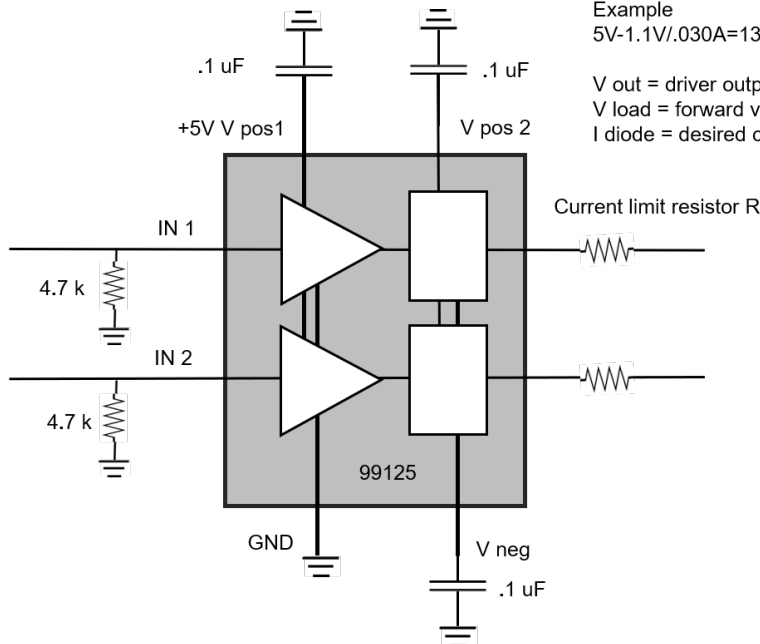


APPLICATIONS INFO

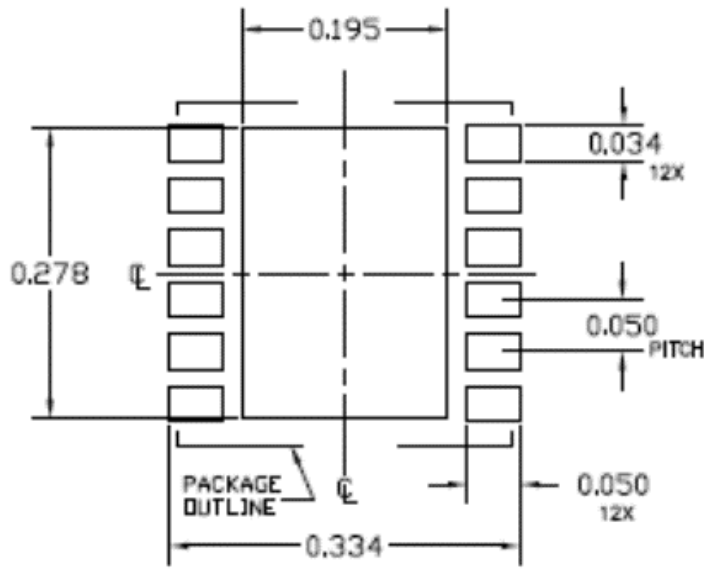
R calculator
 $V_{out} - V_{load} / I_{diode} = R$ ohms

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



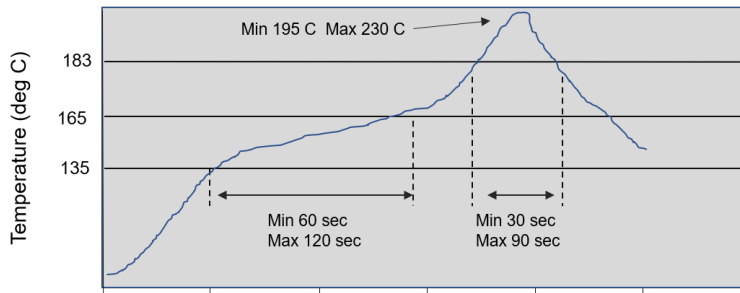
FOOTPRINT



DIMENSIONS: INCHES

SOLDER PROFILE

SnPb Temperature Profile example



Pb-Free Temperature Profile example

