

GENERAL DESCRIPTION

The MDD300N050D12A is a driver featuring high speed and wide negative and positive voltage range suited for driving SP2T monolithic switch.

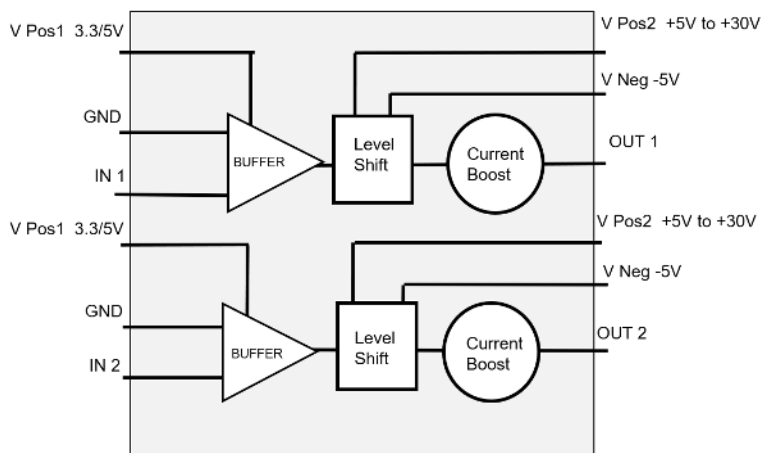
The driver is compatible with 3.3/5.0 V CMOS logic and has 2 independent channels to supply each bias line with up to +/-125 mA current bias series and shunt.

External current limiting resistors are required to set current.

FEATURES

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

FUNCTION BLOCK DIAGRAM

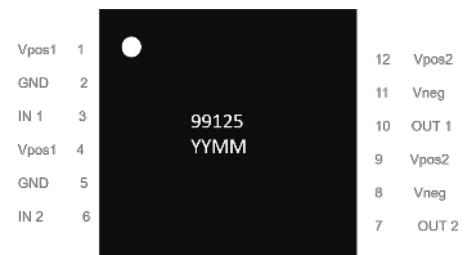


MECHANICAL

The MDD300N050D12A 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.

ECCN Code EAR99

MDD300N050D12A is RoHS 3 (EU 2015/863) 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 +3.3/5V
- 2 Ground
- 3 Input 1
- 4 Vpos1 +3.3/5V
- 5 Ground
- 6 Input 2
- 7 Output 2
- 8 Vneg -5V
- 9 Vpos2 +5V to +30V
- 10 Output 1
- 11 Vneg -5V
- 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

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

	SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
INPUT							
	VI_hi	Voltage Input High	TTL/CMOS	2.8	4	5.5	V
	VI_low	Voltage Input Low	TTL/CMOS	0	.8	1.2	V
OUTPUT							
	VO_hi	Voltage Out High	open load	29.0	29.2	30	V
	VO_low	Voltage Out Low	open load	-4.0	-4.2	-5.0	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	Steady State		1		mA
	IQC_neg	Quiescent Current Negative	Steady State		1		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		25		KHz

ESD Sensitivity HBM Class 1B

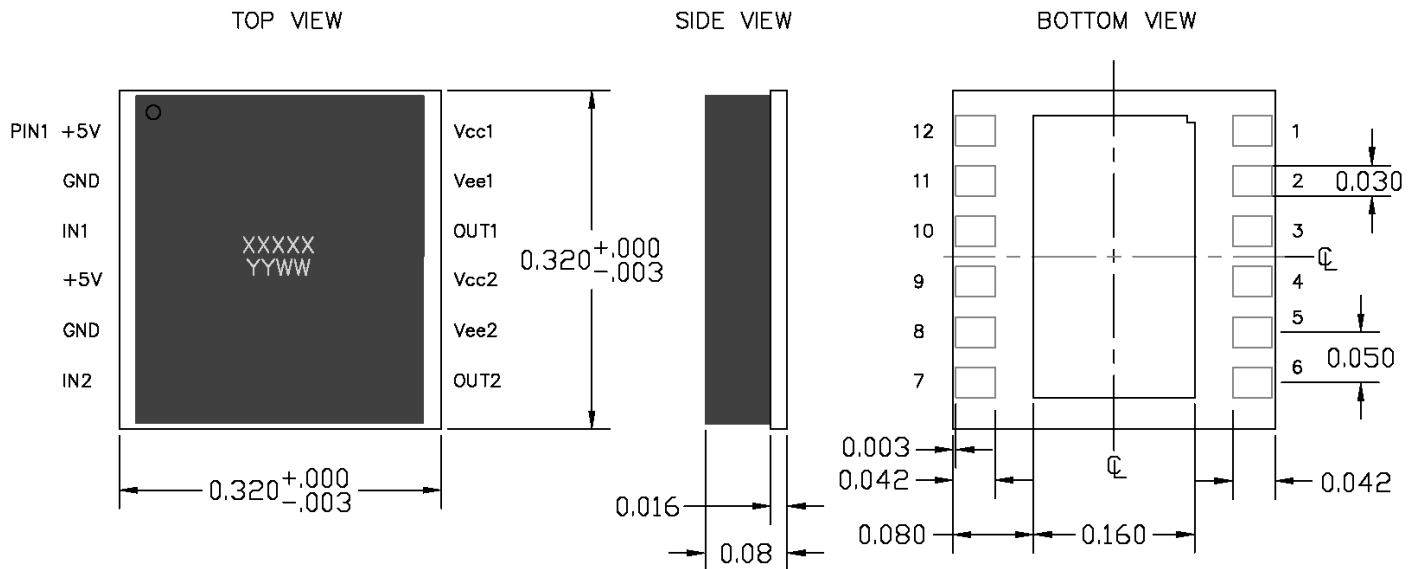
MECHANICAL SPECIFICATIONS

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

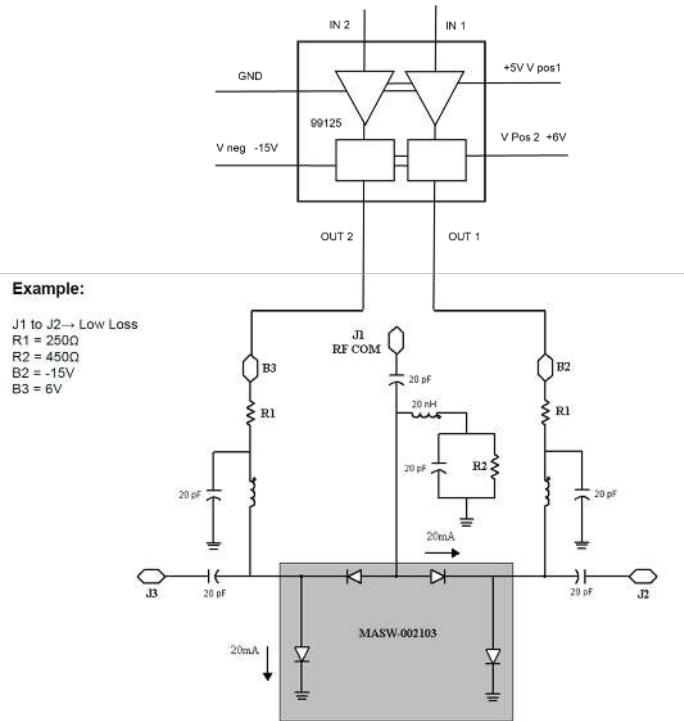
MSL RATING 4 (refer to JEDEC STD 033B)
 Shipping Packaging
 Waffle Packs/trays
 Type: Board
 Length .320 in NOM; Width .320 in NOM; Height .08 in NOM

MARKING SPECIFICATIONS

Part Number: 99125
 Date Code: YYWW



TYPICAL APPLICATION

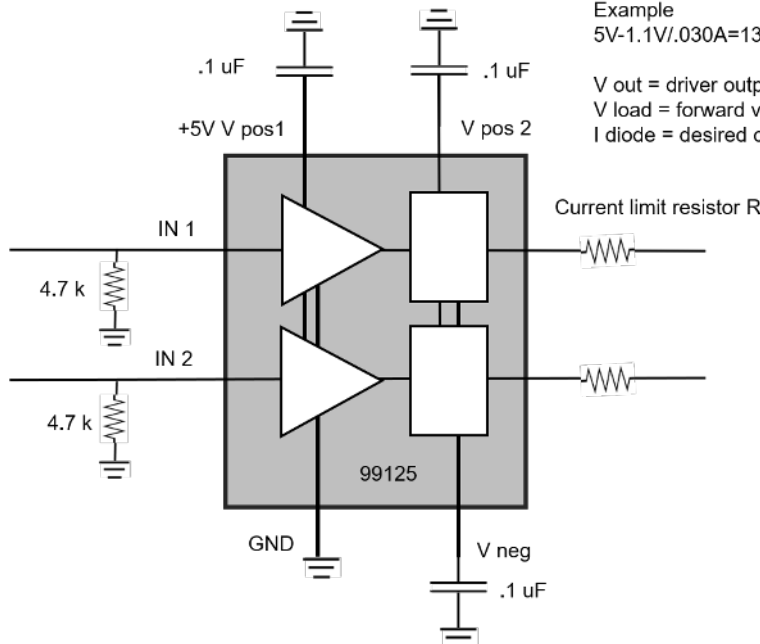


APPLICATIONS INFO

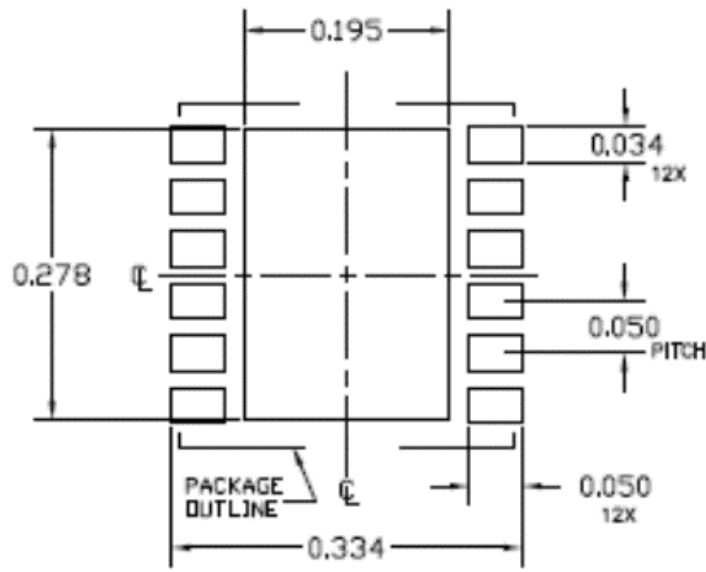
R calculator
 $V_{out} - V_{load} / I_{diode} = R$ ohms

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



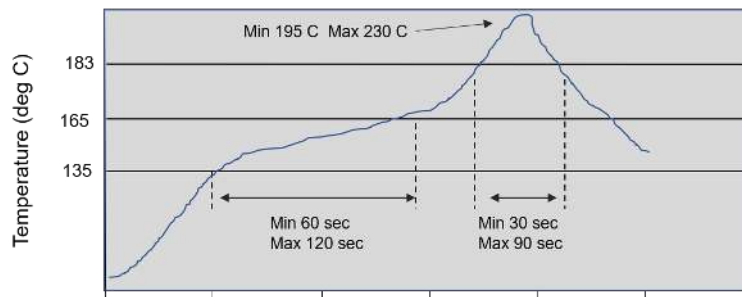
FOOTPRINT



DIMENSIONS: INCHES

SOLDER PROFILE

SnPb Temperature Profile example



Pb-Free Temperature Profile example

