Monzite Corporation
603-886-9569

Dual +5V/-100V PIN Switch Driver with negative charge pump

DATASHEET
MDD050N101Q16A

GENERAL DESCRIPTION

The MDD050N101Q16A is a driver featuring high speed and outputs +5V and -100V suited for driving high power PIN diode switches.
The driver is compatible with 3.3V/5V CMOS logic and has 2 independent channels to supply output high current of +100 mA and -100V for back bias.
External current limiting resistors are required to set current.

FEATURES

- High speed <50 nS
- Operates single +5V supply

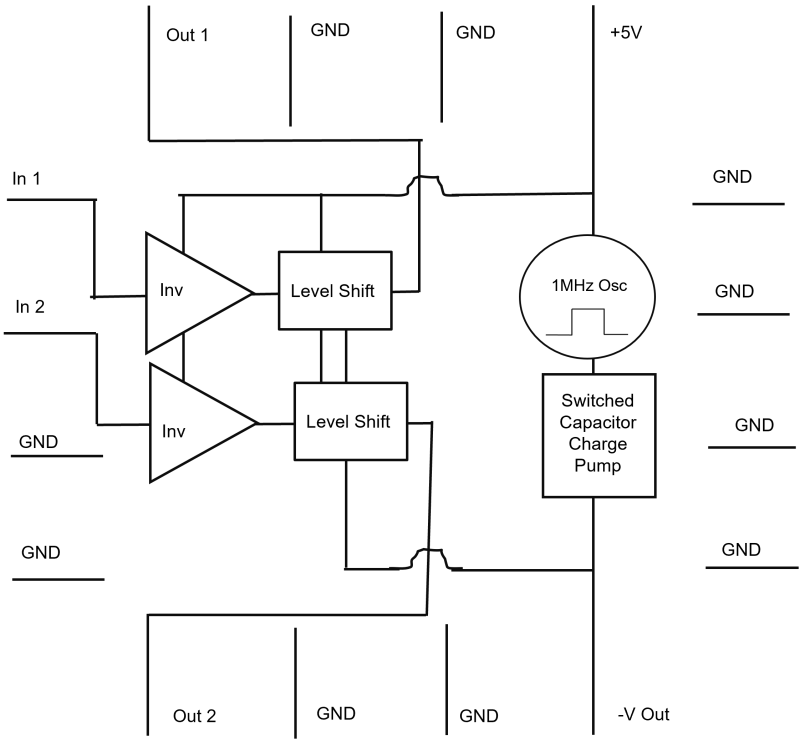
MECHANICAL

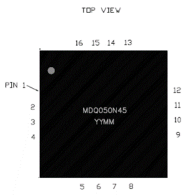
The MDD050N101Q16A consists of silicon BJT and MOSFET array mounted to a laminate substrate and sealed with a dam and fill process. This forms a 10mm x 10mm 16 pos QFN SMT assembly designed for integration into an integrated microwave assembly.

ECCN Code EAR99

MDQ050N450Q16A is RoHS 3 (EU 2015/863) compliant.

FUNCTION BLOCK DIAGRAM





PIN CONNECTIONS

Recommend bypassing +5V and Vneg with .1 uF capacitor or .01 uF minimum.
Inputs must always be connected to logic level H or L never leave floating.

1	Input 1
2	Input 2
3	Ground
4	Ground
5	OUT 2
6	Ground
7	Ground
8	Testpoint -100V
9	Ground
10	Ground
11	Ground
12	Ground
13	+5V
14	Ground
15	Ground
16	OUT 1

TRUTH TABLE

IN1	IN2	out 1	out 2
0	0	-V	-V
0	1	-V	+V
1	0	+V	-V
1	1	+V	+V

ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg , TEMP 25C, PRR .5KHz

NOTE: Tie all unused inputs high or low, but not floating.

	SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ENVIRONMENTAL							
	Enviro	Operating Temperature		-45		115	Deg C
	Enviro	Storage Temperature		-55		150	Deg C
INPUT							
	VI_hi	Logic Input High	3.3V LOGIC	2.3	3.0	3.3	V
	VI_low	Logic Input Low	3.3V LOGIC	0	.2	.4	V
OUTPUT							
	VO_hi	Voltage Out High	cathode grounded PIN diode load at 100 mA	3.4		5	V
	VO_low	Voltage Out Low	cathode grounded PIN diode load back bias	-96		-101	V
	IO_hi	Current Out High	steady state into 1V diode load			125	mA
	IO_low	Current Out Low	steady state into 1V diode load common arm resistor			.1	mA
	Iopk	Current Peak Output	sink and source		1		A
SUPPLY							
	V pos	Voltage Positive		4.8	5.0	5.5	V
	IQC_pos	Quiescent Current Positive	5KHz 50% duty cycle			25	mA
DYNAMIC							
	TSW_rise	Switching Speed Rise	100pF load			100	nS
	TSW_fall	Switching Speed Fall	100pF load			100	nS
	PRR	Pulse Repetition Rate	Max, 10pF load			10	KHz

ESD Sensitivity HBM Class1B

MECHANICAL SPECIFICATIONS

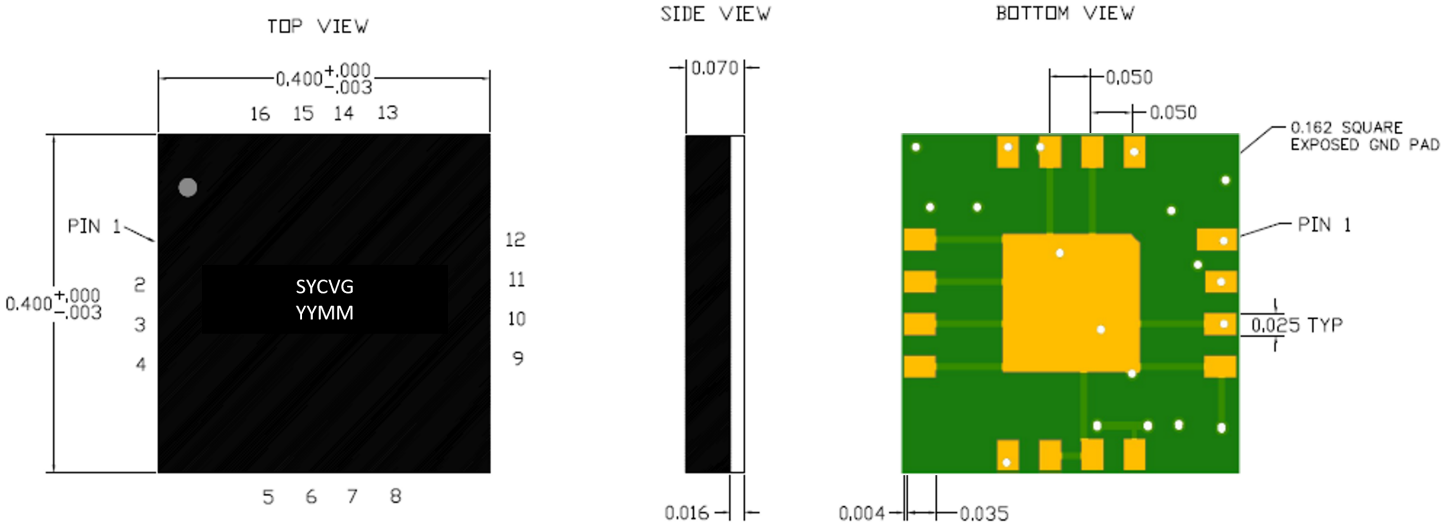
DRAWING NOT TO SCALE. DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.

MSL RATING 4 (refer to JEDEC STD 033B)

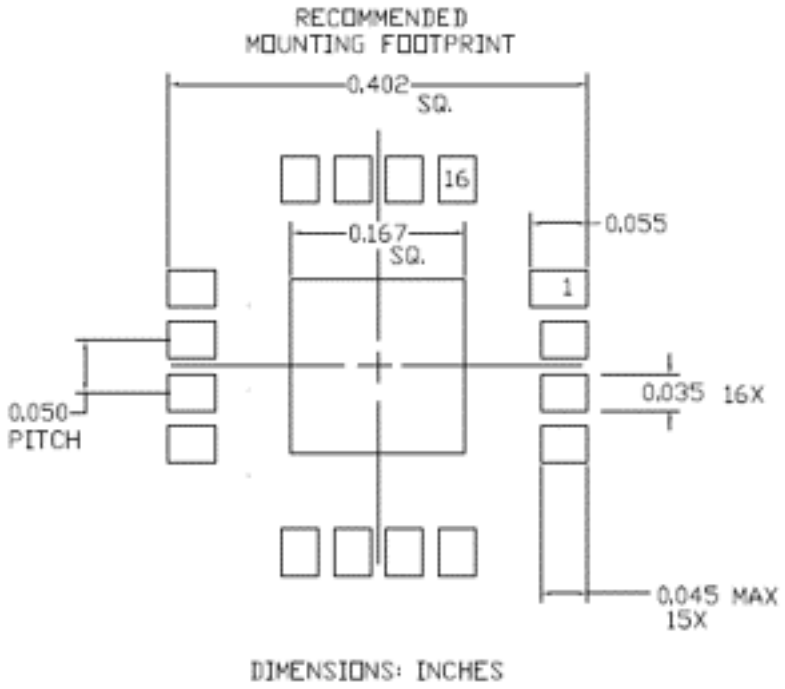
Shipping Packaging
Waffle Packs/trays

MARKING SPECIFICATIONS

Logo: SYCVG
Part Number: MDD050N101Q16A
Date Code: YYWW

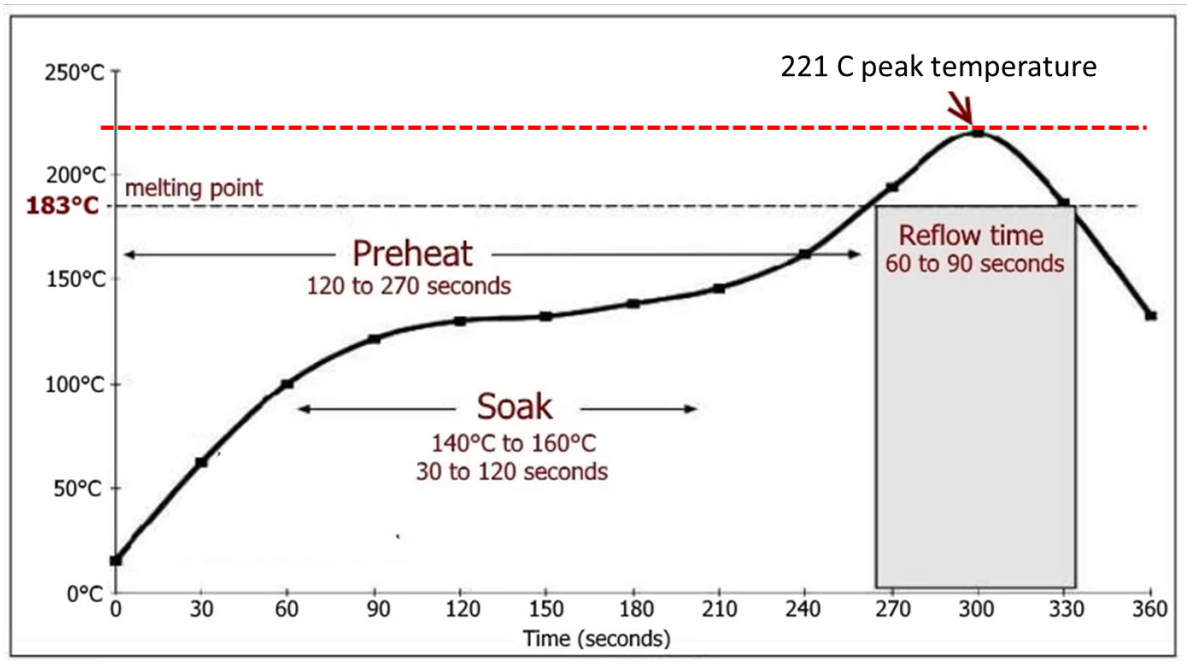


FOOTPRINT

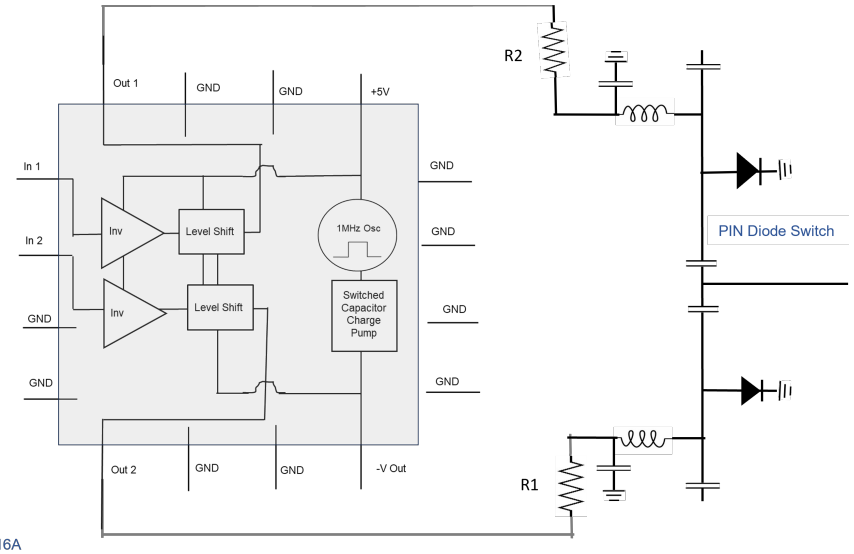


SOLDER PROFILE

Sn63Pb37 reflow profile



TYPICAL APPLICATION



MDD000N101Q16A
PIN Diode Switch Driver

Current set resistor
R1,R2= (V_{out}-V_{fwd}/$I_{desired}$)
V_{out}=5V V_{fwd}=1V ($_{diode\ drop}$) I diode current= .1A
Example 4/.1=40 ohm