

## GENERAL DESCRIPTION

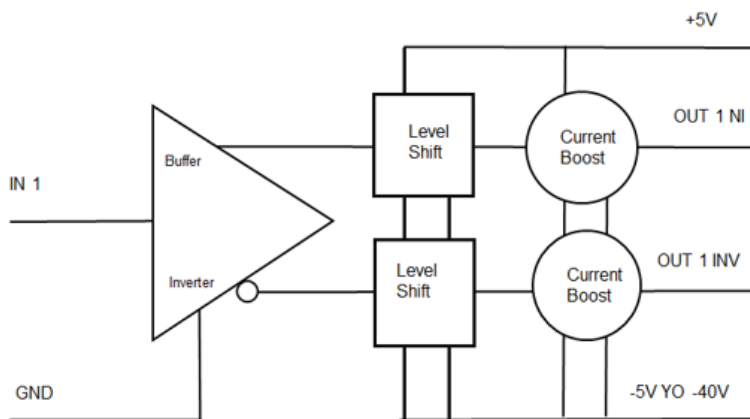
The MDU050N400Q16A is a driver featuring high speed and wide negative voltage range suited for driving SP2T PIN diode monolithic switch.

The driver is compatible with 3.3/5.0 V CMOS logic and has single channel and complementary outputs to supply each bias line in SP2T switch with +5V and -5 to -40V to bias the PIN diodes on and off

## FEATURES

- High speed 50nS
- Drives capacitive loads fast
- Compatible with CMOS FPGA outputs
- Compatible with MASW-010646 MASW-011036 MASW-011098 MASW-011094

## FUNCTION BLOCK DIAGRAM

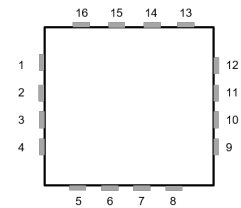


## MECHANICAL

The MDU050N400Q16A consists of discrete active and passive components mounted to a laminate substrate and sealed with a dam and fill process. This forms a 4 x 4 mm 16 lead QFN SMT assembly designed for integration into an integrated microwave assembly.

ECCN Code EAR99

MDU050N400Q16A is RoHS 3 (EU 2015/863) compliant.



## PIN CONNECTIONS

Pins 2, 8, 11 (Vneg) are internally connected

- |    |                       |
|----|-----------------------|
| 1  | Output 1 Noninverting |
| 2  | -5V to -40V           |
| 3  | IN1 (Input)           |
| 4  | Ground                |
| 5  | NC                    |
| 6  | NC                    |
| 7  | NC                    |
| 8  | -5V to -40V           |
| 9  | NC                    |
| 10 | Output 1 Inverting    |
| 11 | -5V to -40V           |
| 12 | +5V                   |
| 13 | NC                    |
| 14 | NC                    |
| 15 | NC                    |
| 16 | NC                    |

## TRUTH TABLE

IN 1	OUT 1 INV	OUT 1 NI
0	+V	-V
1	-V	+V

## ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg -40V, TEMP 25C, PRR 10KHz

NOTE: Tie input high or low, but not floating.

	SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>							
	VI_hi	Voltage Input High	3.3V LOGIC	1.8	3.0	3.5	V
	VI_low	Voltage Input Low	3.3V LOGIC	0	.8	1.0	V
<b>OUTPUT</b>							
	VO_hi	Voltage Out High	open load	-0.1	0	0.2	V
	VO_low	Voltage Out Low	open load	-39.6	-39.8	-40	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		-800		mA
<b>SUPPLY</b>							
	IQC_pos	Quiescent Current Positive	10KHz 50% duty cycle		5		mA
	IQC_neg	Quiescent Current Negative	10KHz 50% duty cycle		-3		mA
<b>DYNAMIC</b>							
	Trise	Time Rise			5		nS
	Tfall	Time Fall			15		nS
	Td_rise	Delay Rise			10		nS
	Td_fall	Delay Fall			20		nS
	TSW_rise	Switching Speed Rise	100 pF bypass & cathode grounded diode load		15		nS
	TSW_fall	Switching Speed Fall	100 pF bypass & cathode grounded diode load		35		nS
	PRR	Pulse Repetition Rate	Max, 10pF load		30		KHz

ESD Sensitivity HBM Class 1B

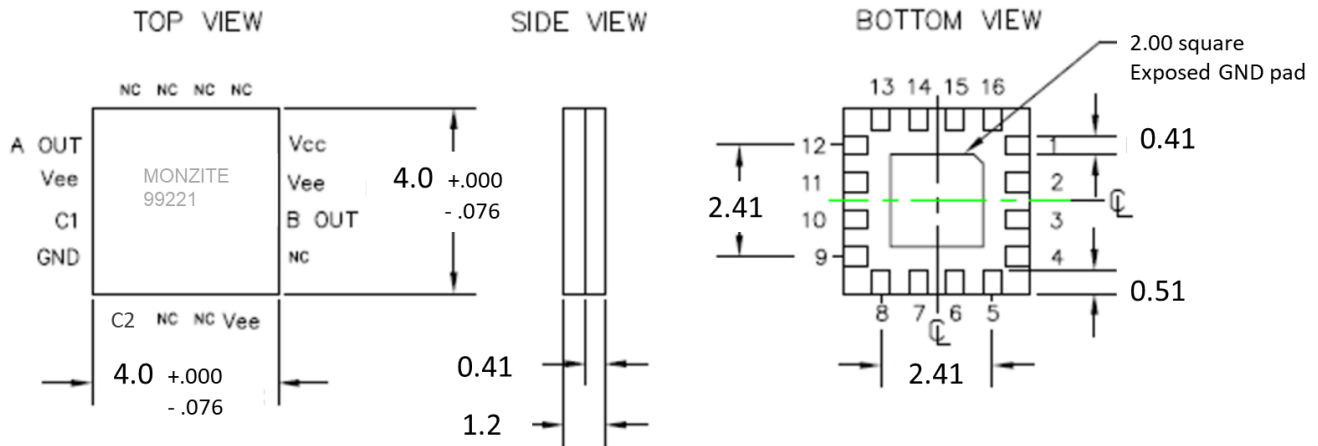
**MECHANICAL SPECIFICATIONS**

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 .158 in NOM; Width .158 in NOM; Height .040 in MAX

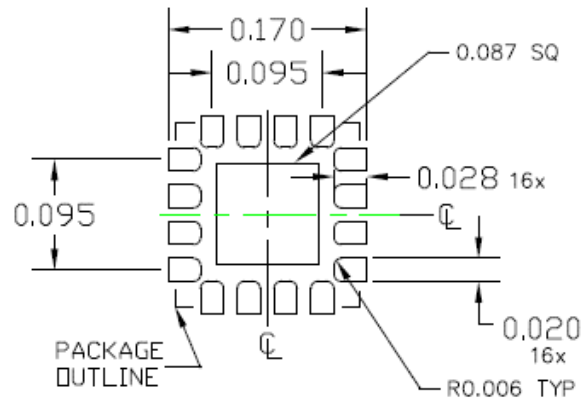
**MARKING SPECIFICATIONS**

Part Number: UT1P7  
 Date Code: YYWW



FOOTPRINT

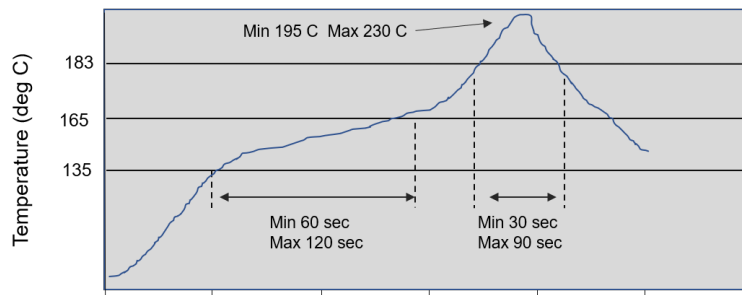
RECOMMENDED  
MOUNTING FOOTPRINT



DIMENSIONS: INCHES

SOLDER PROFILE

SnPb Temperature Profile example



Pb-Free Temperature Profile example

