

GENERAL DESCRIPTION

The MDQ050N450Q16A is a driver featuring high speed and wide negative voltage range suited for driving high speed PIN diode switches.

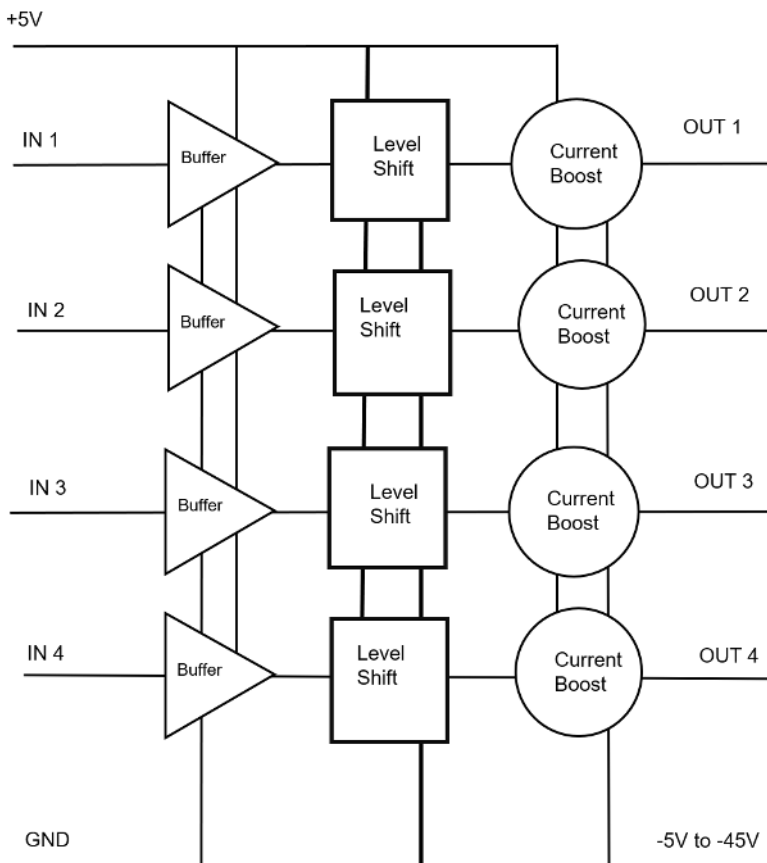
The driver is compatible with 3.3V/5V CMOS logic and has 4 independent channels outputs to supply output high and low up to +/-125 mA operating at +5V and -45V.

External current limiting resistors are required to set current.

FEATURES

- High speed <50 nS
- Operates -5 to -45V - supply

FUNCTION BLOCK DIAGRAM

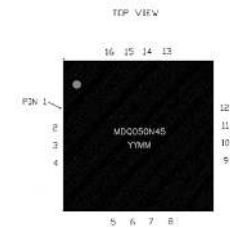


MECHANICAL

The MDQ050N450Q16A 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.



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 Input 3
- 4 Input 4
- 5 Ground
- 6 Ground
- 7 NC
- 8 NC
- 9 Output 4
- 10 Output 3
- 11 Output 2
- 12 Output 1
- 13 +5V
- 14 NC
- 15 NC
- 16 -5 to -45

TRUTH TABLE

IN1	IN2	IN3	IN4	OUT1	OUT2	OUT3	OUT4
1	1	1	1	+V	+V	+V	+V
0	1	1	1	-V	+V	+V	+V
1	0	1	1	+V	-V	+V	+V
1	1	0	1	+V	+V	-V	+V
1	1	1	0	+V	+V	+V	-V
0	0	0	0	-V	-V	-V	-V

ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg -45V, TEMP 25C, PRR 50KHz

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ABSOLUTE MAXIMUMS						
Vpos	Supply Voltage Positive				6.5	V
Vneg	Supply Voltage Negative		-48			V
Vpos to Vneg	Positive to Negative Supply Voltage				54	V
ENVIRONMENTAL						
Enviro	Operating Temperature		-45		115	Deg C
Enviro	Storage Temperature		-55		150	Deg C
INPUT						
VI_hi	Voltage Input High	3.3V LOGIC	2.3	3.0	3.3	V
VI_low	Voltage Input Low	3.3V LOGIC	0	.2	.4	V
OUTPUT						
VO_hi	Voltage Out High	open load	4.8	4.9	5.0	V
VO_low	Voltage Out Low	open load	-44.8	-44.9	-45	V
VO_hi		cathode grounded PIN diode load at 100 mA	4.3	4.4	4.5	V
VO_low		cathode grounded PIN diode load back bias	-44.8	-44.9	-45	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		-125		mA
lopk	Current Peak Output	sink and source		1		A
SUPPLY						
IQC_pos	Quiescent Current Positive	5KHz 50% duty cycle		15		mA
IQC_neg	Quiescent Current Negative	5KHz 50% duty cycle		10		mA
DYNAMIC						
Trise	Time Rise			10		nS
Tfall	Time Fall			10		nS
Td_rise	Delay Rise			20		nS
Td_fall	Delay Fall			20		nS
TSW_rise	Switching Speed Rise	100pF load		50		nS
TSW_fall	Switching Speed Fall	100pF load		50		nS
PRR	Pulse Repetition Rate	Max, 10pF load		250		KHz

ESD Sensitivity HBM Class1B

MECHANICAL SPECIFICATIONS

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

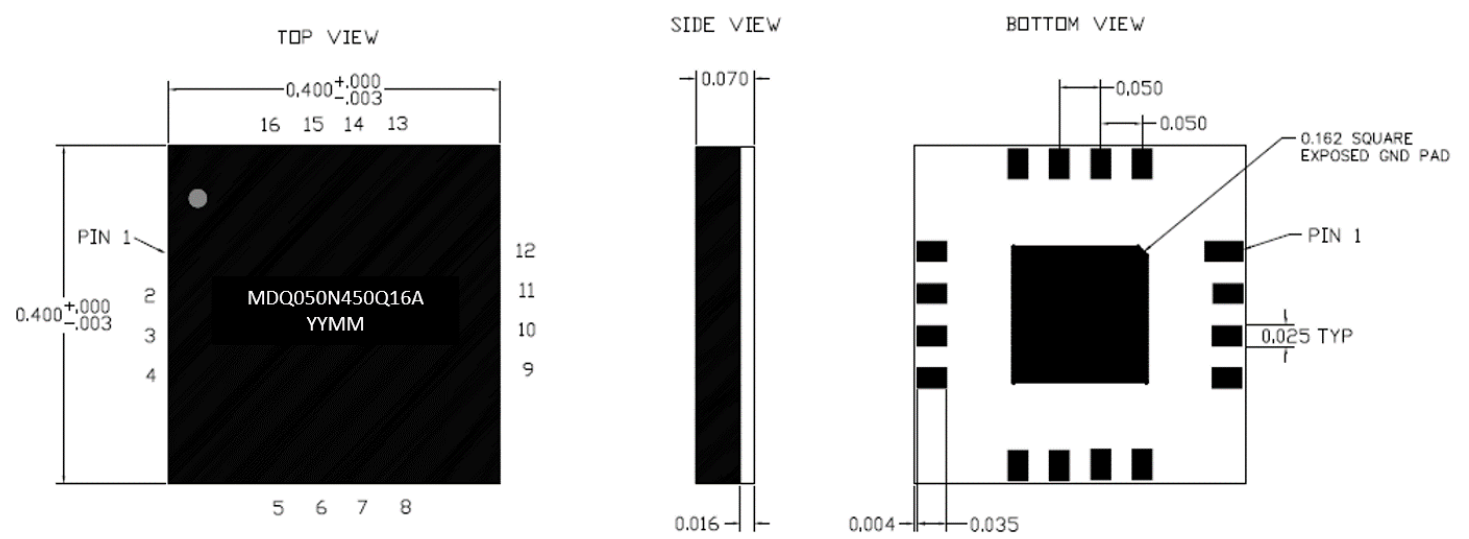
MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging
Waffle Packs/trays

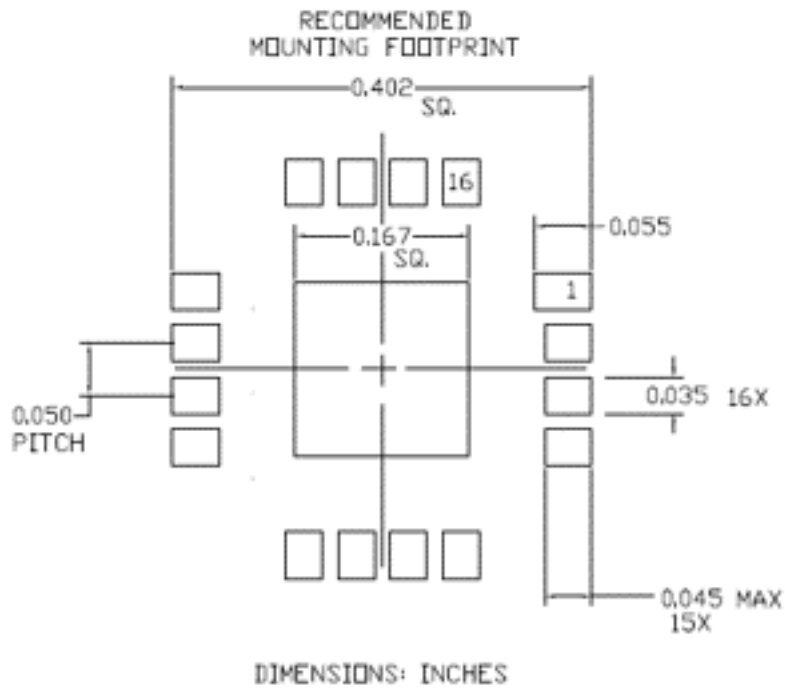
Lead Finish: ENIG
Length .400; Width .400; Height .06

MARKING SPECIFICATIONS

Part Number: MDQ050N450Q16A
Date Code: YYWW

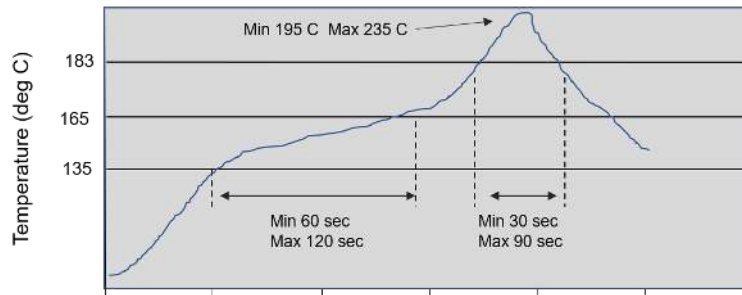


FOOTPRINT



SOLDER PROFILE

SnPb Temperature Profile example



Pb-Free Temperature Profile example

