

## GENERAL DESCRIPTION

The MDD050N141Q16A is a driver featuring high speed suited for driving high power PIN diode switches.

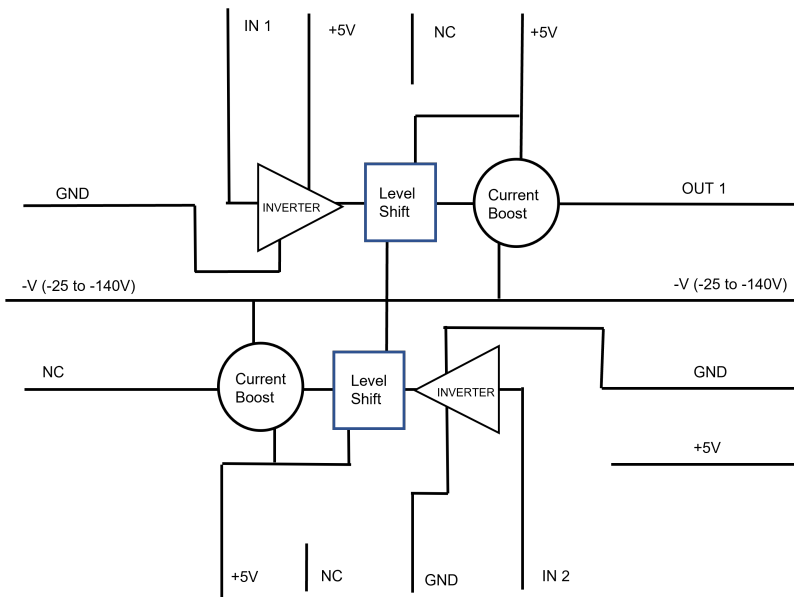
The driver is compatible with TTL logic and has 2 independent channels to supply output high and low up to +/-350 mA and +5V/ (-15V to -140V)

External current limiting resistors are required to set current

## FEATURES

- High speed <100 nS
- Drives high capacitive loads

## FUNCTION BLOCK DIAGRAM



## MECHANICAL

The MDD050N141Q16A consists of discrete components mounted on a laminate and sealed with a Dam and Fill process. This forms a .300" x .300" 16 pos QFN assembly designed for integration into an Integrated Microwave Assembly.

ECCN Code EAR99

MDD050N141Q16A is RoHS 3 (EU 2015/863) compliant.



## PIN CONNECTIONS

Recommend bypassing Vpos and Vneg with .1 uf capacitor minimum.

- |    |               |
|----|---------------|
| 1  | -20V to -140V |
| 2  | Output 1      |
| 3  | +5V           |
| 4  | NC            |
| 5  | +5V           |
| 6  | Input 1       |
| 7  | Ground        |
| 8  | -20V to -140V |
| 9  | NC            |
| 10 | Output 2      |
| 11 | +5V           |
| 12 | NC            |
| 13 | Ground        |
| 14 | Input 2       |
| 15 | +5V           |
| 16 | Ground        |

**TRUTH TABLE**

IN1	IN2	OUT1	OUT2
0	0	-V	-V
0	1	-V	+V
1	0	+V	-V
1	1	+V	+V

**ELECTRICAL SPECIFICATIONS**

Vpos +5V, Vneg -140V, TEMP 25C, PRR 250KHz

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
<b>ABSOLUTE MAXIMUMS</b>						
Vpos					6	V
Vneg			-160			V
<b>ENVIRONMENTAL</b>						
Enviro	Operating Temperature		-45		115	Deg C
Enviro	Storage Temperature		-55		150	Deg C
<b>INPUT</b>						
VI_hi	Voltage Input High	3.3V LOGIC	2.5		5.0	V
VI_low	Voltage Input Low	3.3V LOGIC	0	.2	.5	V
<b>OUTPUT</b>						
VO_hi	Voltage Out High	open load	4.5	4.8	5.0	V
VO_low	Voltage Out Low	open load	-139.5		-140	V
IO_hi	Current Out High	steady state into 1V diode load			350	mA
IO_low	Current Out Low	steady state into 1V diode load common arm resistor			-350	mA
lopk	Current Peak Output	sink and source	+2			A
<b>SUPPLY</b>						
IQC_pos	Quiescent Current Positive	per driver			4	mA
IQC_neg	Quiescent Current Negative	per driver			4	mA
<b>DYNAMIC</b>						
TSW_rise	Switching Speed Rise	opposed 1N4148 diode load		120		nS
TSW_fall	Switching Speed Fall	opposed 1N4148 diode load		80		nS
PRR	Pulse Repetition Rate	Max, 10pF load			250	KHz

ESD Sensitivity HBM Class 1B

**MECHANICAL SPECIFICATIONS**

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

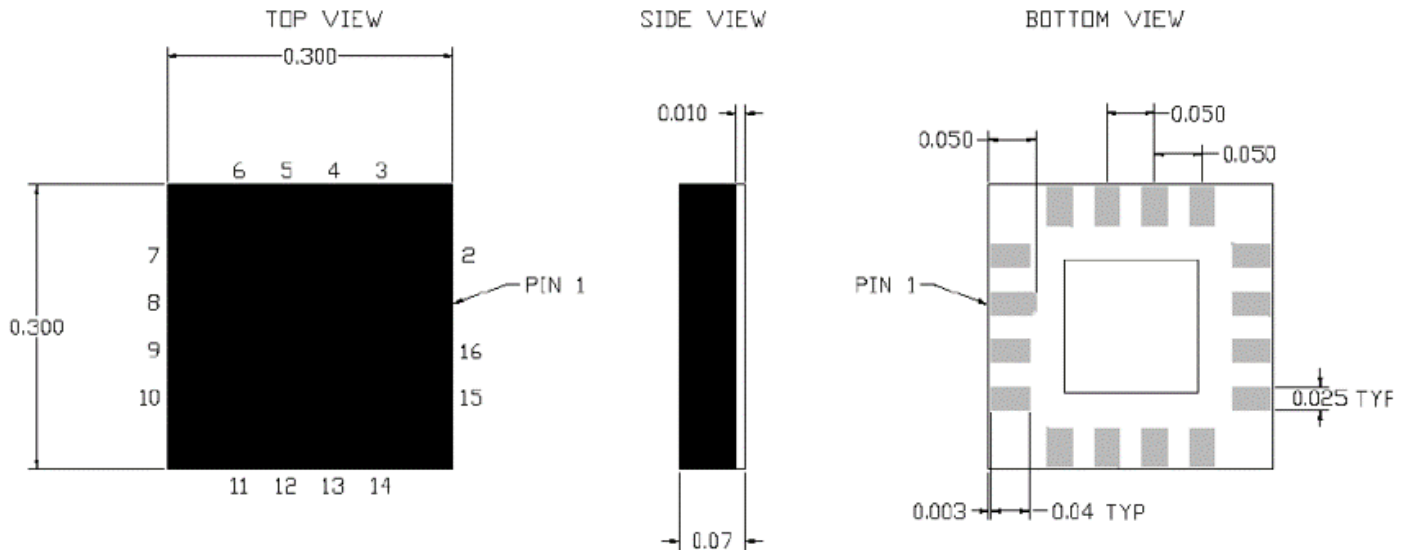
MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging  
Waffle Packs/trays

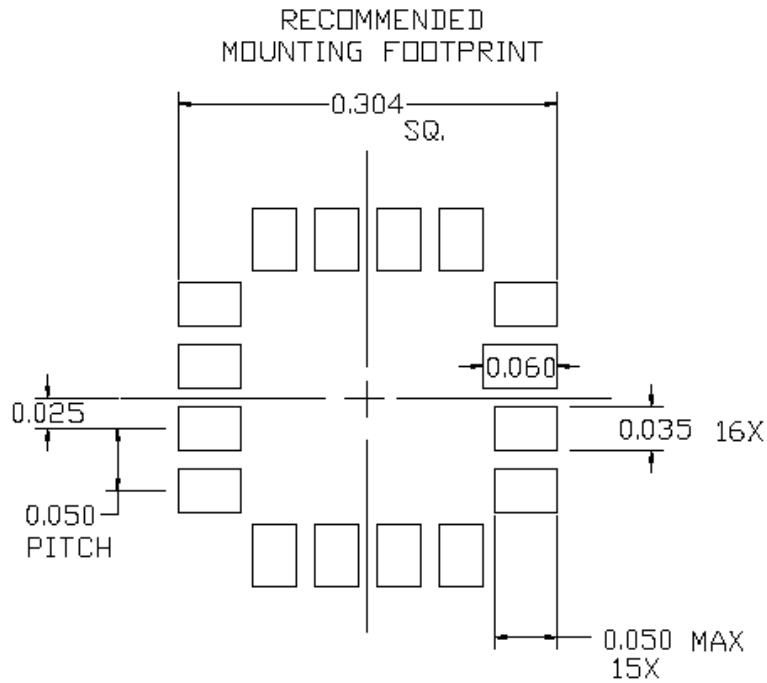
Type: FR4; Lead Finish: Enig Gold  
Length .3"; Width .3"; Height .07; Weight .2g

**MARKING SPECIFICATIONS**

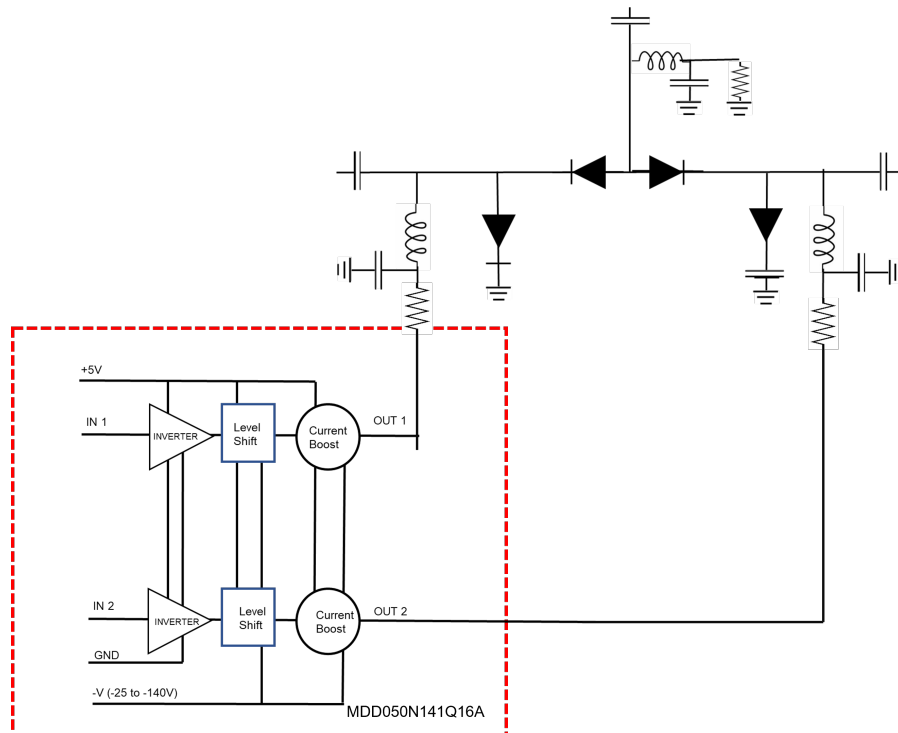
Part Number: BX21N  
Date Code: YYWW



**FOOTPRINT**

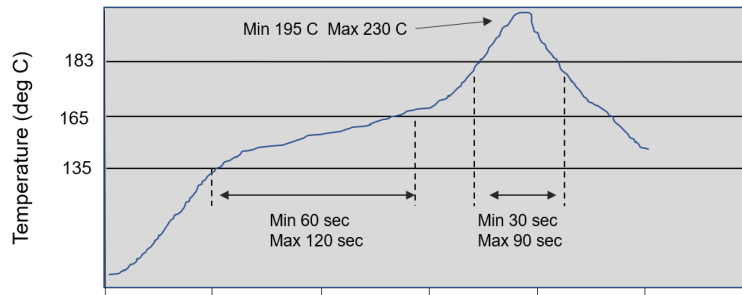


**TYPICAL APPLICATION**

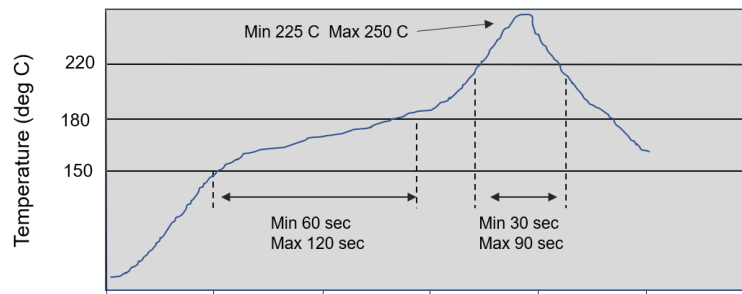


SOLDER PROFILE

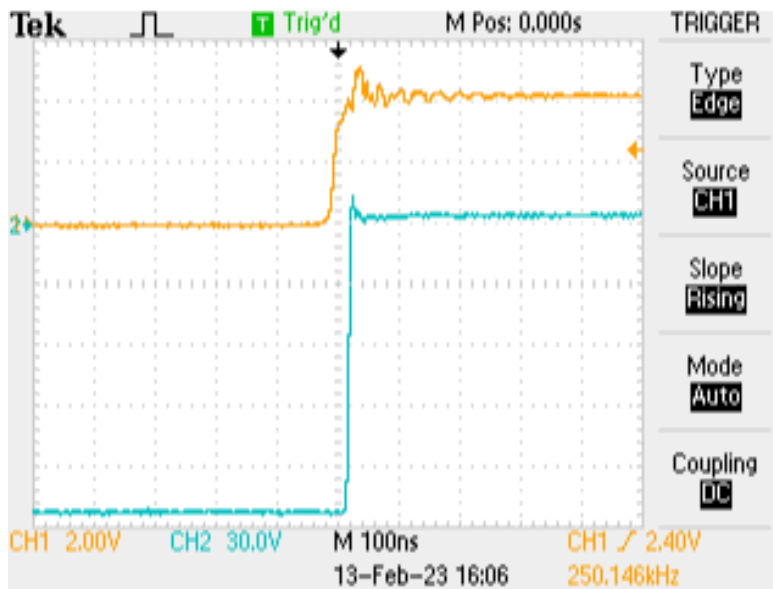
SnPb Temperature Profile example



Pb-Free Temperature Profile example

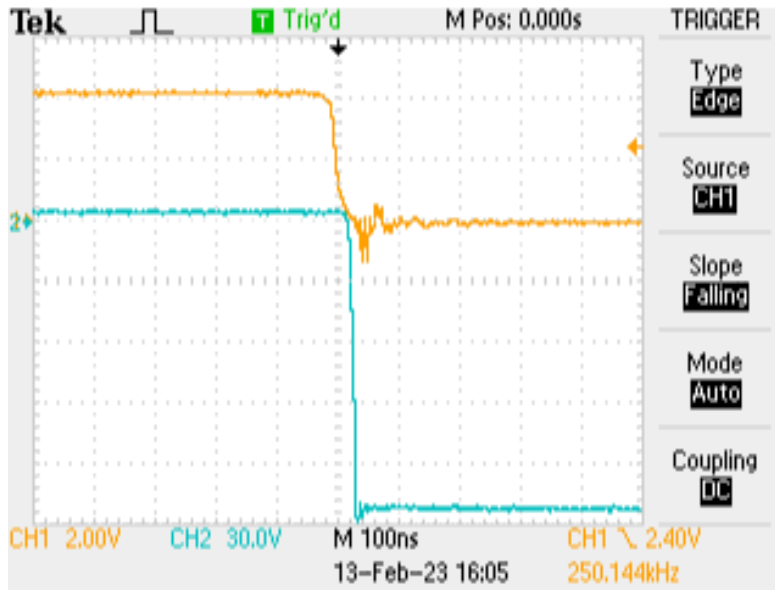


WAVEFORM



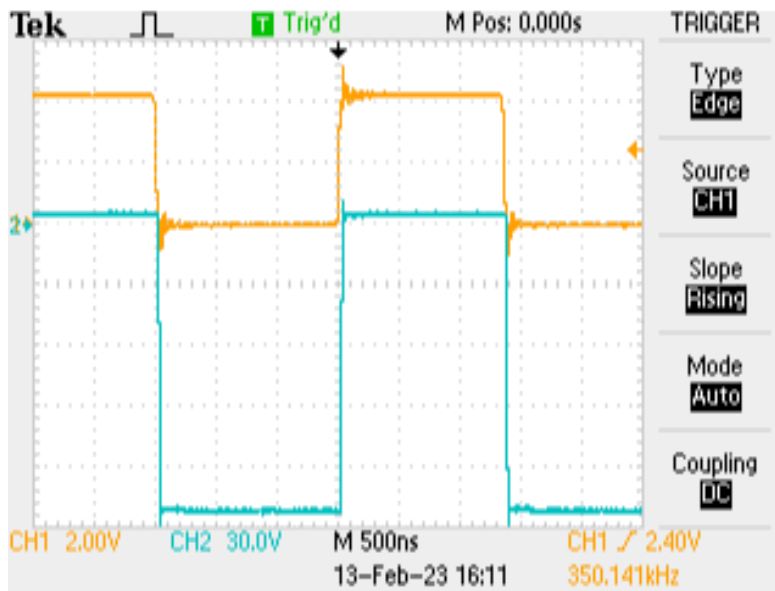
TDS 2012B - 2:28:18 PM 2/13/2023

**WAVEFORM**



TDS 2012B - 2:27:04 PM 2/13/2023

**WAVEFORM**



TDS 2012B - 2:32:33 PM 2/13/2023