Dual +5V/+28V PIN Diode Switch Driver

DATASHEET

MDD050N201Q16A

GENERAL DESCRIPTION

The MDD050N201Q16A is a driver featuring high speed and outputs +5V and -200V 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 +125 mA and -200V for back bias.
External current limiting resistors are required to set current.

FEATURES

- High speed <100 nS
- small 11 mm sq package

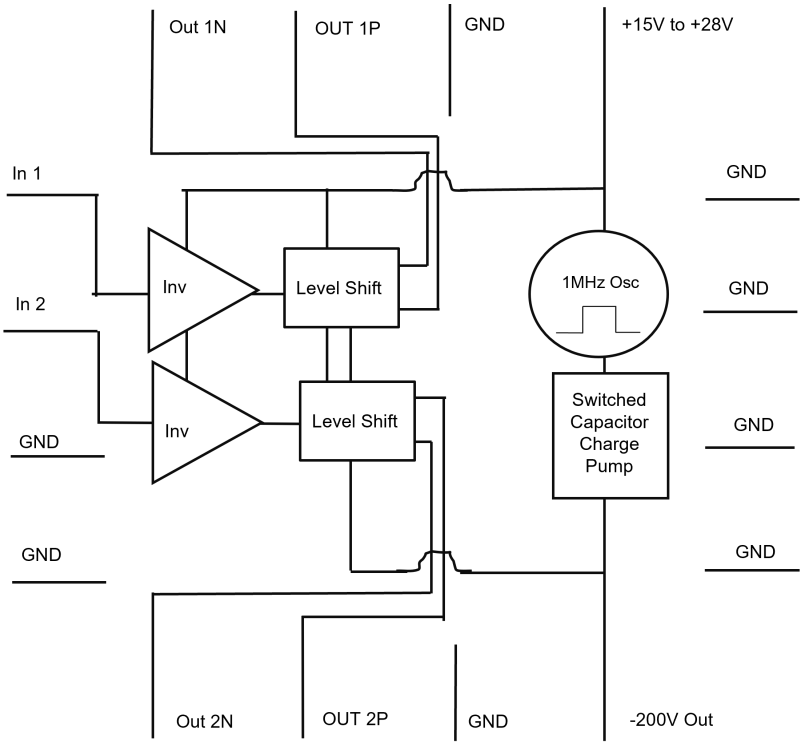
MECHANICAL

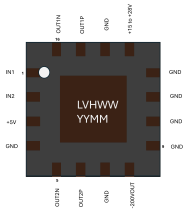
The MDD050N201Q16A consists of silicon BJT and MOSFET array mounted to a laminate substrate and sealed with a dam and fill process. This forms a 11mm x 11mm 16 pos QFN SMT assembly designed for integration into an integrated microwave assembly.

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 minimum.

1	Input 1
2	Input 2
3	+5V
4	Ground
5	OUT 2N
6	OUT 2P
7	Ground
8	Testpoint -200V
9	Ground
10	Ground
11	Ground
12	Ground
13	+15V TO +28V
14	Ground
15	OUT 1P
16	OUT 1N

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, Vpos2 +28V, Vneg , TEMP 25C, PRR .5KHz

	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	PIN diode forward biased load	3.3		5	V
	VO_low	Voltage Out Low	PIN diode reverse biased load	-190		-210	V
	IO_hi	Current Out High	forward bias PIN diode			125	mA
	IO_low	Current Out Low	reverse bias PIN diode			.1	mA
	Iopk	Current Peak Output	sink and source		1		A
SUPPLY							
	Vpos1	Logic Supply Positive		4.8	5.0	5.5	V
	V pos2	Voltage supply positive		15		28	V
	IQC_pos	Quiescent Current Positive	5KHz 50% duty cycle			17	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

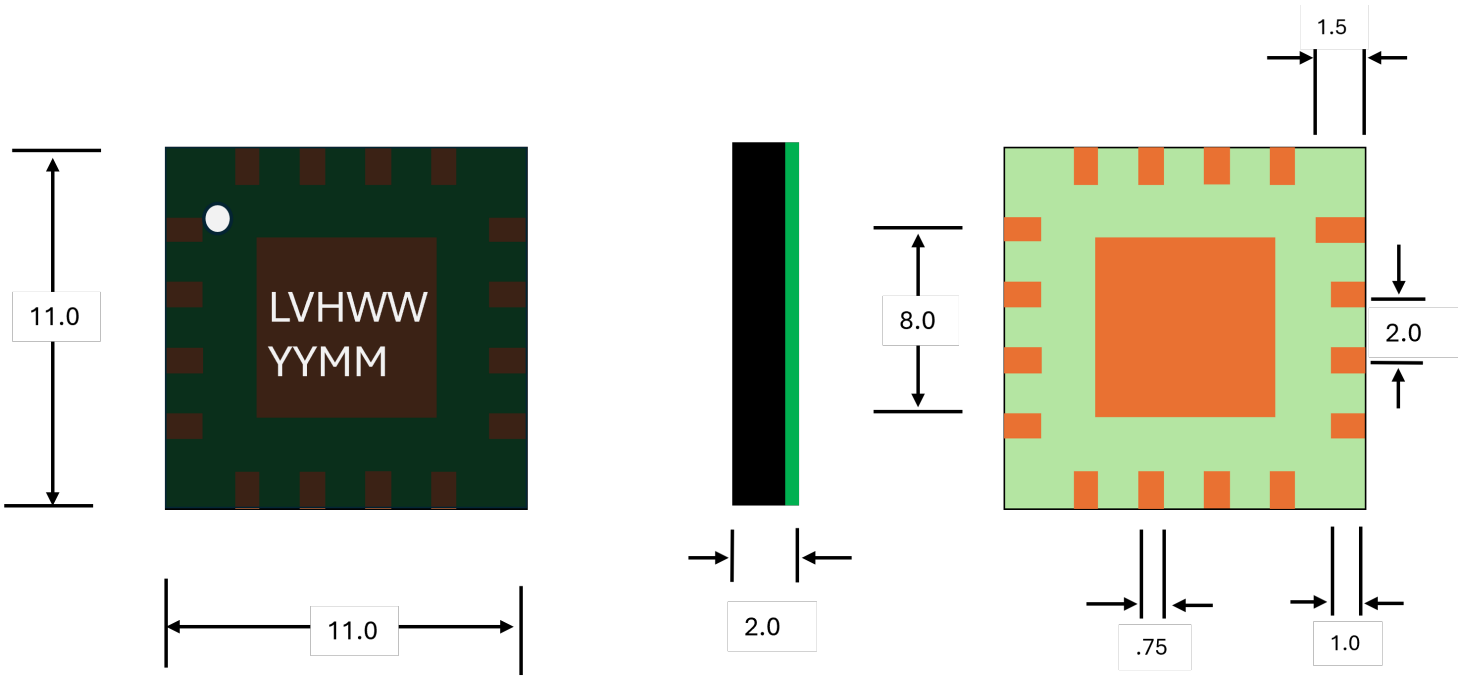
DRAWING NOT TO SCALE. DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.

MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging
Waffle Packs/trays

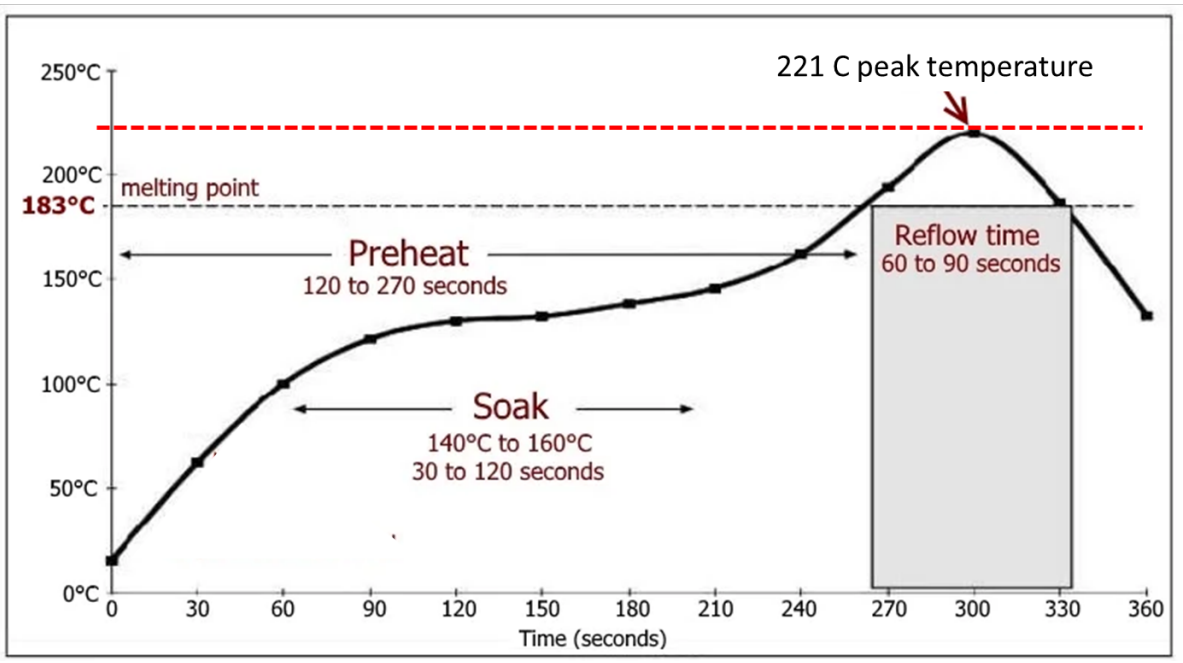
MARKING SPECIFICATIONS

Part Number: LVHWW
Date Code: YYWW

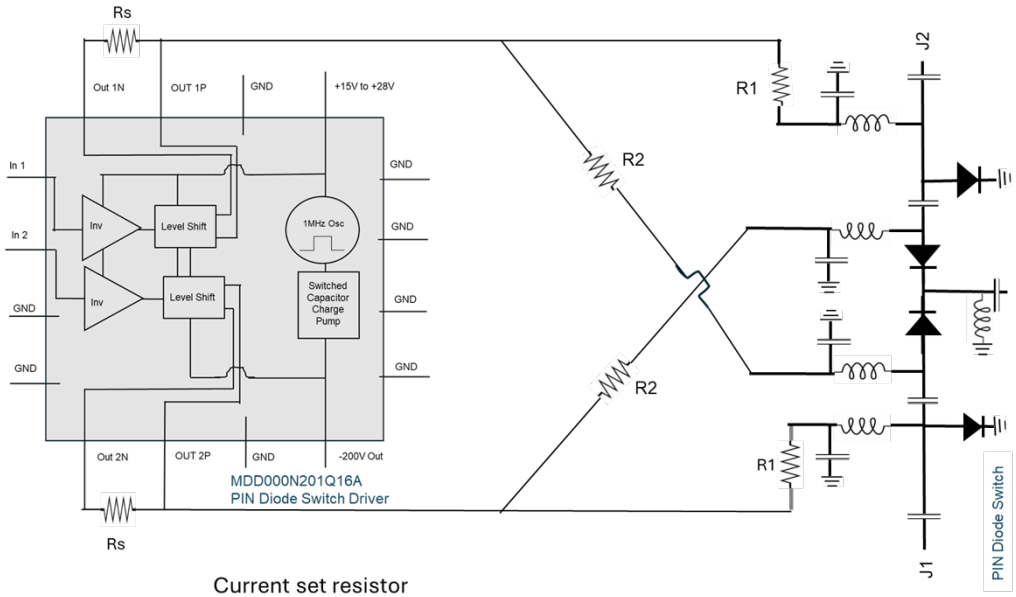


SOLDER PROFILE

Sn63Pb37 reflow profile



TYPICAL APPLICATION



Current set resistor
Typ Rs=15 ohm resistance needed to limit output ripple
R1,R2= (V_{out}-V_{fwd}/$I_{desired}$)
V_{out}=4V V_{fwd}=1V (diode drop) I diode current= .1A
Example 3/.1=30 ohm R1=30ohm