

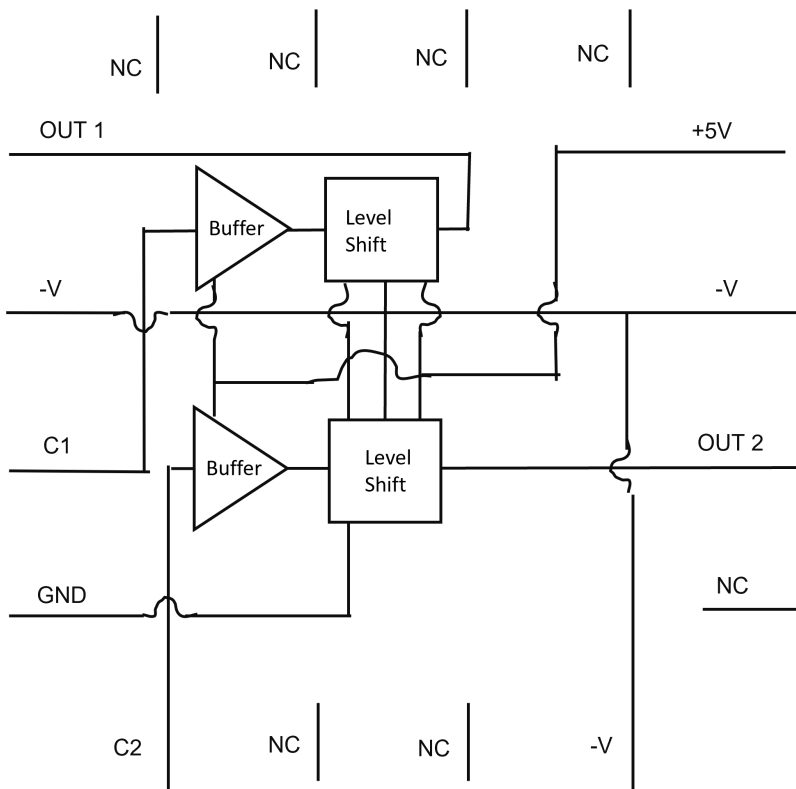
GENERAL DESCRIPTION

The MDD000N400Q16A is a driver featuring high speed and wide negative voltage range suited for driving SP2T GaN monolithic switch. The driver is compatible with 3.3V/5.0 V CMOS logic and has 2 independent channels to supply each bias line 0V and -5V to -40V to bias the GaN FET on and off.

FEATURES

- Ultra high speed <20ns
- Independent control for all OFF switch condition
- Drives capacitive loads fast
- Compatible with CMOS FPGA outputs
- Compatible with TGS2352-2, TGS2353-2, TGS2355, QPC1005, QPC1006

FUNCTION BLOCK DIAGRAM

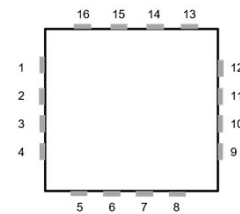


MECHANICAL

The MDD000N400Q16A consists of multiple components mounted to a laminate substrate and encapsulated with an epoxy sealant using a transfer mold process. This forms a 4 x 4 mm 16 lead QFN SMT assembly designed for integration into an integrated microwave assembly.

ECCN Code EAR99

MDD000N400Q16A is RoHS 3 (EU 2015/863) compliant.



PIN CONNECTIONS

Pins 2, 8, 11 (V-) are not internally connected, need connection

- | | |
|----|------------------|
| 1 | OUT 1 |
| 2 | V- (-5V to -40V) |
| 3 | IN C1 |
| 4 | Ground |
| 5 | IN C2 |
| 6 | NC |
| 7 | NC |
| 8 | V- (-5V to -40V) |
| 9 | NC |
| 10 | OUT 2 |
| 11 | V- (-5V to -40V) |
| 12 | +5V |
| 13 | NC |
| 14 | NC |
| 15 | NC |
| 16 | NC |

TRUTH TABLE

IN C1 IN C2 OUT 1 OUT 2

0	0	-V	-V
0	1	-V	0V
1	0	0V	-V
1	1	0V	0V

ELECTRICAL SPECIFICATIONS

Vpos +5V, GND GND, Vneg -40V, TEMP 25C, PRR 100KHz

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/5V LOGIC	2.8	4	5.5	V
VI_low	Logic Input Low	3.3V/5V LOGIC	0	.8	1.2	V
OUTPUT						
VO_hi	Voltage Out High	open load	-0.1	0	0.2	V
VO_low	Voltage Out Low	open load	-39.4	-39.5	-40	V
IO_hi	Current Out High	steady state into 1V diode load			20	mA
IO_low	Current Out Low	steady state into 1V diode load common arm resistor			-20	mA
lopk	Current Peak Output	sink		-100		mA
SUPPLY						
Vpos	Supply Voltage Positive	Steady State	4.75	5	5.25	V
Vneg	Supply Voltage Negative	Steady State	-40		-5	V
IQC_pos	Quiescent Current Positive				2	mA
IQC_neg	Quiescent Current Negative				-3	mA
DYNAMIC						
TSW_rise	Switching Speed Rise	10pF load		20		nS
TSW_fall	Switching Speed Fall	10pF load		20		nS
PRR	Pulse Repetition Rate	Max, 10pF load			125	KHz

ESD Sensitivity HBM Class1B

MECHANICAL SPECIFICATIONS

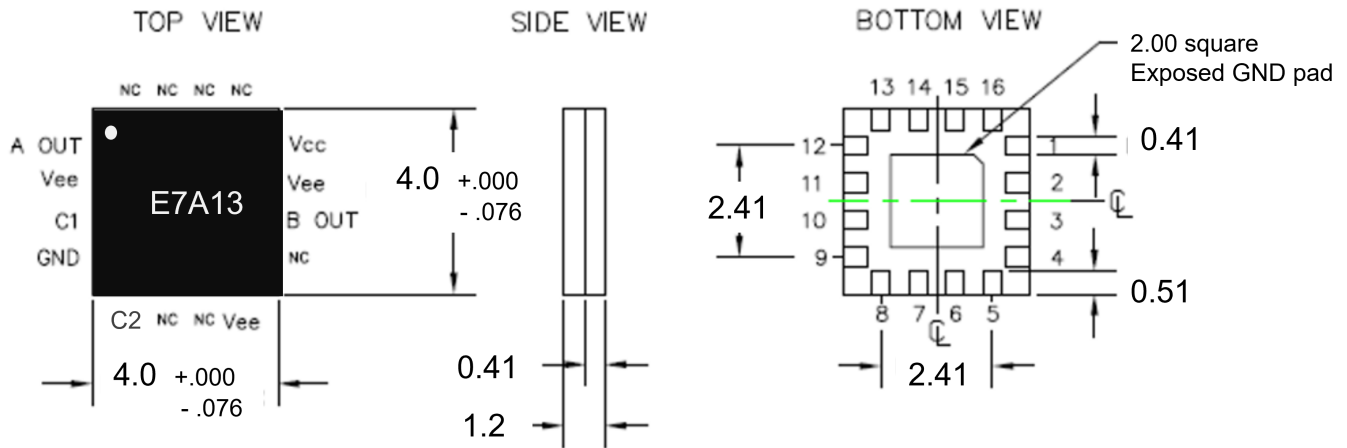
DRAWING NOT TO SCALE. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging
4" Waffle Packs/trays

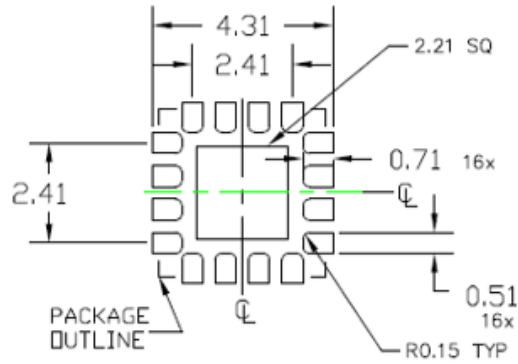
MARKING SPECIFICATIONS

Part Number: E7A13
Date Code: YYWW



FOOTPRINT

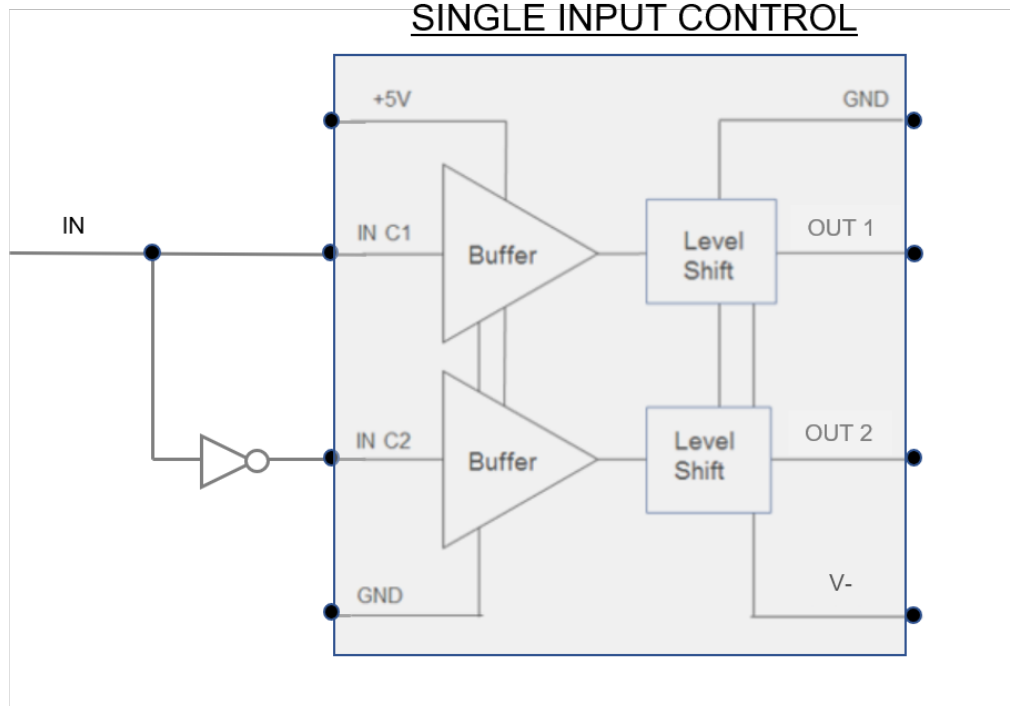
RECOMMENDED
MOUNTING FOOTPRINT



DIMENSIONS: MM

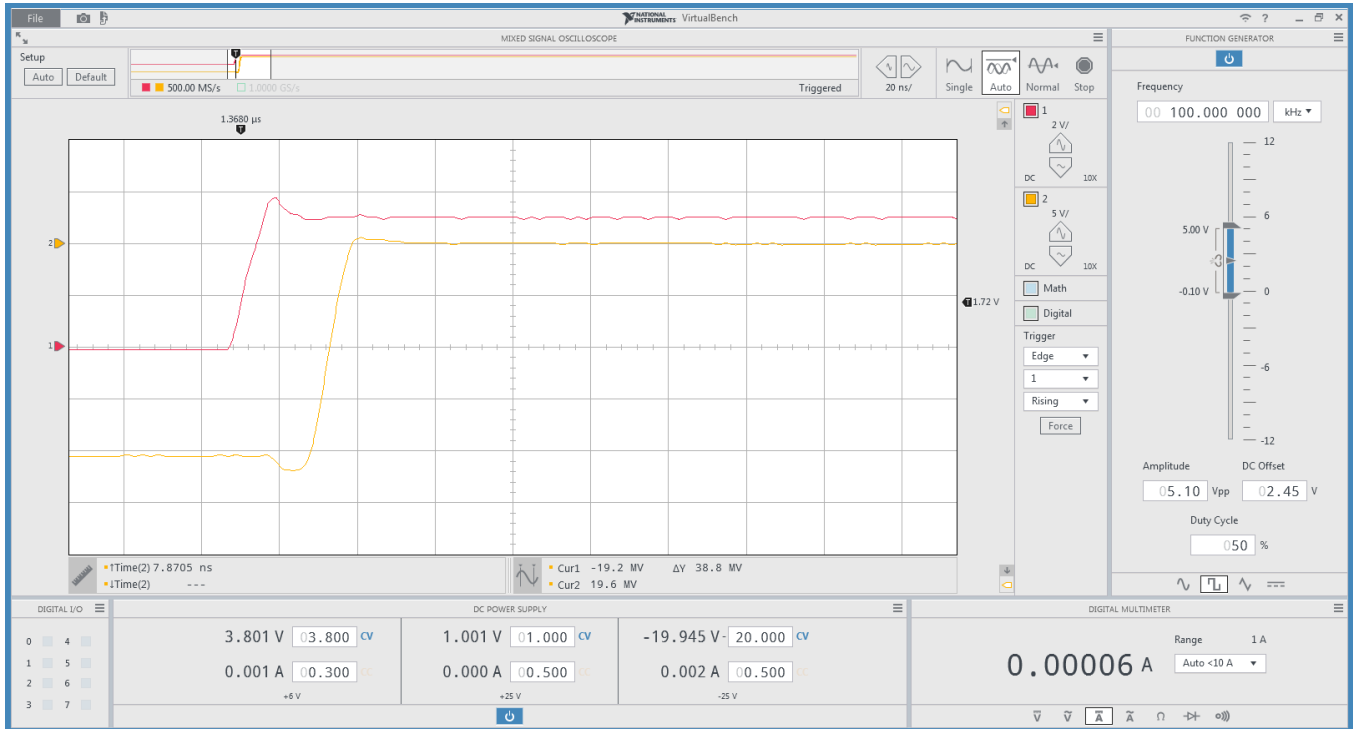
TYPICAL APPLICATION

SINGLE INPUT CONTROL



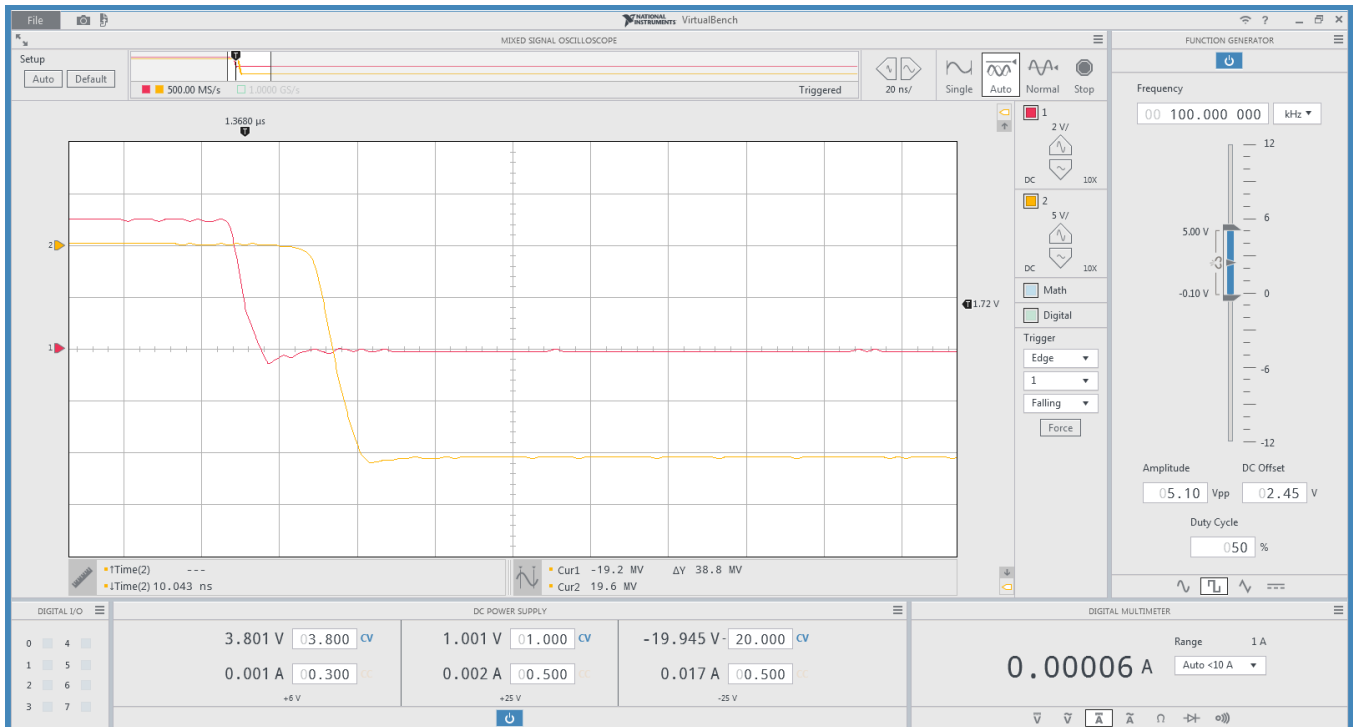
WAVEFORM

20V Rise Time graph. Y=5V/div, X=20nS/div



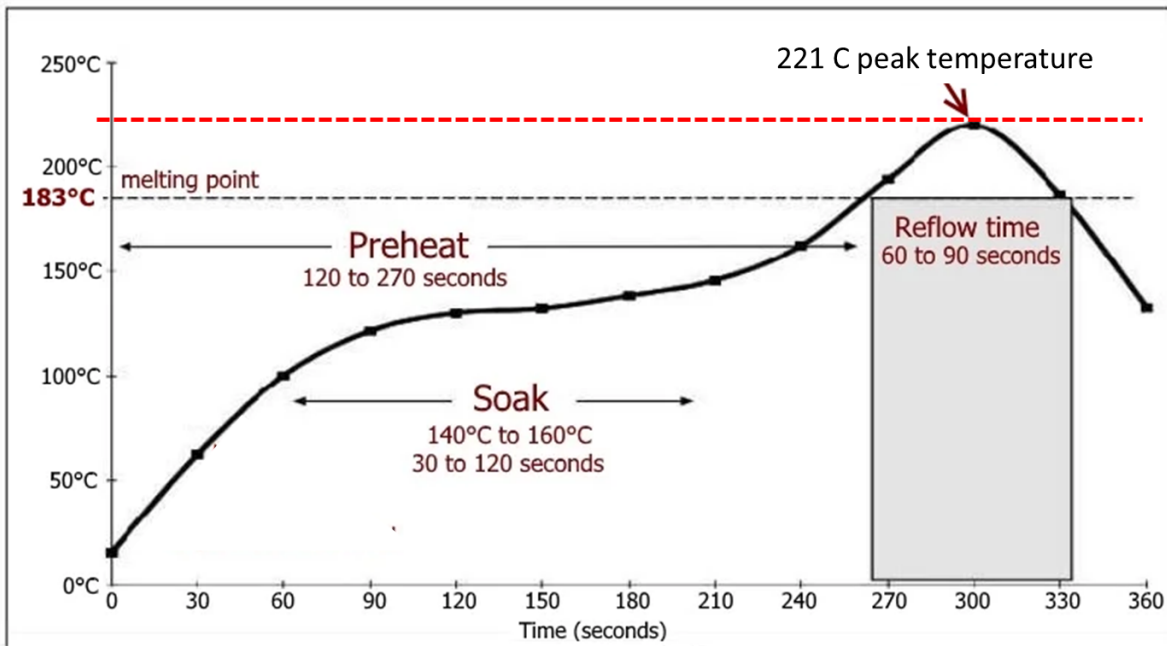
WAVEFORM

20V Fall Time graph. Y=5V/div, X=20nS/div



SOLDER PROFILE

Sn63Pb37 reflow profile



APPLICATIONS INFO

Thermal Rise at 200kHz PRR continuous and 2% duty cycle. (21.5°C rise)

