

GENERAL DESCRIPTION

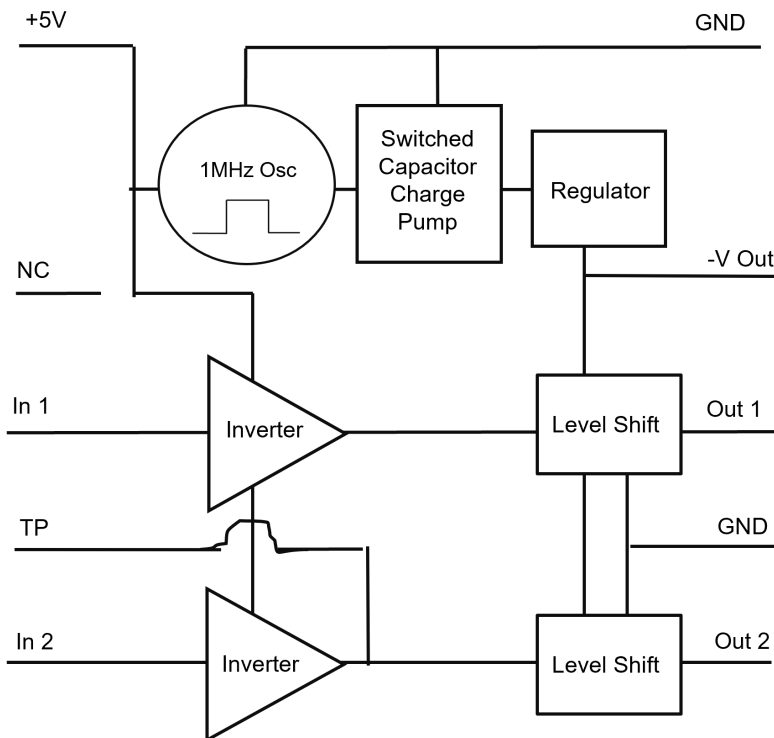
The MDD000N280D10A is a driver featuring high speed and outputs suited for driving SP2T GaN monolithic switch. The driver has integrated charge pump to generate -28V from +5V supply.

The driver is compatible with 3.3V/5.0 V CMOS logic and has 2 independent channels to supply each bias line 0V and -28V to bias the GaN FET on and off.

FEATURES

- Ultra high speed <20nS
- Independent control for all OFF switch conditions
- single +5V supply required
- Integrated -28V charge pump
- Compatible with TGS2352-2, TGS2353-2, QPC2040, QPC1005, QPC2511

FUNCTION BLOCK DIAGRAM

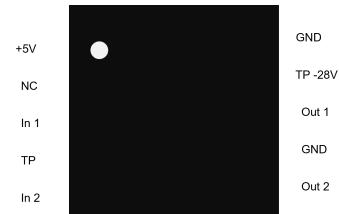


MECHANICAL

The MDD000N280D10A consists of multiple components mounted to a laminate substrate and encapsulated with a low moisture epoxy compound using a transfer mold process. This forms a .25 square 10 lead DFN SMT assembly designed for easy integration into an integrated microwave assembly.

ECCN Code EAR99

MDD000N280D10A is RoHS 3 (EU 2015/863) compliant.



PIN CONNECTIONS

Connect 1 uF capacitor from PIN 9 to ground for minimize ripple

For single input mode connect logic to Pin 5 and connect Pin 3 to Pin 4.

- | | |
|----|-----------------|
| 1 | +5V |
| 2 | Ground |
| 3 | IN 1 |
| 4 | Logic Testpoint |
| 5 | IN 2 |
| 6 | OUT 2 |
| 7 | NC |
| 8 | OUT 1 |
| 9 | Testpoint -28V |
| 10 | Ground |

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 -28V, TEMP 25C, PRR 250KHz

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	Voltage Input High	TTL/CMOS	2.8	4	5.5	V
VI_low	Voltage Input Low	TTL/CMOS	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	-28..4	-28	-27.6	V
IO_hi	Current Out High	steady state into GaN switch			20	mA
IO_low	Current Out Low	steady state into GaN switch			-4	mA
lopk	Current Peak Output	sink		-100		mA
SUPPLY						
IQC_pos	Quiescent Current Positive	Steady State		18		mA
IQC_neg	Quiescent Current Negative	Steady State		-1		mA
DYNAMIC						
Trise	Time Rise			3		nS
Tfall	Time Fall			3		nS
Td_rise	Delay Rise			10		nS
Td_fall	Delay Fall			10		nS
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			250	KHz

ESD Sensitivity HBM Class1B

MECHANICAL SPECIFICATIONS

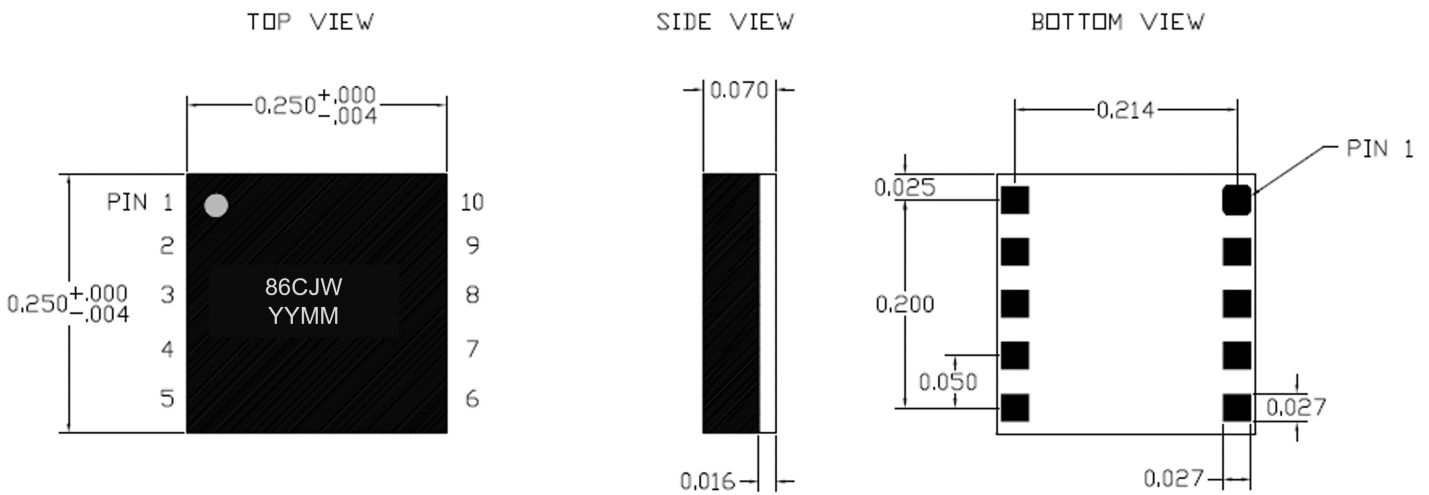
DRAWING NOT TO SCALE. DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.

MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging
4" Waffle Packs/trays

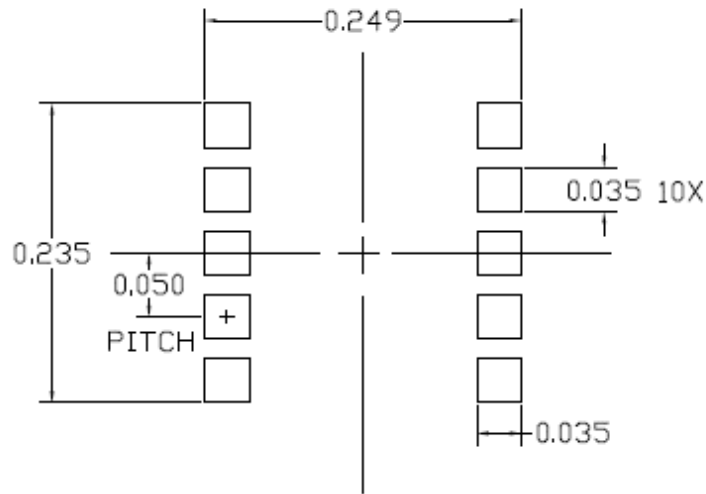
MARKING SPECIFICATIONS

Part Number: 86CJW
Date Code: YYMM



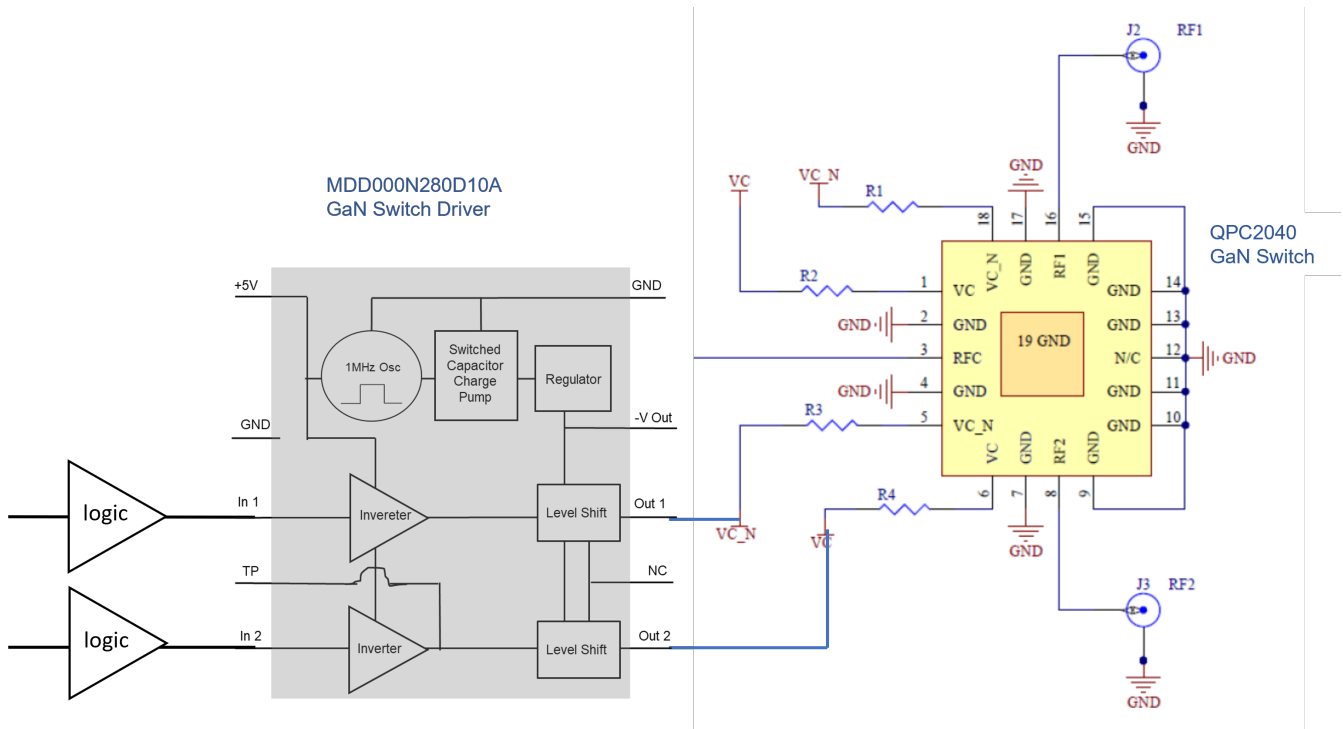
FOOTPRINT

RECOMMENDED
MOUNTING FOOTPRINT



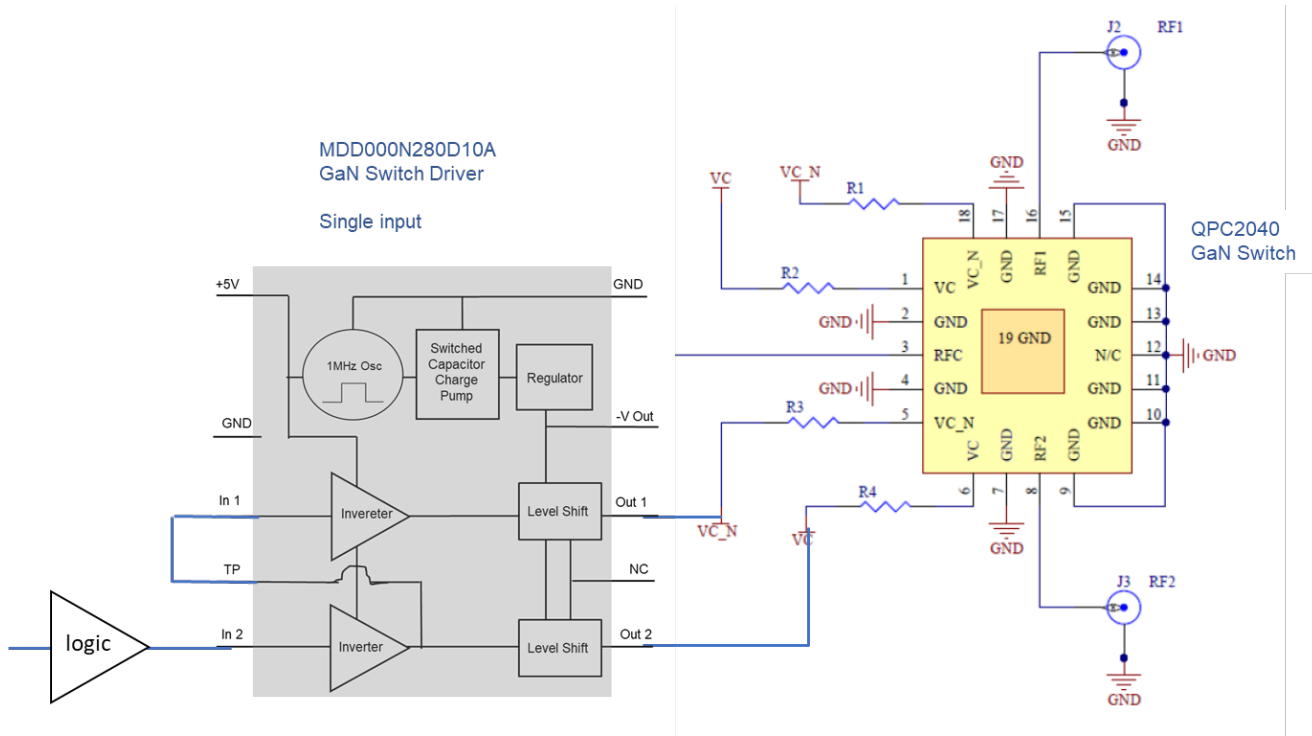
DIMENSIONS: INCHES

TYPICAL APPLICATION



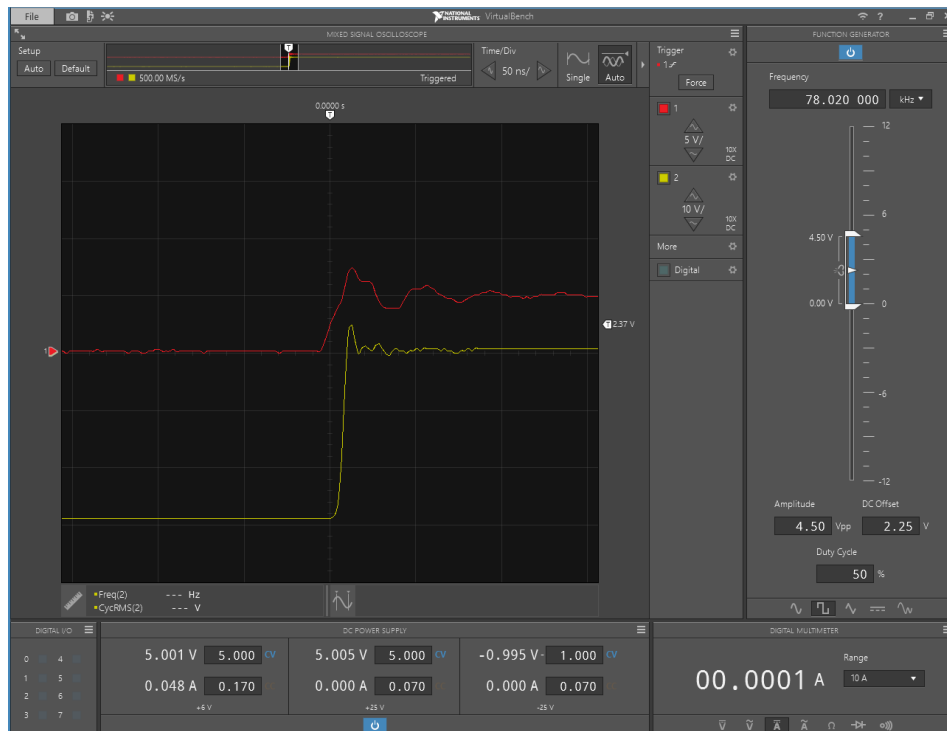
TYPICAL APPLICATION

single input



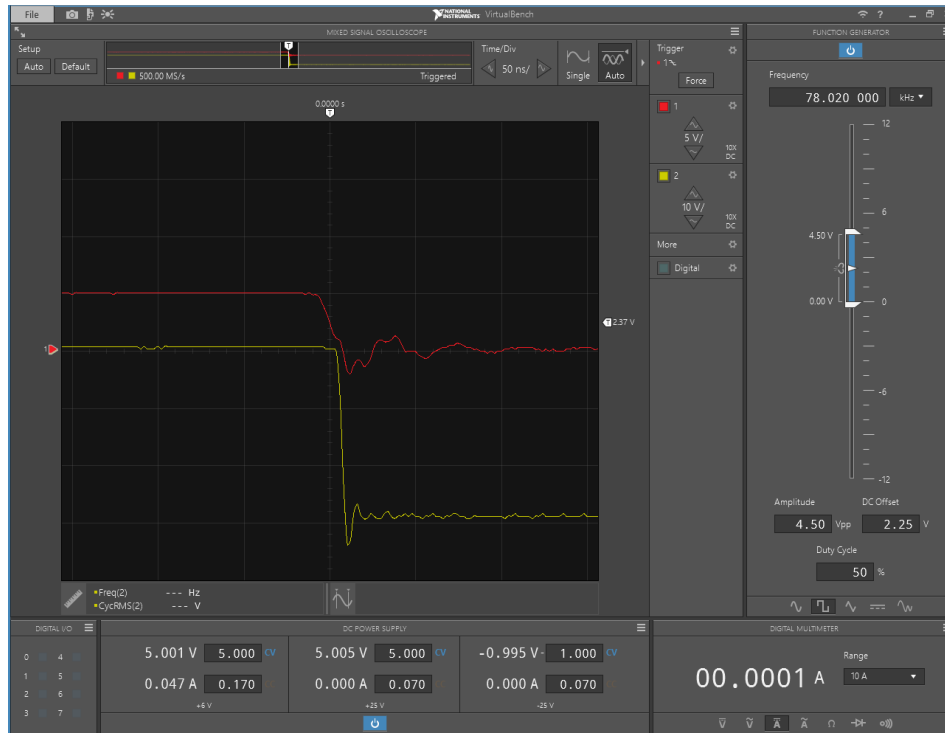
WAVEFORM

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

