

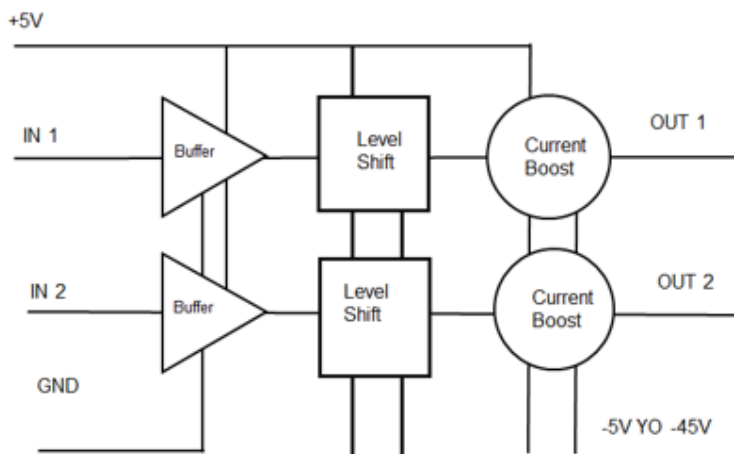
GENERAL DESCRIPTION

The MDD050N450Q20B is a driver featuring high speed and wide negative voltage range suited for driving SP2T PIN diode switch. The driver is compatible with 3.3V CMOS logic and has 2 independent channels to supply each bias line +5V and -5 to -45V to bias the PIN diode on and off

FEATURES

- Ultra high speed <50nS
- Drives capacitive loads fast
- Compatible with CMOS FPGA outputs •

FUNCTION BLOCK DIAGRAM

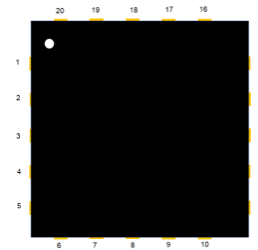


MECHANICAL

The MDD050N450Q20B consists of monolithic silicon BJT IC bonded to a laminate substrate and sealed with a dam and fill process. This forms a 5 x 5 mm 20 lead QFN SMT assembly designed for integration into an integrated microwave assembly.

ECCN Code EAR99

MDD050N450Q20B is Rohs compliant



PIN CONNECTIONS

Pins 2, 9, 13 (Vneg) are not internally connected, need connection

- | | |
|----|------------|
| 1 | OUT 1 |
| 2 | -5V to-45V |
| 3 | Input 1 |
| 4 | Ground |
| 5 | Input 2 |
| 6 | NC |
| 7 | NC |
| 8 | NC |
| 9 | -5V to-45V |
| 10 | NC |
| 11 | NC |
| 12 | OUT 2 |
| 13 | -5V to-45V |
| 14 | +5V |
| 15 | NC |
| 16 | NC |
| 17 | NC |
| 18 | NC |
| 19 | NC |
| 20 | NC |

TRUTH TABLE

IN 1	IN 2	OUT 1	OUT 2
0	0	-V	-V
1	0	+V	-V
0	1	-V	+V
1	1	+V	+V

ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg -45V, TEMP 25C, PRR 0.5MHz

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			
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	CMOS	1.8	3.0	3.5	V
VI_low	Voltage Input Low	CMOS	0	.8	1.0	V
OUTPUT						
VO_hi	Voltage Out High	open load	4.7	4.9	5.0	V
VO_low	Voltage Out Low	open load	-44.7	-44.9	-45	V
VO_hi	Voltage Out High	Cathode grounded PIN diode load at 100 mA	4.3	4.4	4.6	V
VO_low	Voltage Out Low	Cathode grounded PIN diode load at back bias	-44.9	-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		1		A
SUPPLY						
IQC_pos	Quiescent Current Positive	0.5MHz 50% duty cycle		2		mA
IQC_neg	Quiescent Current Negative	0.5MHz 50% duty cycle		-2		mA
DYNAMIC						
Trise	Time Rise			10		nS
Tfall	Time Fall			10		nS
Td_rise	Delay Rise			25		nS
Td_fall	Delay Fall			25		nS
TSW_rise	Switching Speed Rise	1 shunt 40micron PIN diode 100pF bypass capacitor		50		nS
TSW_fall	Switching Speed Fall	1 shunt 40micron PIN diode 100pF bypass capacitor		50		nS
PRR	Pulse Repetition Rate	Max, 10pF load		0.5		MHz

ESD Sensitivity HBM Class 1B

MECHANICAL SPECIFICATIONS

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

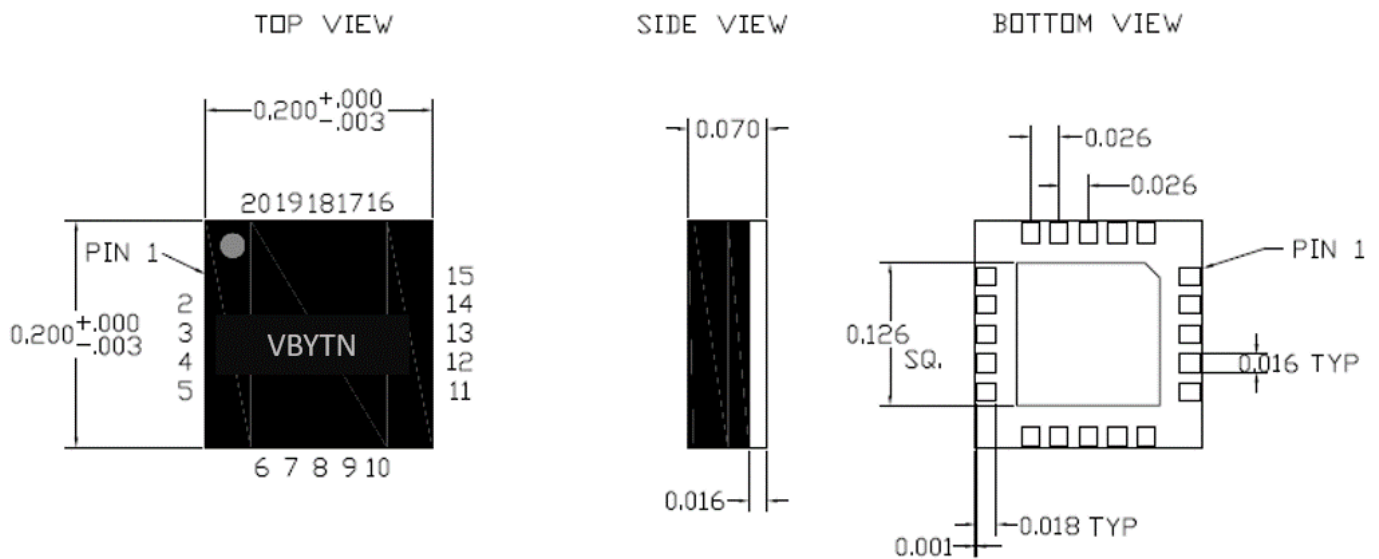
MSL RATING 4 (refer to JEDEC STD 033B)

Shipping Packaging
2" Waffle Packs/trays

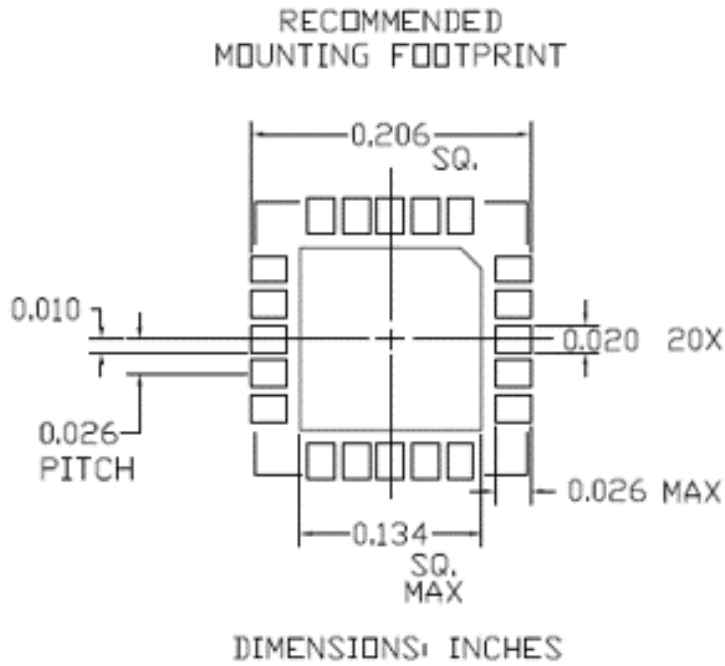
Length .200; Width .200; Height .060

MARKING SPECIFICATIONS

Part Number: VBYTN
Date Code: YYWW

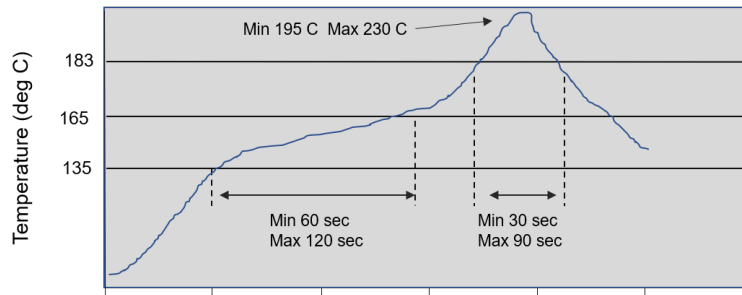


FOOTPRINT



SOLDER PROFILE

SnPb Temperature Profile example



Pb-Free Temperature Profile example

