

GENERAL DESCRIPTION

The MF250E3 is a driver featuring high speed and wide negative voltage range suited for driving all shunt PIN diode switches.

The driver is compatible with 3.3/5.0 V TTL and CMOS logic and has 2 independent channels to supply each bias line with +50 ma current to forward bias the PIN diode and -V from -5 to -100V to reverse bias the PIN diode.

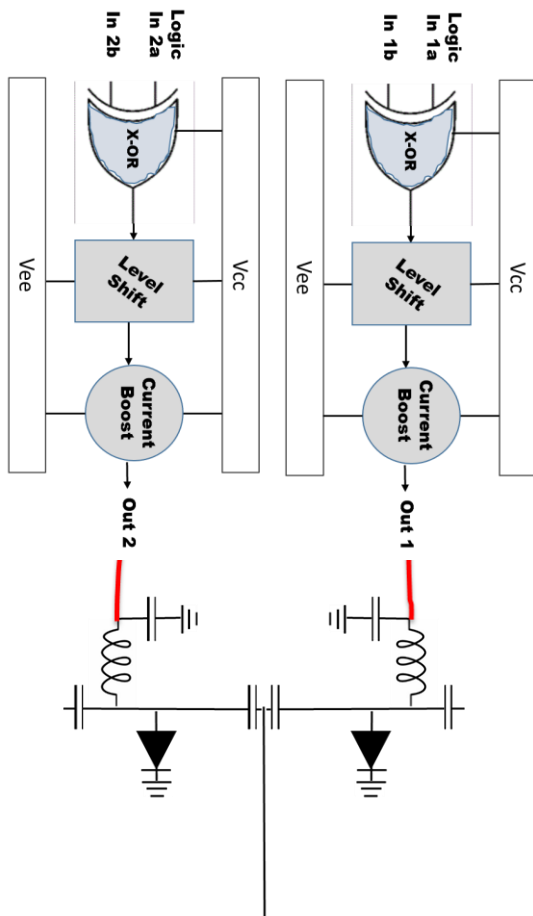
FEATURES

- Ultra High Speed Slew 8V/8ns
- Compatible with cmos FPGA outputs

MECHANICAL

The MF250E3 is constructed on an alumina thin film substrate with TaN resistors and discrete wire bonded silicon bipolar transistors. The driver is housed in a hermetic .375 x .625 22 lead metal package designed for integration into an Integrated Microwave Assembly.

MF250E3-C contains no solder and is RoHS compliant



Typical Application

PINOUT

Pin	Connection	Pin	Connection
1	-Vee (-20 to -100)	22	NC
2	Out1	21	NC
3	Testpoint Output 1	20	NC
4	Input 1A	19	NC
5	Input 1B	18	NC
6	GROUND	17	NC
7	Input 2B	16	NC
8	Input 2A	15	NC
9	Testpoint Output 2	14	NC
10	Output 2	13	NC
11	+5v	12	NC

TRUTH TABLE

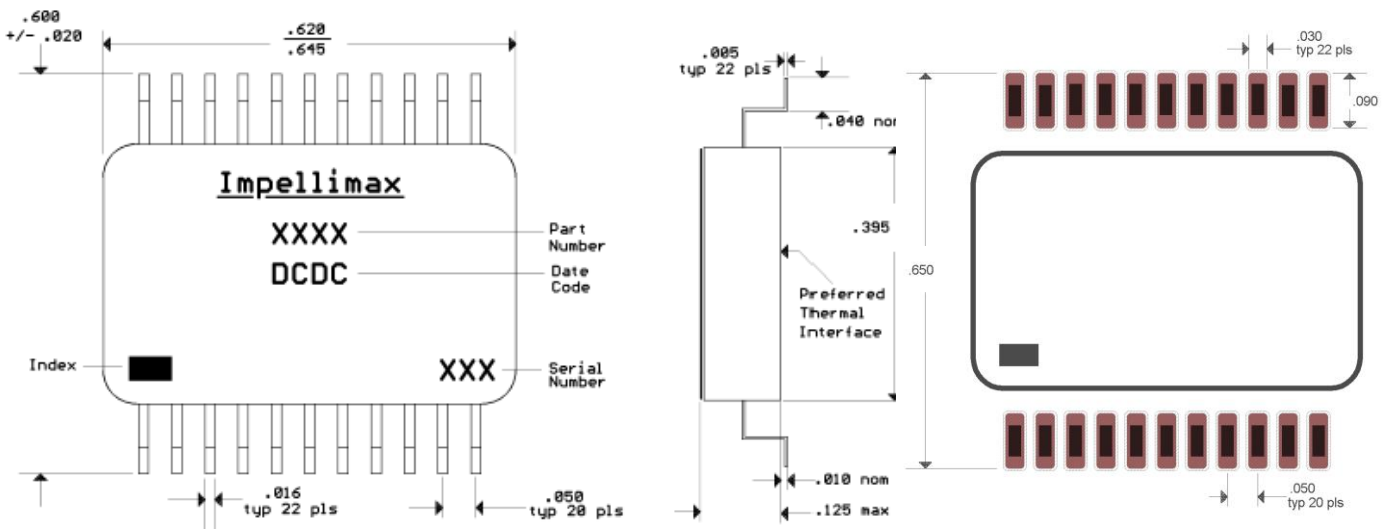
Inputs				Outputs			
1A	1B	2A	2B	Out 1	TP 1	Out 2	TP 2
1	0	1	0	-100v	-100v	-100v	-100v
0	0	0	0	+50ma	+ma *	+50ma	+ma *
1	1	1	1	+50ma	+ma *	+50ma	+ma *
0	1	0	1	-100v	-100v	-100v	-100v
0	1	0	1	-100v	-100v	-100v	-100v
0	0	0	0	+50ma	+ma *	+50ma	+ma *
1	1	1	1	+50ma	+ma *	+50ma	+ma *
1	0	1	0	-100v	-100v	-100v	-100v

ABSOLUTE MAXIMUMS				
Symbol	Parameter	Min	Max	Units
V _{cc}	Logic Supply Voltage +	0	+7	Volts
V _{ee}	Supply Voltage Negative	-120	0	Volts
To	Operating Temperature	-54	+ 105	Deg C
Ts	Storage Temperature	-65	+ 150	Deg C

MECHANICAL SPECIFICATIONS					
Parameter	Conditions	Min	Typ	Max	Units
Width			.375		in
Length			.625		in
Thickness			110		in
Weight			.5		grams
Lead finish	Gold				

ELECTRICAL SPECIFICATIONS V _{cc} = +5V, V _{ee} = -100V, 25 C 500 KHz PRR						
SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input						
V _{IH}	Logic 1 Input Voltage	TTL/CMOS	2.8	4.5	5.5	V
V _{IL}	Logic 0 Input Voltage	TTL/CMOS	0	.5	1.8	V
Output						
V _{OH}	Voltage Out High	Open load	4.2	4.5	4.8	V
V _{OL}	Voltage Out Low	Open load	-99.8	-99.5	-99.2	V
I _{OH}	Current Out High	Steady State into 1v diode load +5v V _{cc} -5v V _{ee}		50	70	mA
I _{OL}	Current Out Low **	Steady State into 1v diode load +5v V _{cc} -5v V _{ee}		**	6	mA
I _{OPK}	Peak Output Current	Sink		1.2		A
Supply						
+I _{QC}	+ Quiescent Current	100 KHz 50% duty cycle		20		mA
-I _{QC}	- Quiescent Current	100 KHz 50% duty cycle		8		mA
Dynamic						
t _R	Rise Time	10 pf +50ma resistive and Cathode GND 1N914 load		15		nS
t _F	Fall Time	10 pf +50ma resistive and Cathode GND 1N914 load		15		nS
T _{Off}	Turn Off Delay	10 pf +50ma resistive and Cathode GND 1N914 load		15		nS
T _{On}	Turn On Delay	10 pf +50ma resistive and Cathode GND 1N914 load		15		nS
T _{SWoff}	Switching Speed Off	10 pf +50ma resistive and Cathode GND 1N914 load		30		nS
T _{SWon}	Switching Speed On	10 pf +50ma resistive and Cathode GND 1N914 load		30		nS
PRR	Pulse repetition Rate	10 pF loads		150		KHz

** -current for -100V operation intended for back bias on diodes



Impellimax Line of Drivers