

GENERAL DESCRIPTION

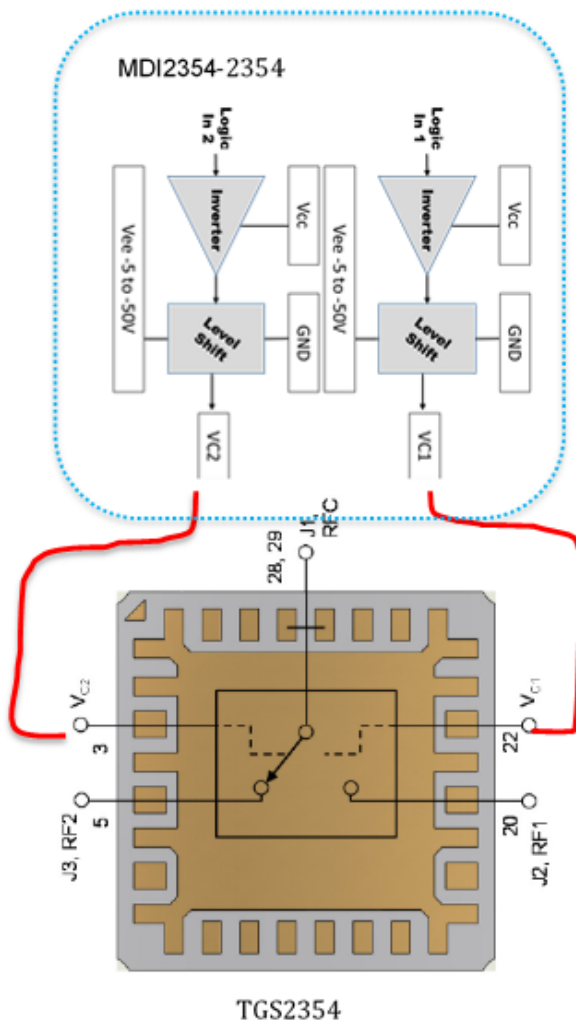
The MDI2354 is a driver with 2 toggling channels featuring high speed and wide negative voltage range suited for driving TGS2354 SP2T GaN switch MMIC.

The driver is compatible with 3.3/5.0 V CMOS logic and supplies 0V and -V from -5 to -50V to bias the GaN FETs.

FEATURES

- Ultra high speed <20ns
- Compatible with CMOS FPGA outputs

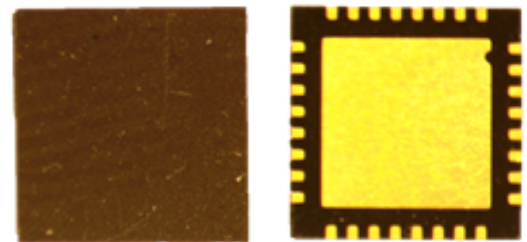
FUNCTION BLOCK DIAGRAM



MECHANICAL

The MDI2354 is constructed on an alumina thick film substrate with thick film resistors and discrete wirebonded silicon bipolar transistors. The driver is housed in a 7mm square 44 lead .5 mm pitch QFN and is designed for integration into an integrated microwave assembly which operates in harsh environments of high temperature and vibration.

MDI2354 contains no solder and is RoHS compliant.



PIN CONNECTIONS

1	NC	23	NC
2	NC	24	NC
3	NC	25	NC
4	NC	26	-5 TO -50V
5	NC	27	NC
6	NC	28	NC
7	-5 TO -50V	29	NC
8	NC	30	NC
9	NC	31	NC
10	NC	32	NC
11	NC	33	NC
12	NC	34	+5V
13	OUT VC1	35	NC
14	NC	36	NC
15	NC	37	NC
16	NC	38	INPUT 2
17	Ground	39	NC
18	NC	40	INPUT 1
19	NC	41	NC
20	NC	42	NC
21	OUT VC2	43	NC
22	NC	44	+5V

TRUTH TABLE

INPUT1	INPUT2	OUTVC 1	OUTVC 2
0	1	0V	-40V
1	0	-40V	0V
1	1	-40V	-40V

ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg -40.5V, TEMP 25C, PRR .1MHz

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ABSOLUTE MAXIMUMS						
Vpos	Logic Supply Positive		0		+7	V
Vneg	Supply Voltage Negative		-40		0	V
To	Operating Temperature		-54		+125	Deg C
Ts	Storage Temperature		-65		+150	Deg C
INPUT						
VI_hi	Voltage Input High	TTL	2.8	3.5	5	V
VI_low	Voltage Input Low	TTL	0	.8	1.8	V
OUTPUT						
VO_hi	Voltage Out High	open load	-2	0	0	V
VO_low	Voltage Out Low	open load	-40.2	-40	-40	V
IO_hi	Current Out High	steady state		20		uA
IO_low	Current Out Low	steady state		-20		uA
SUPPLY						
IQC_pos	Quiescent Current Positive	0.1MHz 50% duty cycle		4		mA
IQC_neg	Quiescent Current Negative	0.1MHz 50% duty cycle		7		mA
DYNAMIC						
Trise	Time Rise			5		nS
Tfall	Time Fall			5		nS
Td_rise	Delay Rise			10		nS
Td_fall	Delay Fall			10		nS
TSW_rise	Switching Speed Rise	10pF load		15		nS
TSW_fall	Switching Speed Fall	10pF load		15		nS
PRR	Pulse Repetition Rate	Max, 10pF load		.2		MHz

MECHANICAL SPECIFICATIONS

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

Package Code Q

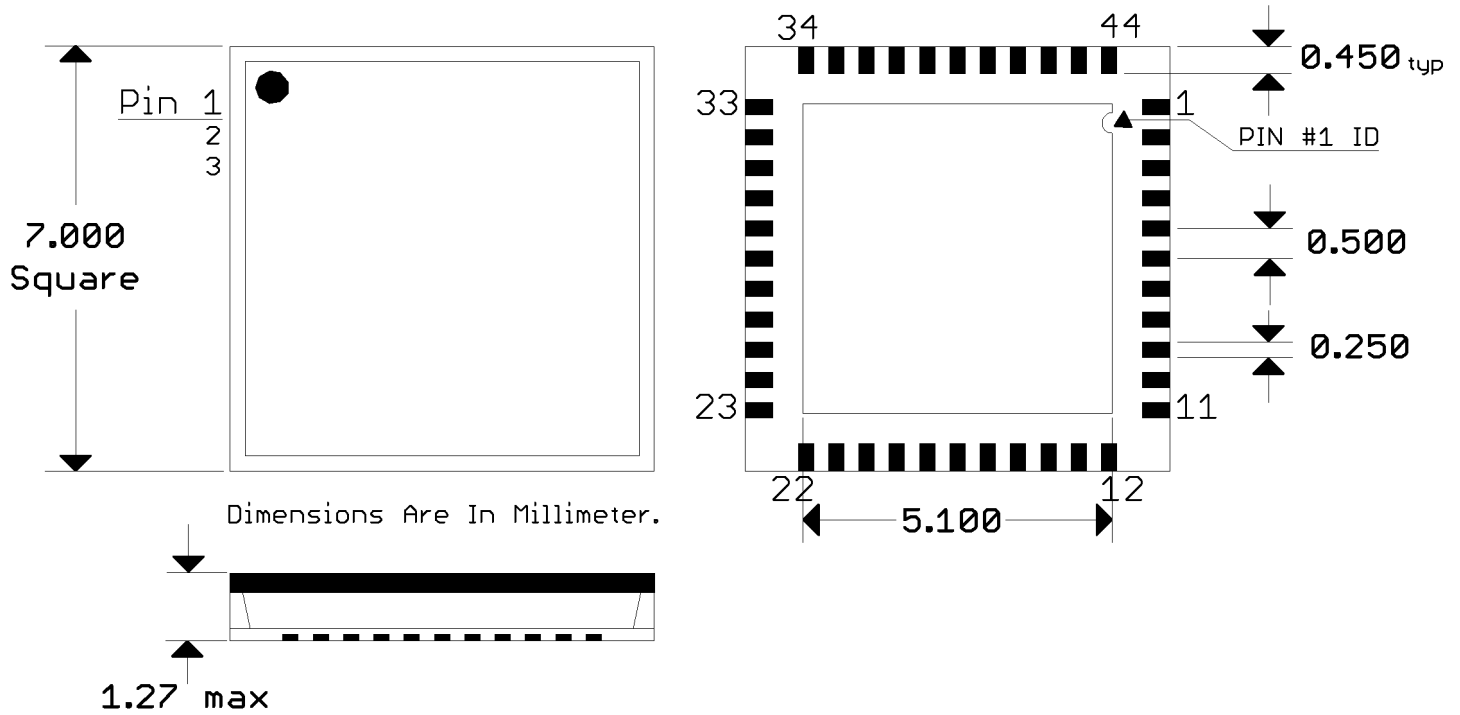
Type: Housing; Lead Finish: Gold

Length 7.000 mm MAX; Width 7.000 mm MAX; Height 1.27 mm MAX; Weight .1 grams MAX

MARKING SPECIFICATIONS

Logo: Impellimax

Part Number: MDI2354Q



SWITCH STATE

Switch State
RFC-RF1 Loss RFC-RF2 ISO
RFC-RF1 ISO RFC-RF2 Loss
RFC-RF1 ISO RFC-RF2 Loss