

GENERAL DESCRIPTION

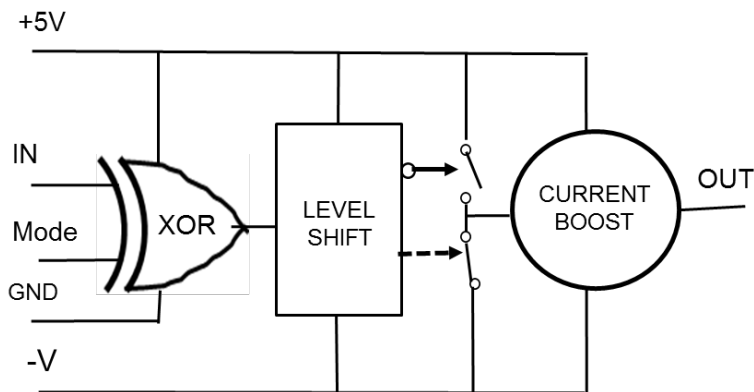
The 5542 is a single channel high-speed driver that level shifts standard logic-level TTL into +4V at 1 A output high and -1500V at 1mA output low.

The 5542 has a TTL buffer stage, a high-speed level shift, dual stage current boost.

FEATURES

- 10 KHz PRF
- <10 uS switching speed

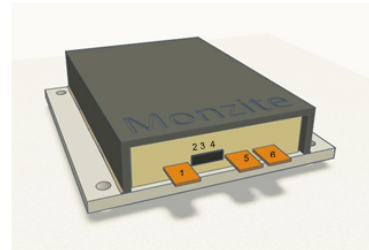
FUNCTION BLOCK DIAGRAM



MECHANICAL

The 5542 is constructed on a 1.81" x 2.81" FR4 substrate with discrete semiconductors and custom hybrid microcircuit encased in thermally conductive potting and plastic shell. Unit has (4) integrated 4 -40 clearance holes allow for easy integration into a subassembly .

5542 is RoHS compliant.



PIN CONNECTIONS

Inputs 3 and 4 must be connected (low Impedance) to GND or logic H, must not be left "floating"

Pins 2 and chassis ground are internally connected together

- | | |
|---|----------------|
| 1 | -20V to -1500V |
| 2 | Logic Ground |
| 3 | Mode Control |
| 4 | Input Logic |
| 5 | Output |
| 6 | +5V |

TRUTH TABLE

INPUT	MODE	OUT
0	0	+1A
1	0	-1500V
0	1	-1500V
1	1	+1A

ELECTRICAL SPECIFICATIONS

Vpos +5V, Vneg -1500V, TEMP 25C, PRR 1KHz

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ABSOLUTE MAXIMUMS						
Vpos	Logic Supply Positive		0		+7	V
Vneg	Supply Voltage Negative				-1700	V
To	Operating Temperature		-54		+105	Deg C
Ts	Storage Temperature		-65		+150	Deg C
INPUT						
VI_hi	Voltage Input High	TTL/CMOS	2.8	4.5	5.5	V
VI_low	Voltage Input Low	TTL/CMOS	0	.5	1.8	V
OUTPUT						
VO_hi	Voltage Out High	open load	3.6	4.0		V
VO_low	Voltage Out Low	open load	-998.8	-999.2	-1000	V
IO_hi	Current Out High	steady state into 40micron diode load 10ohm		1		A
IO_low	Current Out Low ** (see note)	steady state into 40micron diode load 10ohm			.10	mA
lopk	Current Peak Output	sink		4.0		A
SUPPLY						
IQC_pos	+5V Quiescent Current	2KHz 50% duty cycle		.3		mA
IQC_neg	-1000V Quiescent Current	0.5 KHz 50% duty cycle		.45		mA
DYNAMIC						
Trise	Time Rise	1 SiC diode 10pF bypass capacitor		150		nS
Tfall	Time Fall	1 SiC diode 10pF bypass capacitor		150		nS
Td_rise	Delay Rise	1 SiC diode 10pF bypass capacitor		1		uS
Td_fall	Delay Fall	1 SiC diode 10pF bypass capacitor		1		uS
TSW_rise	Switching Speed Rise	1 SiC diode 10pF bypass capacitor		1.2		uS
TSW_fall	Switching Speed Fall	1 SiC diode 10pF bypass capacitor		1.2		uS
PRR	Pulse Repetition Rate	1 SiC diode 10pF bypass capacitor		1	10	KHz

******-1500V operation intended for back bias on diodes

MECHANICAL SPECIFICATIONS

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

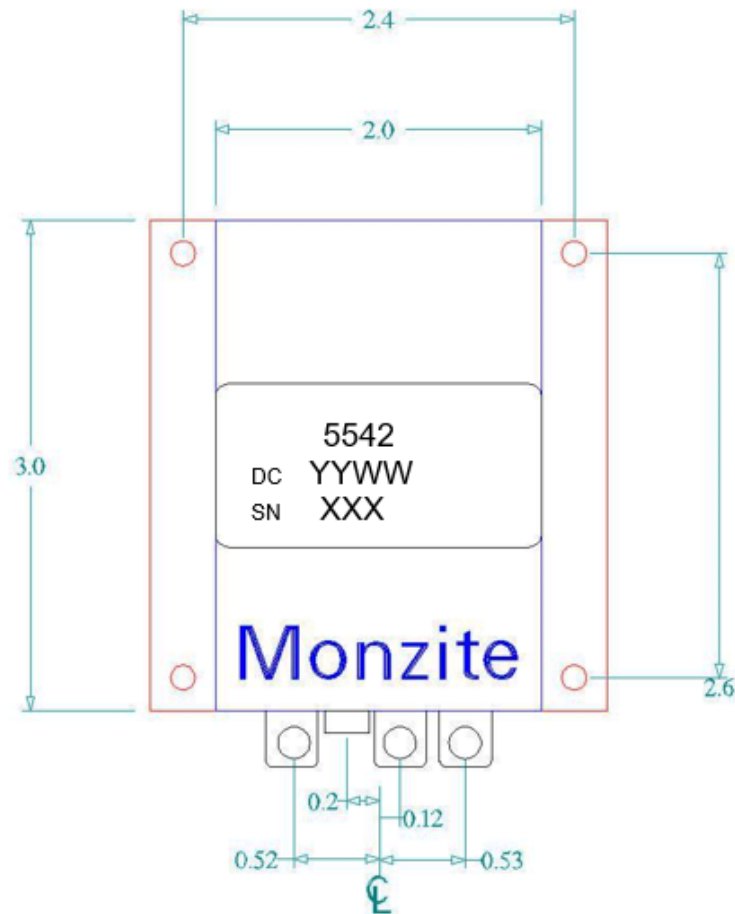
Type: Board

Length 3.0 in TYP; Width 2.8 in TYP; Height 0.67 in TYP; Weight 5.1 oz TYP

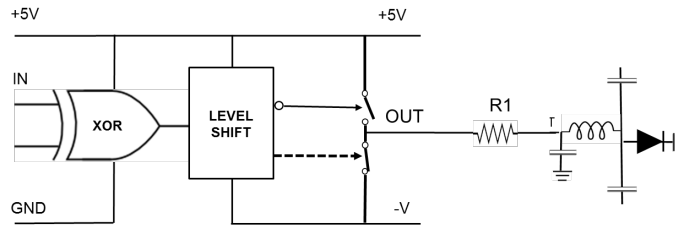
MARKING SPECIFICATIONS

Logo: MONZITE

Part Number: 5542



TYPICAL APPLICATION



R1 Calculator

$R1 = (V_{cc} - (I_{out} * 1)) - V_f / I_{out}$
 I_{out} = desired current in PIN diode
 V_f = forward voltage of PIN diode @ I_{out}

Example
 $3 \text{ ohm} = (5V - (1A * 1)) - 1V / 1A$