

**Supertex inc.**

**HT0740**

## High Voltage Isolated MOSFET Driver

### Ordering Information

| Input to Output<br>Isolation Voltage | Package Option         |
|--------------------------------------|------------------------|
|                                      | 8-Pin Narrow Body SOIC |
| ±400V                                | HT0740LG               |

### Features

- ❑ ±400V input to output isolation
- ❑ No external voltage supply required
- ❑ Low input logic current, 500µA max
- ❑ Floating isolated output
- ❑ 5.0V logic compatible

### General Description

The Supertex HT0740 is a single channel high voltage, low input current isolated driver utilizing Supertex's proprietary HVCMOS® technology. It is designed to drive discrete MOSFETs configured as high side switches up to 400V. The HT0740 generates an independent DC isolated voltage across the pair of outputs when the logic input is at a logic high. The HT0740 does not require any external power supplies. The internal supply voltage is supplied from the logic input when it is in the high state.

### Applications

- ❑ Telecommunications
- ❑ Modems
- ❑ Solid state relays
- ❑ High side switches
- ❑ High end audio switches
- ❑ Avionics
- ❑ ATE

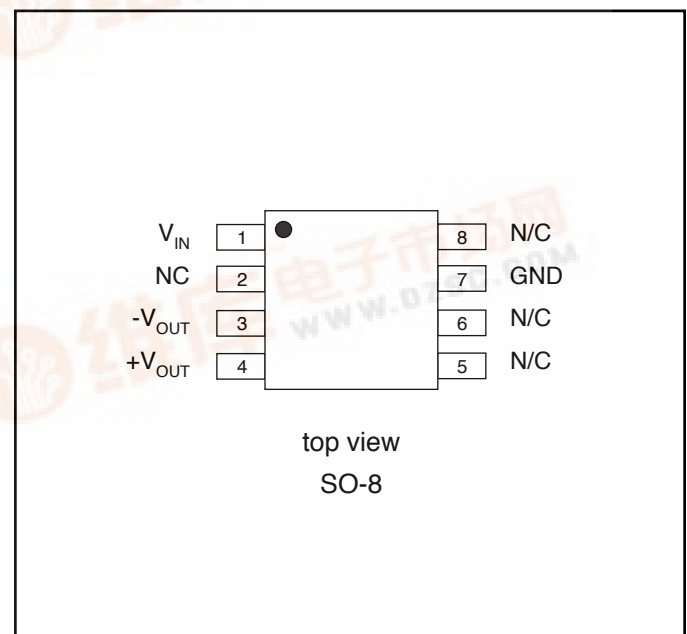
### Absolute Maximum Ratings<sup>1</sup>

|                                              |                 |
|----------------------------------------------|-----------------|
| Input to Output Isolation Voltage, $V_{ISO}$ | ±400V           |
| Logic Input Voltage, $V_{IN}$                | -0.5 to +7.0V   |
| Operating Temperature                        | -40°C to +85°C  |
| Storage Temperature                          | -55°C to +150°C |
| Soldering Temperature <sup>2</sup>           | 300°C           |

Note:

1. All voltages are referenced to ground.
2. Distance of 1.6mm from case for 10 seconds.

### Pin Configuration



# Electrical Characteristics

(Over recommended operating conditions,  $T_A = -40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  unless otherwise specified)

## DC Characteristics

| Symbol    | Parameter                              | Min       | Typ | Max | Unit          | Conditions                        |
|-----------|----------------------------------------|-----------|-----|-----|---------------|-----------------------------------|
| $I_H$     | Logic input current high               |           |     | 500 | $\mu\text{A}$ | $V_{IN} = 5.0\text{V}$            |
| $I_{LQ}$  | Logic input current low (quiescent)    |           |     | 10  | $\mu\text{A}$ | $V_{IN} = 0.5\text{V}$            |
| $V_{OUT}$ | Output voltage across output terminals | 4.5       |     |     | V             | $V_{IN} = 3.15\text{V}$ , No load |
|           |                                        | 8.5       |     |     | V             | $V_{IN} = 4.5\text{V}$ , No load  |
| $V_{IN}$  | Input voltage for zero output          |           |     | 0.8 | V             | No load                           |
| $V_{ISO}$ | Input to output isolation voltage      | $\pm 400$ |     |     | V             |                                   |

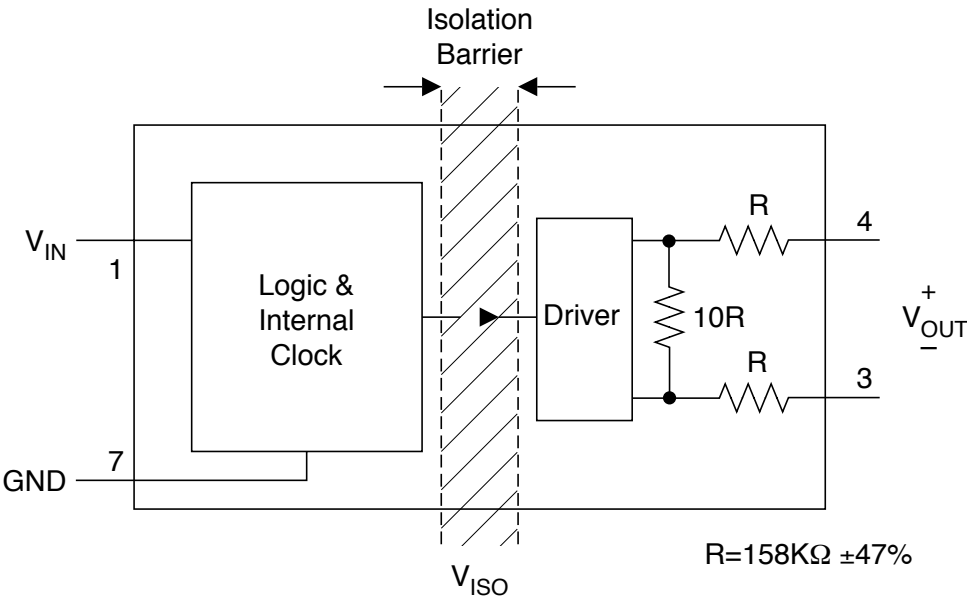
## AC Characteristics

| Symbol       | Parameter           | Min | Typ | Max | Unit          | Conditions                                                                               |
|--------------|---------------------|-----|-----|-----|---------------|------------------------------------------------------------------------------------------|
| $t_{d(ON)}$  | Turn on delay time  |     |     | 50  | $\mu\text{s}$ | See timing diagram and test circuit<br>$C_L = 600\text{pF}$ , $T_A = 25^{\circ}\text{C}$ |
| $t_r$        | Rise time           |     |     | 650 | $\mu\text{s}$ |                                                                                          |
| $t_{d(OFF)}$ | Turn off delay time |     |     | 150 | $\mu\text{s}$ |                                                                                          |
| $t_f$        | Fall time           |     |     | 3.0 | ms            |                                                                                          |

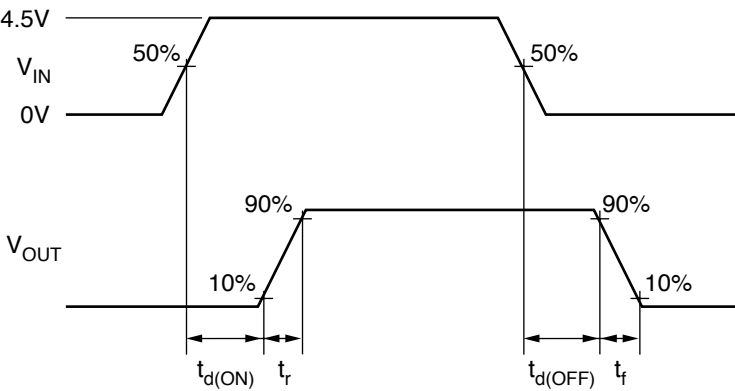
# Recommended Operating Conditions

| Symbol   | Parameter                | Min  | Typ | Max | Unit               | Conditions |
|----------|--------------------------|------|-----|-----|--------------------|------------|
| $V_{IH}$ | Logic input high voltage | 3.15 |     | 5.5 | V                  |            |
| $V_{IL}$ | Logic input low voltage  | 0    |     | 0.5 | V                  |            |
| $T_A$    | Operating temperature    | -40  |     | +85 | $^{\circ}\text{C}$ |            |

# Block Diagram



Timing Diagram



Test Circuit

