

High Voltage, Isolated MOSFET Driver

Features

- ▶ $\pm 400\text{V}$ input to output isolation
- ▶ Low input logic current, $500\mu\text{A}$ max
- ▶ No external voltage supply required
- ▶ Floating isolated output drivers
- ▶ 5.0V logic compatible

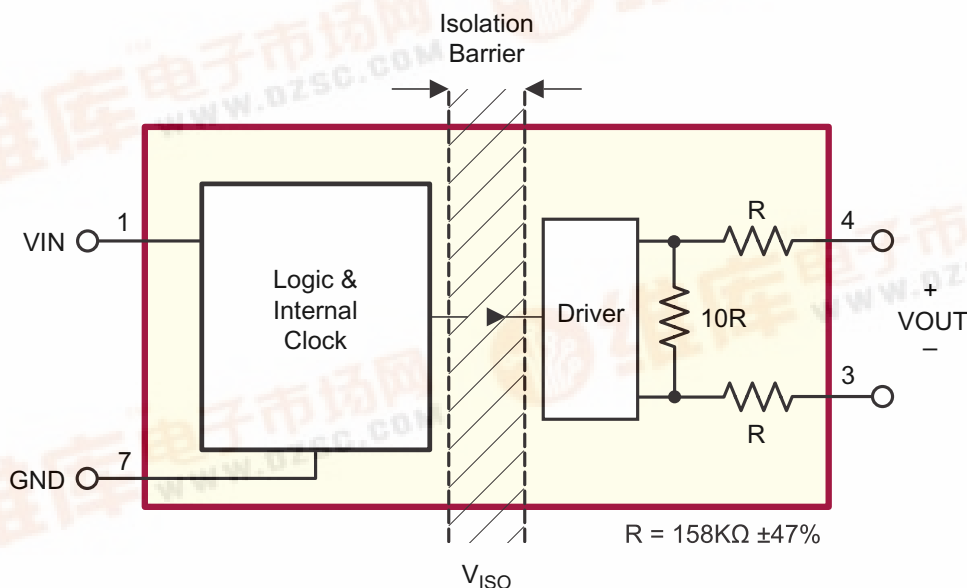
Applications

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

General Description

The Supertex HT0740 is a single channel, high voltage, low input current, isolated driver utilizing Supertex's proprietary HVC MOS[®] 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.

Block Diagram



Ordering Information

| Device | Package Options | |
|--------|---------------------------|------------|
| | 8-Lead SOIC (Narrow Body) | |
| HT0740 | HT0740LG | HT0740LG-G |

-G indicates package is RoHS compliant ("Green")



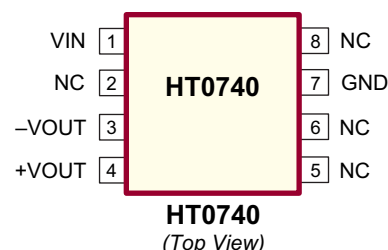
Absolute Maximum Ratings

| Parameter | Value |
|--|-----------------|
| Input to output isolation voltage, V_{ISO} | $\pm 400V$ |
| 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 ¹ | 300°C |

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions is not implied. Continuous operation of the device at the absolute rating level may affect device reliability. All voltages are referenced to device ground.

Note 1. Distance of 1.6mm from case for 10 seconds.

Pin Configuration



DC Electrical Characteristics ($T_J = -40^\circ\text{C}$ to $+85^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Min | Typ | Max | Units | Conditions |
|-----------|--|-----------|-----|-----|---------|----------------------------|
| I_H | Logic high input current | - | - | 500 | μA | $V_{IN} = 5.0V$ |
| I_L | Logic low input current (quiescent) | - | - | 10 | μA | $V_{IN} = 0.5V$ |
| V_{OUT} | Output voltage across output terminals | 4.5 | - | - | V | $V_{IN} = 3.15V$, no load |
| | | 8.5 | - | - | V | $V_{IN} = 4.5V$, no load |
| V_{IN} | Input voltage for zero output | - | - | 0.8 | V | No load |
| V_{ISO} | Input to output isolation voltage | ± 400 | - | - | V | --- |

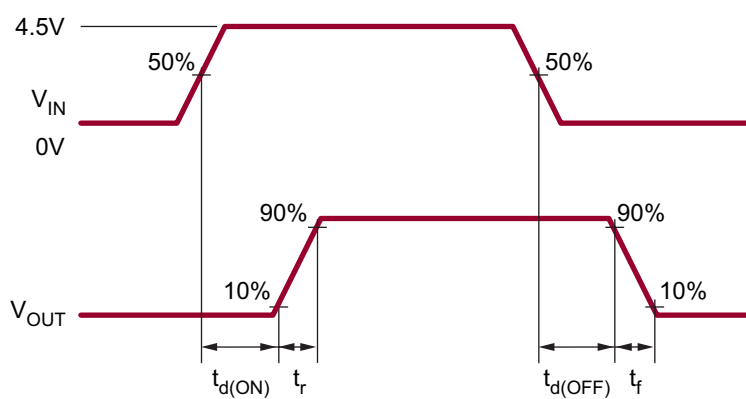
AC Electrical Characteristics

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

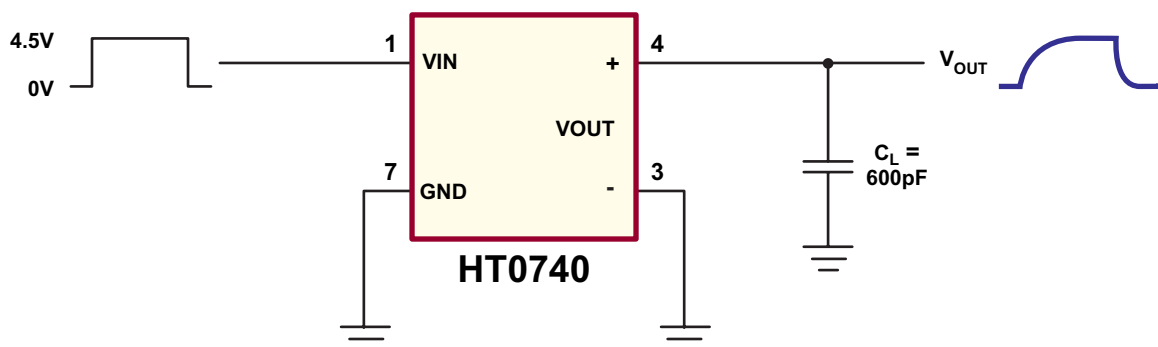
Recommended Operating Conditions

| Symbol | Parameter | Min | Typ | Max | Units | 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 | $^\circ\text{C}$ | --- |

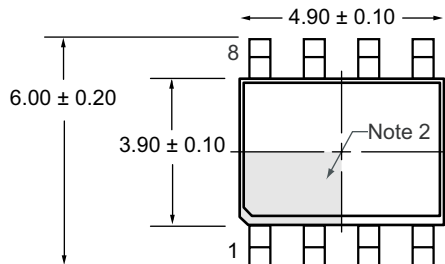
Timing Diagram



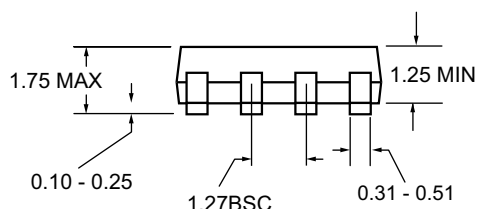
Test Circuit



8-Lead SOIC (Narrow Body) LG Package Outline



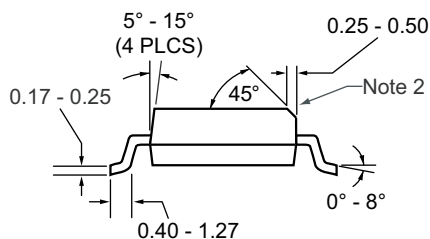
Top View



Side View

Notes:

1. All dimensions in millimeters. Angles in degrees.
2. If the corner is not chamfered, then a Pin 1 identifier must be located within the area indicated.



End View

(The package drawing(s) in this data sheet may not reflect the most current specifications. For the latest package outline information go to <http://www.supertex.com/packaging.html>.)

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