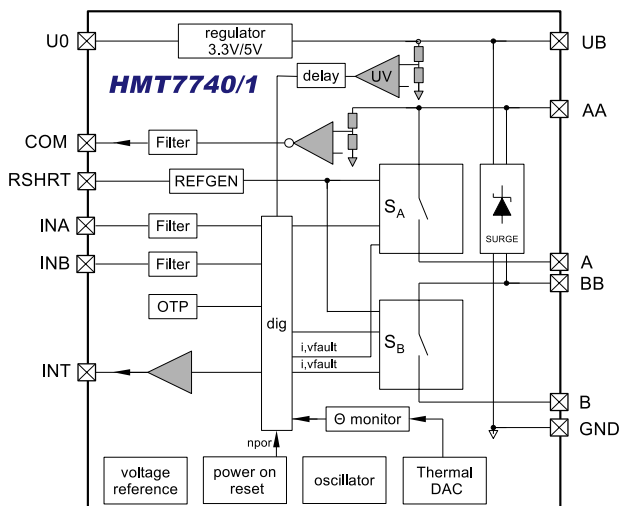


Features

The HMT7740/1 GENIE family devices are physical layer transceivers (PHY) primarily for sensor applications with a simple and flexible architecture compatible with IO-Link applications. Features include:

- switches independently driven ($<8\Omega$)
- bidirectional switches, free selection of connection
- A, B, AA, BB, VPLUS, GND surge protected
- Surge protection to IEC 60255-5 ($\pm 1\text{kV}/500\Omega$)
- full zero current reverse polarity protection
- fast switch time ($<1\mu\text{s}$)
- bidirectional short-circuit detection
- short circuit current limit auto-off/reporting/restart
- short circuit current derating with temperature
- IO-Link level comparator
- 4.8kBaud, 38.4kBaud and 230.4kBaud rates
- 5V to 36V supply
- 5V or 3.3V linear regulator
- thermal shutdown protects neighbouring devices and packaging
- under-voltage detect
- ESD protection to 4kV (line pins)
- operation does not require micro-controller
- DFN 3.0mm x 3.0mm
- CSP 2.6mm x 1.6mm under evaluation

Functional Description



The two output MOS switches can be freely and independently connected as high-side, low-side, push-pull or even mid-rail switches. The switches are independently controlled by the INA and INB pins, and internal filtering ensures constant delay, spurious level rejection, and that a simultaneous change on the controls leads to a simultaneous output state change.

Input INB is inverted to simplify the generation of simple push-pull applications without a micro-controller.

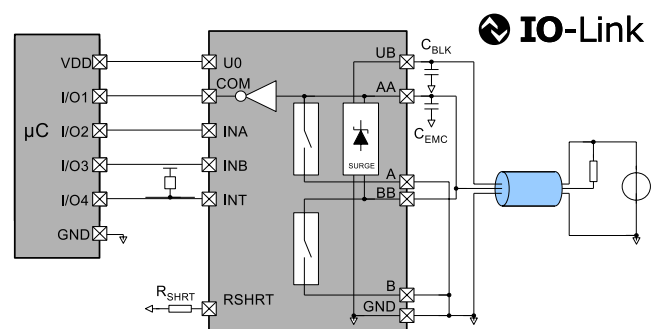
The AA and BB pins provide surge protection with respect to each other and the power rails, VPLUS and GND.

Short-circuit protection is provided for both switches with bidirectional current detection. The current level is configured with resistor RSHRT. The protection level is fractionally derated with increasing temperature with a complete shutdown under over-temperature conditions (nom. 175°C).

The output pin COM provides a level conversion from the line for incoming data, with thresholds compatible with the IO-Link specification. The timing of the short circuit detection is additionally compatible with an IO-Link wake-up pulse, and the condition is reported on the INT pin.

Two variants of the device are available with either a 3.3V linear regulator (HMT7740) or with a 5.0V regulator (HMT7741).

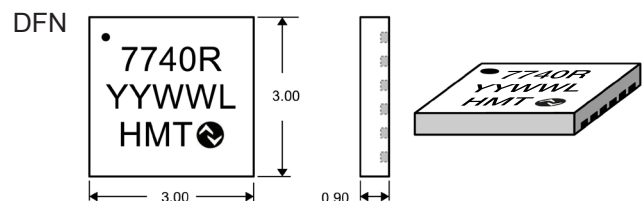
Application



1) Example sensor configuration shown, push-pull with microcontroller attached.

Package

The HMT7740/1 is available in a DFN-12 3mm x 3mm package. Bare die available upon request. In addition, a CSP package is currently being evaluated.



This is an advanced notice datasheet and subject to change without notice.