

### FEATURES

- Ultra-low power consumption (1Mbps): 0.40mA/Channel
- High data rate: 600Mbps
- High common-mode transient immunity:
  - $\pi 12xx3x$ : 75 kV/ $\mu$ s typical
  - $\pi 12xx6x$ : 120 kV/ $\mu$ s typical
- High robustness to radiated and conducted noise
- Low propagation delay:
  - 5.5 ns typical for 5 V operation
  - 7.0 ns typical for 3.3 V operation
- Isolation voltages:
  - $\pi 12xx3x$ : AC 3000Vrms
  - $\pi 12xx6x$ : AC 5000Vrms
- High ESD rating:
  - ESDA/JEDEC JS-001-2017
  - Human body model (HBM)  $\pm 8$ kV
- Safety and regulatory approvals:
  - UL certificate number: E494497
  - 3000Vrms/5000Vrms for 1 minute per UL 1577
  - CSA Component Acceptance Notice 5A
  - VDE certificate number: 40053041/40052896
  - DIN VDE V 0884-11:2017-01
  - $V_{IORM} = 565$ V peak/1200V peak
  - CQC certification per GB4943.1-2011
- 3 V to 5.5 V level translation
- Wide temperature range:  $-40^{\circ}\text{C}$  to  $125^{\circ}\text{C}$
- RoHS-compliant, NB SOIC-8, WB SOIC-16 package

### APPLICATIONS

- General-purpose multichannel isolation
- Industrial field bus isolation
- Isolation Industrial automation systems
- Isolated switch mode supplies
- Isolated ADC, DAC
- Motor control

### GENERAL DESCRIPTION

The  $\pi 1xxxx$  is a 2PaiSemi digital isolators product family that includes over hundreds of digital isolator products. By using matured standard semiconductor CMOS technology and 2PaiSemi *iDivider*<sup>®</sup> technology, these isolation components provide outstanding performance characteristics and reliability superior to alternatives such as optocoupler devices and other integrated isolators.

Intelligent voltage divider technology (*iDivider*<sup>®</sup> technology) is a new generation digital isolator technology invented by 2PaiSemi. It uses the principle of capacitor voltage divider to transmit voltage

signal directly cross the isolator capacitor without signal modulation and demodulation.

The  $\pi 1xxxx$  isolator data channels are independent and are available in a variety of configurations with a withstand voltage rating of 1.5 kV rms to 5.0 kV rms and the data rate from DC up to 600Mbps (see the Ordering Guide). The devices operate with the supply voltage on either side ranging from 3.0 V to 5.5 V, providing compatibility with lower voltage systems as well as enabling voltage translation functionality across the isolation barrier. The fail-safe state is available in which the outputs transition to a preset state when the input power supply is not applied.

### FUNCTIONAL BLOCK DIAGRAMS

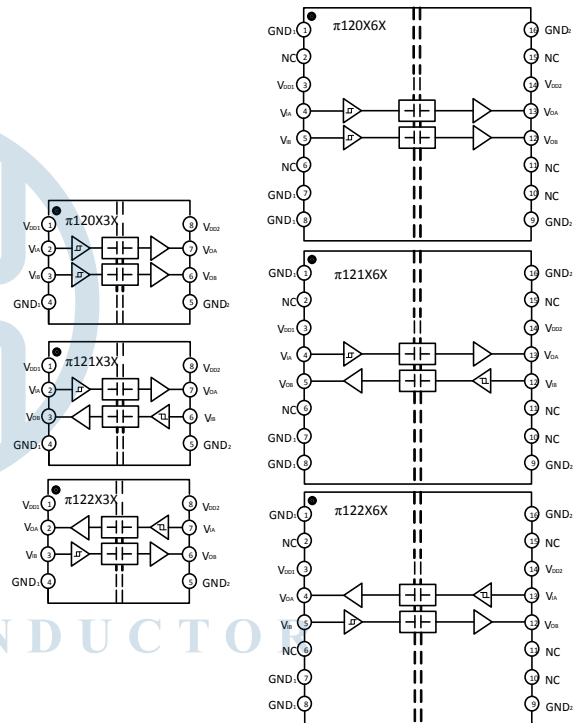


Figure 1.  $\pi 120xxx/\pi 121xxx/\pi 122xxx$  functional Block Diagram

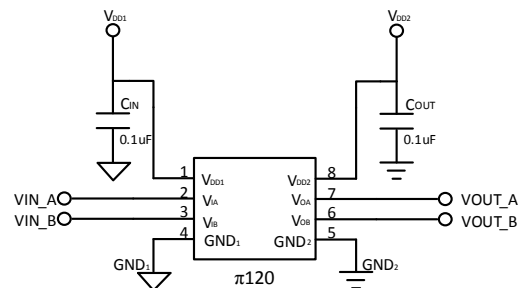


Figure 2.  $\pi 120xxx$  Typical Application Circuit