

8-Channel, Programmable T/R Switch for Ultrasound

Check for Samples : [TX810](#)

FEATURES

- **Compact T/R Switch for Ultrasound**
- **Flexible Programmability**
 - 8 Bias Current Settings
 - 8 Power/Performance Combinations
 - Easy Power-Up/Down control
- **Fast Wake Up Time**
- **Dual Supply Operation**
- **Optimized Insertion Loss**
- **Accept 200V_{PP} Input Signals**

APPLICATIONS

- **Medical Ultrasound**
- **Industrial Ultrasound**

DESCRIPTION

The TX810 provides an integrated solution for a wide range of ultrasound applications. It is an 8 channel, current programmable, transmit/receive switch in a small 6mm × 6mm package.

The internal diodes limit the output voltage when high voltage transmitter signals are applied to the input. While the insertion loss of TX810 is minimized during in-receive mode.

Unlike conventional T/R switches, the TX810 contains a 3-bit interface used to program bias current from 7mA to 0mA for different performance and power requirements. When the TX810 bias current is set as 0mA (i.e., high-impedance mode), the device is configured as power-down mode. In the high-impedance mode, TX810 does not add additional load to high-voltage transmitters. In addition, the device can wake up from power-down mode in less than 1μs. With these advanced programmability features, significant power saving can be achieved in systems.

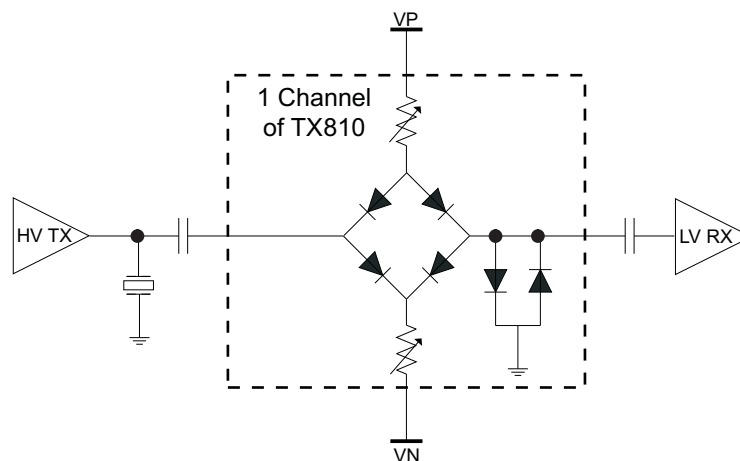


Figure 1. Block Diagram of TX810



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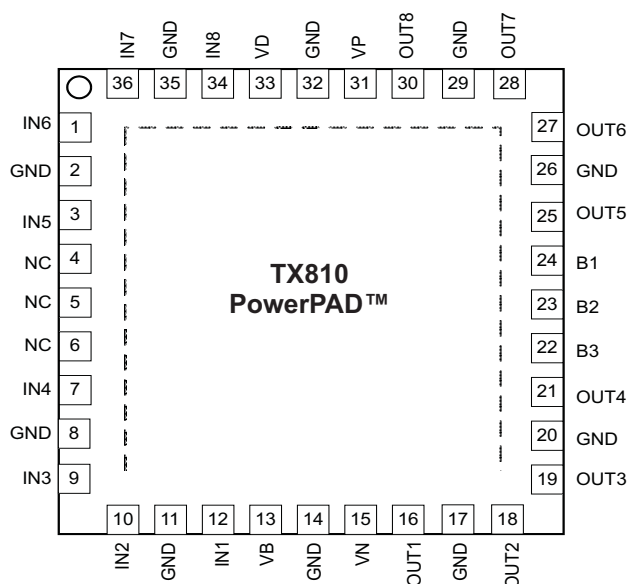
PRODUCT PREVIEW

DEVICE INFORMATION

PIN FUNCTIONS

PIN		DESCRIPTION
NUMBER	NAME	
1, 3, 7, 9, 10, 12, 34, 36	IN _n	Inputs for Channel n
16, 18, 19, 21, 25, 27, 28, 30	OUT _n	Outputs for Channel n
33	VD	Logic Supply Voltage; +2.5 V to +5 V; bypass to ground with 0.1 μ F and 10 μ F capacitors
31	VP	Positive Supply Voltage; +5 V; bypass to ground with 0.1 μ F and 10 μ F capacitors
15	VN	Negative Supply Voltage; –5 V; bypass to ground with 0.1 μ F and 10 μ F capacitors
13	VB	Bias voltage; connect to 0 V (GND) for \pm 5 V operation
2, 8, 11, 14, 17, 20, 26, 29, 32, 35	GND	Ground
24	B1	Bit 1; Current program bit
23	B2	Bit 2; Current program bit
22	B3	Bit 3; Current program bit
4, 5, 6	NC	No internal connection.
0	Vsub	PowerPAD™ of the package. –5 V to 0 V for \pm 5 V operation.

PQFN (RHH) Package
6 × 6mm, 0.5mm Pitch
(Top View)



PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
PTX810IRHHT	PREVIEW	QFN	RHH	36		TBD	Call TI	Call TI

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

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⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

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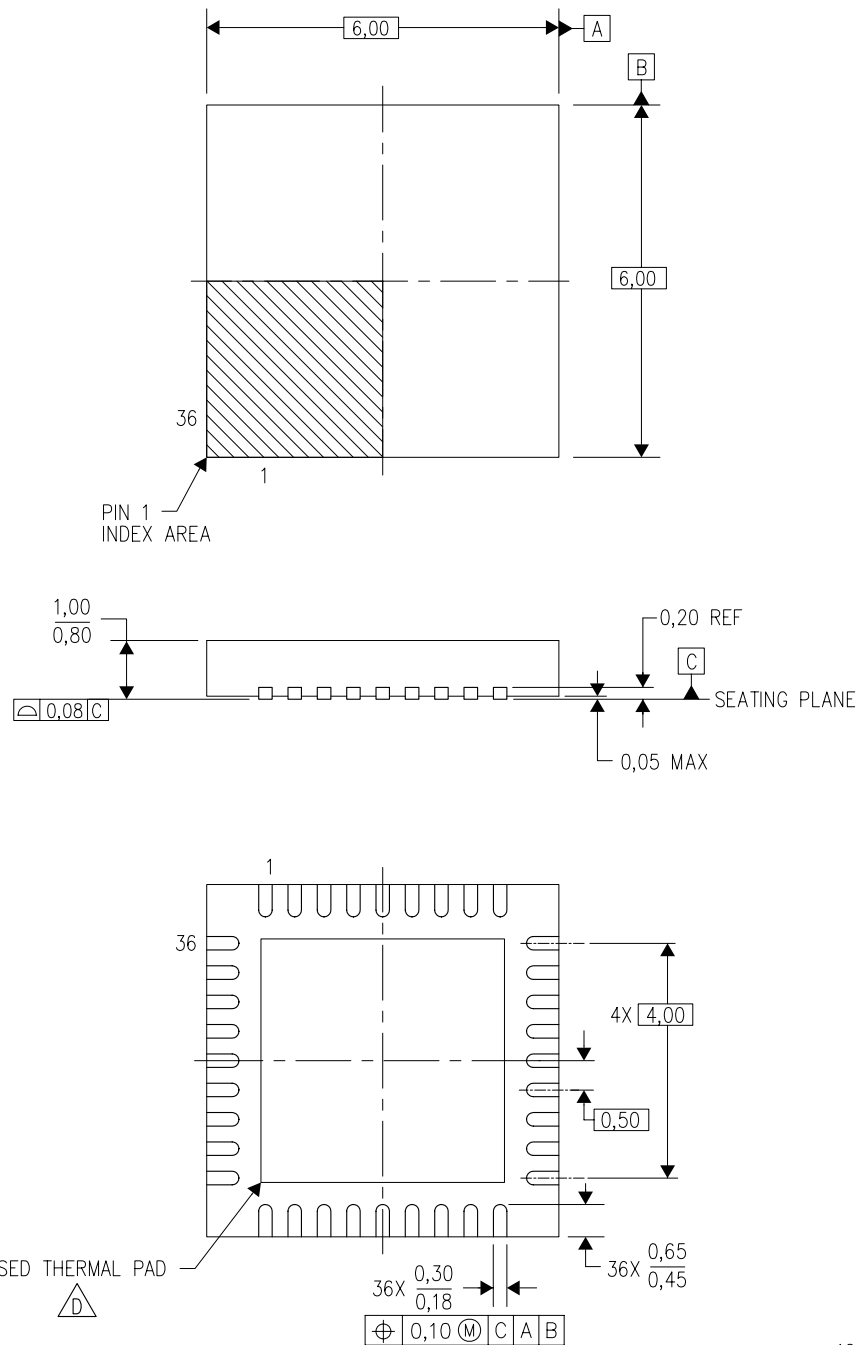
⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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RHH (S-PVQFN-N36)

PLASTIC QUAD FLATPACK NO-LEAD



4205094/C 06/09

- NOTES:
- A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.
 - B. This drawing is subject to change without notice.
 - C. QFN (Quad Flatpack No-Lead) Package configuration.
 - D. The package thermal pad must be soldered to the board for thermal and mechanical performance. See the Product Data Sheet for details regarding the exposed thermal pad dimensions.
 - E. Falls within JEDEC MO-220.

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