

## TS2A116E Audio Accessory Communicator and Authentication IC

### 1 Features

- Single-Wire Communication Protocol by way of a Single Contact Serial Interface
- Designed to Work with a Self-Charged Capacitor from the Microphone Bias Voltage
- Supports 6-Bit Accessory ID to Differentiate up to 63 Different Accessory Types
- Supports 3 Remote Control Bottoms
- Baud Rate Supports 38.4K
- Backward Compatible for Microphone and Play or Pause Key Functions
- Current Consumption <80  $\mu$ A During Single-Wire Transmission and Idle
- 12-Pin Ultra Thin UQFN Package (2.0  $\times$  1.7 mm, 0.4 mm pitch)
- ESD Performance:
  - 2 kV Human Body Model (A114B, Class II)
  - 500 V Charged Device Model (C101)
  - $\pm$ 8-kV Contact Discharge for DATA and KEY1, KEY2, and KEY3 Pins (IEC 61000-4-2)

### 2 Applications

Headset Accessory with Remote Control Buttons

### 3 Description

The TS2A116E device is designed for use with advanced headset accessories where a special single-wire communication is used to identify the accessory and its remote control key presses. Communication with the host device is based on standard UART protocol to send and receive data, and it relies on the same microphone line used by the accessory. This special technique enables the customer to establish the proprietary headset solution; thus, differentiating itself from the rest of the market.

The TS2A116E device is pre-programmed with an accessory IDs (AID); combined with the special communication single-wire protocol, this device allows the phone to uniquely detect the accessory. The TS2A116E device also supports up to 3 remote control keys and utilizes similar single-wire communication to the host chip for any key press information. It is also backward compatible to support the traditional microphone play and pause key functions that do not employ the single-wire communication scheme.

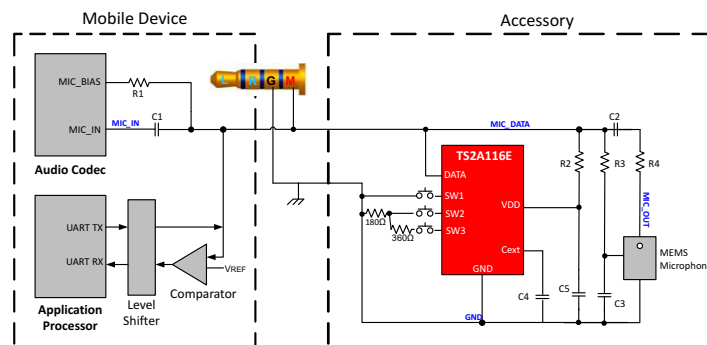
The TS2A116E device is designed to operate from an external self-charged capacitor which replenishes its charge from the microphone bias voltage. No external power supply is required. The TS2A116E device is configured to operate using standard 38.4 kbps baud rate UART protocol. It consumes maximum operating current of <80  $\mu$ A during single-wire transmission or during the idle state to minimize power consumption. The device is designed with an ultra thin 2.0 x 1.7 mm UQFN package.

#### Device Information<sup>(1)</sup>

PART NUMBER	PACKAGE	BODY SIZE (NOM)
TS2A116E	UQFN (12)	2.00 mm $\times$ 1.70 mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

### 4 Application Diagram



## 5 Device and Documentation Support

### 5.1 Trademarks

All trademarks are the property of their respective owners.

### 5.2 Electrostatic Discharge Caution



These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

### 5.3 Glossary

[SLYZ022](#) — *TI Glossary*.

This glossary lists and explains terms, acronyms and definitions.

## 6 Mechanical, Packaging, and Orderable Information

The following pages include mechanical, packaging, and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser-based versions of this data sheet, refer to the left-hand navigation.

**PACKAGING INFORMATION**

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
TS2A116ERUTR	PREVIEW	UQFN	RUT	12	3000	TBD	Call TI	Call TI	-40 to 85		

(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.

**OBSOLETE:** TI has discontinued the production of the device.

(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.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

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

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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