



APPLICATION INFORMATION FOR ALL ISD PRODUCTS

Application Briefs & Notes

OVERVIEW

The following application briefs and notes are available from ISD and ISD Factory Representatives. Some briefs and notes are contained within other sections of this book and are not reproduced in this section. This overview lists all current application briefs and notes. If a cross reference is not provided in the description, the information appears in this section.

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ISD APPLICATION BRIEF 1 — TECHNICAL CONSIDERATIONS FOR THE CONVERSION FROM AN ISD1000A APPLICATION TO AN ISD1400 APPLICATION

The ISD1400 product is recommended for new designs in the 16- to 20-second storage duration because of its simple interface and automatic power-down capability. For these reasons, ISD1000A customers may find it beneficial to redesign their product to take advantage of these features.

The pin outs for the two families of products are very similar. In fact, all analog, power, clock and address pins are identical. Only control pins 23, 24, 25, and 27 differ; no circuit changes are required for any other pins. Table 1 shows a comparison of the changed pins:

Table 1: ISD1000A and ISD1400 Control Pin Comparison

Family Type	Pin 23	Pin 24	Pin 25	Pin 27
ISD1000A	\overline{CE}	PD	\overline{EOM}	P/ \overline{R}
ISD1400	PLAYL	PLAYE	RECLEd	REC

The major difference between the two family pin interfaces is that the ISD1000A family operates like a \overline{CE} controlled microprocessor peripheral and the ISD1400 family operates with a change of state on a single pin. In the ISD1000A device, Power Down happens only when the PD pin is driven HIGH. The PD pin plays the dual role of both Reset and Power Down. The ISD1400 product always automatically powers down with the completion of a cycle; a PD pin is not necessary. See the summary in Table 2.

It is difficult to design a simple circuit that would enable a customer to interchange these two device families. Pin 23 is the only control pin that has approximately the same functionality for both devices. The other control pins differ more than can be compensated for in a practical circuit. The best way to demonstrate this is to show two applications that perform the same function, one using an ISD1000A device, the other using the ISD1400.

Table 2: ISD1000A and ISD1400 Functional Comparison

Function	ISD1000A	ISD1400
Power-Down	Controlled by PD pin. PD must be HIGH for Power Down. PD also resets from Overflow state.	Automatic Power Down. Overflow state does not exist.
Record/ Playback	P/ \bar{R} pin level must be set up prior to falling \bar{CE} . Record is level controlled. Playback is edge controlled (except for OP Mode A5).	Single button for level-controlled Record, single button for edge-controlled Playback, single button for level-controlled Playback.
Addressing (same for both devices)	Addresses must be set up before operation.	Addresses must be set up before operation.
Pin 25	Pulses LOW for EOM indication. Stays LOW to indicate Overflow.	Goes LOW to indicate Record in progress, pulses LOW for EOM indication.
Operational Modes	All modes functional.	All modes functional except as explained in the last three functions.
Cascading OP Mode	Used for cascading multiple devices.	Multiple devices cannot be cascaded, OP Mode not functional (use ISD2500).
Looping OP Mode	Loops on first message in the device as long as \bar{CE} stays LOW. Message cannot completely fill device.	Loops on first message in the device as long as \bar{PLAYL} stays LOW. Message can completely fill device.
\bar{CE} level activated OP Mode	\bar{CE} controls start and stop of Playback.	OP Mode not functional. \bar{PLAYL} pin performs this function.

Figure 1: ISD1000A Automatic Power-Down Application



