

ISD15D00

Part No.	ISD15D00																					
Datasheet	ISD15D00.pdf																					
Description	<p>The ISD15D00 is a digital ChipCorder® featuring digital compression, comprehensive memory management, and integrated analog/digital audio signal paths. The ISD15D00 utilizes serial flash memory to provide non-volatile audio playback for a two-chip solution. The ISD15D00 provides an I2S digital audio interface, faster digital programming, higher sampling frequency, and a signal path with SNR 80dB. ISD15D00 is the</p> <p>The ISD15D00 can take digital audio data via I2S or SPI interface. When I2S input is selected, it will replace the analog audio inputs and will support sample rates of 32, 44.1 or 48 kHz depending upon clock configuration. When SPI interface is chosen, the sample rate of the audio data sent must be one of the ISD15D00 supported sample rates.</p> <p>The ISD15D00 has inbuilt analog audio inputs, analog audio line driver, and speaker driver output.</p> <p>The analog audio input, Aux-in, has a fixed gain configured by SPI command. Aux-in can directly feed-through to the analog outputs; it can also mix with the DAC output and then feed-through to the analog outputs.</p> <p>Analog outputs are available in two forms: (1) Aux-out is an analog single-ended voltage output; (2) Class-AB BTL (bridge-tied-load) is an analog differential voltage output. Class-AB BTL delivers 1-watt output power at VCCSPK = 5V.</p> <p>Class-D PWM direct-drive is also available, which delivers 1-watt output power at VCCSPK = 5V</p>																					
Diagram																						
Features	<p>External Memory: The ISD15D00 supports the following flash:</p> <table><tr><th>Manufacturer</th><th colspan="2">Winbond</th><th colspan="3">Numonyx</th><th>MXIC</th></tr><tr><td>Family</td><td>25X</td><td>25Q</td><td>25P</td><td>25PX</td><td>25PE</td><td>25L / 25V</td></tr><tr><td>JEDEC ID</td><td>EF 30 1X</td><td>EF 40 1X</td><td>20 20 1X</td><td>20 71 1X</td><td>20 80 1X</td><td>C2 20 1X</td></tr></table> <p>The addressing ability of ISD15D00 is up to 128Mbit, which is 64-minute playback time based on 8kHz/4bit ADPCM</p> <p>Inbuilt 3V voltage regulator to provide power source to the external flash memory</p> <p>Fast Digital Programming Programming rate can go up to 1Mbits/second mainly limited by the flash memory write rate.</p> <p>Memory Management Store pre-recorded audio (Voice Prompts) using high quality digital compression Use a simple index-based command for playback Execute pre-programmed macro scripts (Voice Macros) designed to control the configuration of the device and playback Voice Prompts sequences.</p> <p>Sample Rate Seven sampling frequencies are available for a given master sample rate. For example, the sampling frequencies of 4, 5.3, 6.4, 8, 12.8, 16 and 32kHz are available when the device is clocked at a 32kHz master sample rate. For I2S operation, 32, 44.1 and 48kHz master sample rates are available with playback sampling frequencies scaling accordingly.</p> <p>Compression Algorithms For Pre-Recorded Voice Prompts μ-Law, Differential μ-Law, PCM, Enhanced ADPCM, Variable-bit-rate optimized compression. This allows best possible compression given a metric of SNR and background noise levels.</p> <p>Oscillator Internal oscillator with internal reference: Internal oscillator with external resistor, External crystal or clock input I2S bit clock input</p> <p>Inputs Aux-in: Analog input with 2-bit gain control configured by SPI command</p> <p>Outputs PWM: Class-D speaker driver to directly drive an 8Ω speaker or buzzer Deliver 1-watt output power at VCCSPK = 5V Aux-out: an analog single-ended voltage output Class-AB BTL: an analog differential voltage output Deliver 1-watt output power at VCCSPK = 5V Class-AB BTL can directly drive an 8Ω speaker or buzzer Class-AB BTL can drive an 8Ω speaker or buzzer via an external amplifier</p> <p>I/Os SPI interface: MISO, MOSI, SCLK, SSB for commands and digital audio data I2S interface: I2S_CLK, I2S_WS, I2S_SDI, I2S_SDO for digital audio data 8 GPIO pins: GPIO pins can trigger Voice Macro for a pushbutton application 8-bit Volume Control set by SPI command for flexible mixing Operating Voltage: 2.7 ~ 5.5V Standby Current: 1uA typical Package: Green 48L-LQFP Temperature Options: Industrial: -40 ° C to 85 ° C</p>	Manufacturer	Winbond		Numonyx			MXIC	Family	25X	25Q	25P	25PX	25PE	25L / 25V	JEDEC ID	EF 30 1X	EF 40 1X	20 20 1X	20 71 1X	20 80 1X	C2 20 1X
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Package	48L-LQFP																					
Other Files	N/A																					
Development Tools	ISD-ES15D00 USB ISD-ES_Mni_USB																					
Others	N/A																					

Feature Products

ARM Cortex™-M0  
NuMicro™ Family  
ISD ChipCorder®

ARM SoC N329 Family

Hardware Monitor

Audio Enhancement

Foundry Service

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Solutions

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