

General Purpose Low-Power Audio DSP

DESCRIPTION

WM0011 Audio DSP provides Wolfson HD audio quality, with a power-budget targeted at handheld battery-powered audio devices.

WM0011 combines the advanced Tensilica HiFi EP™ audio DSP with an I/O and peripheral set optimized for flexible integration into smartphones, tablets and other portable consumer electronics devices. WM0011 is ideal for extremely power-efficient implementations of advanced voice enhancement, telephony noise reduction, voice and music CODECs and general audio enhancement.

A very wide range of audio CODECs, voice CODECs and third-party algorithms from such companies as Waves Audio, SRS Labs and Dolby are available, providing a rich portfolio of audio-processing options that can be integrated into a device with no additional software development.

WM0011 comes in a space-saving 3x3mm 49-ball W-CSP package with 0.4mm pitch.

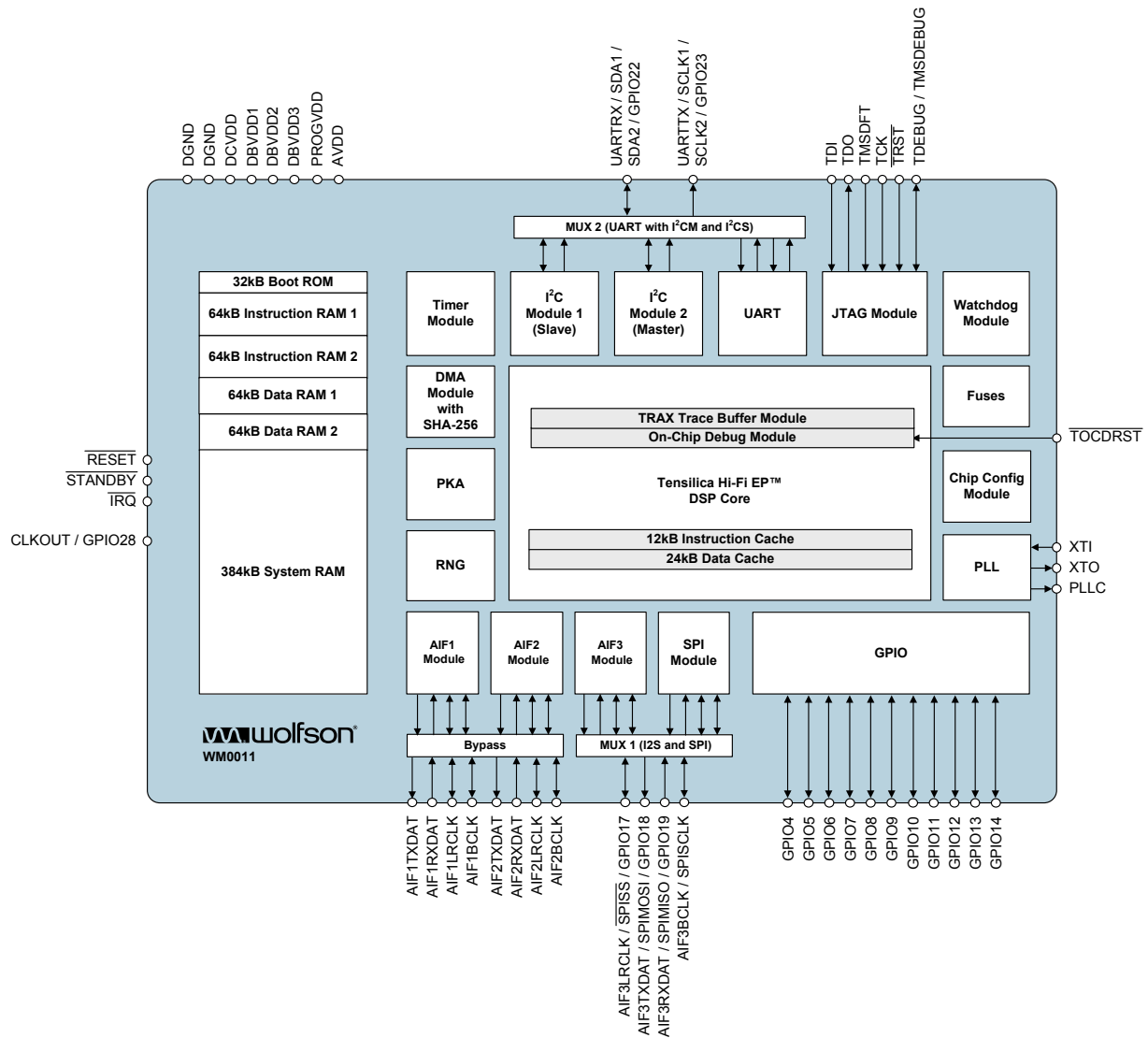
APPLICATIONS

- Wireless audio devices – headsets, microphones, speakerphones
- Portable media devices
- Automotive
- General purpose digital signal processor for consumer audio applications.
- Smartphones

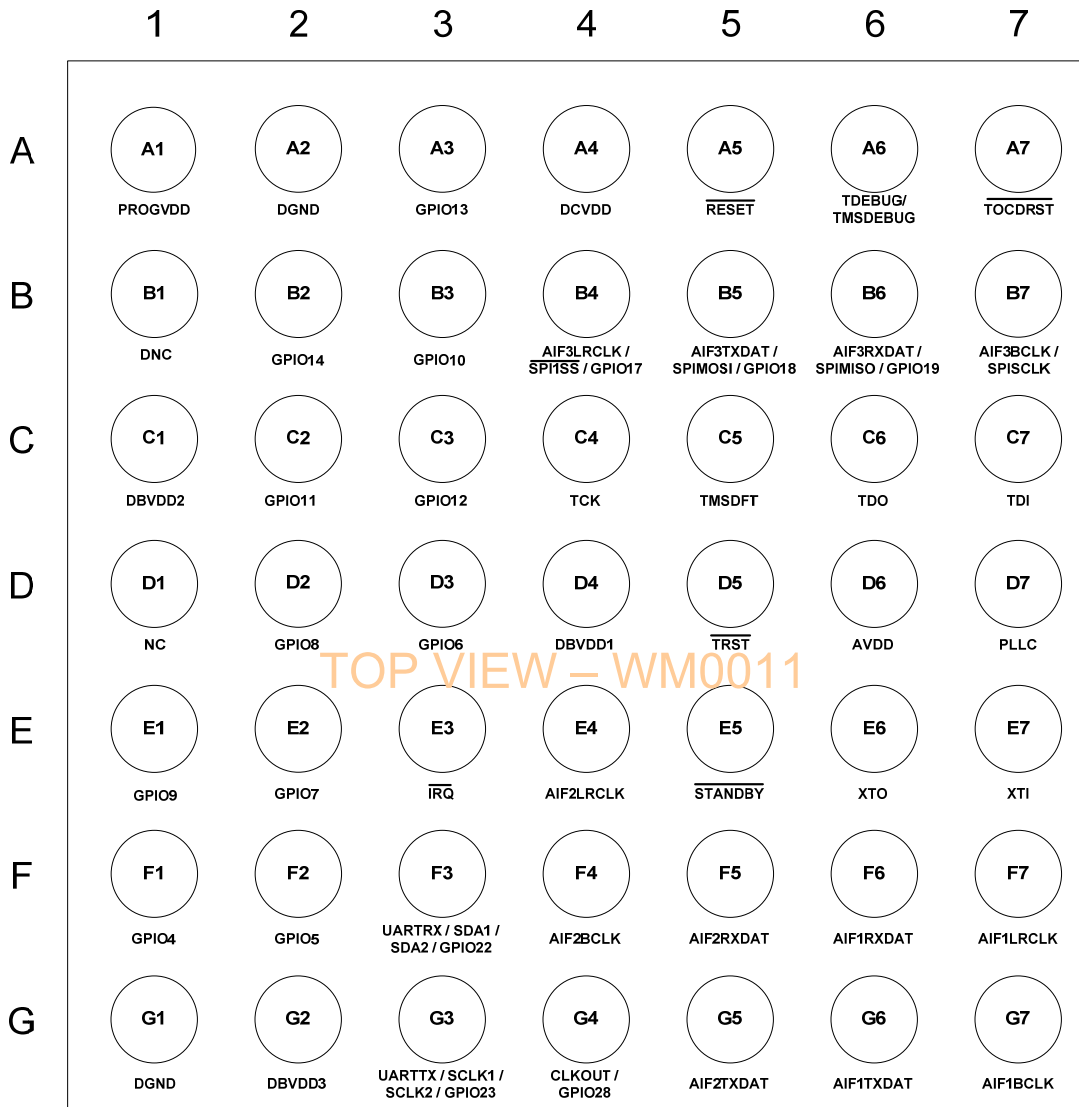
FEATURES

- Tensilica HiFi EP™ 24-bit audio digital signal processor
 - C-programmable with advanced debugging and profiling tool set
 - Local RAM memory
 - Instruction / Data cache memories
 - General-purpose system RAM
 - Flexible boot options supported within ROM
 - 32 Channel DMA
 - XTAL or CMOS clock input
 - Low power programmable PLL
- Security
 - Support for HW Authentication
 - Random Number Generator (RNG) to assist security algorithms
- Peripherals
 - SPI Master / Slave interface
 - 3 x multi-channel serial digital interface (I²S, TDM)
 - UART
 - I²C Master
 - I²C Slave
 - 3 x 32-bit general-purpose timer modules
 - Watchdog timer
 - On-chip JTAG debug unit and trace buffer
 - GPIO
- Software-defined standby modes for extended battery life

BLOCK DIAGRAM



PIN CONFIGURATION



ORDERING INFORMATION

DEVICE	CUSTOM FUSES	TEMPERATURE RANGE	PACKAGE	MOISTURE SENSITIVITY LEVEL	PEAK SOLDERING TEMPERATURE
WM0011ECS/R	Un-programmed	-40 to +85°C	49-ball W-CSP (Pb-free, Tape and reel)	MSL1	260°C
WM0011xxxECS/R	Custom-Programmed	-40 to +85°C	49-ball W-CSP (Pb-free, Tape and reel)	MSL1	260°C

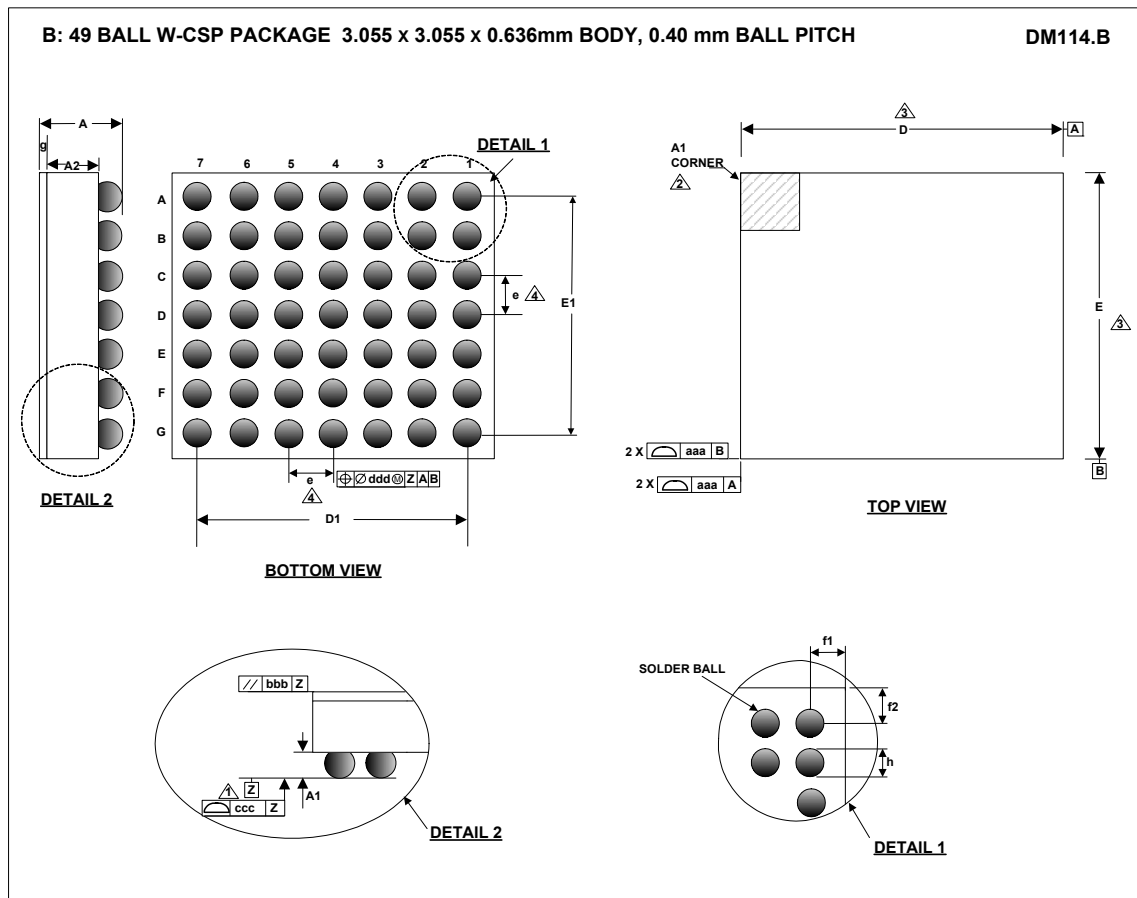
Note:

Reel quantity = 5000

* xxx = Unique Custom Fuse part number

** Custom programmed minimum order quantity 50,000.

PACKAGE DIAGRAM



Symbols	Dimensions (mm)			NOTE
	MIN	NOM	MAX	
A	0.592	0.636	0.681	
A1	0.175	0.190	0.205	
A2	0.381	0.406	0.432	
D	3.000	3.055	3.080	
D1		2.400 BSC		
E	3.000	3.055	3.080	
E1		2.400 BSC		
e		0.400 BSC		4
f1	0.300	0.328		Bump centre to die edge
f2	0.300	0.328		Bump centre to die edge
h	0.216	0.270	0.324	
g	0.036	0.040	0.044	
aaa	0.10			
bbb	0.10			
ccc	0.03			
ddd	0.015			

NOTES:

1. PRIMARY DATUM -Z- AND SEATING PLANE ARE DEFINED BY THE SPHERICAL CROWNS OF THE SOLDER BALLS.
2. A1 CORNER IS IDENTIFIED BY INK/LASER MARK ON TOP PACKAGE.
3. BILATERAL TOLERANCE ZONE IS APPLIED TO EACH SIDE OF THE PACKAGE BODY.
4. 'e' REPRESENTS THE BASIC SOLDER BALL GRID PITCH.
5. THIS DRAWING IS SUBJECT TO CHANGE WITHOUT NOTICE.
6. FOLLOWS JEDEC DESIGN GUIDE MO-211-C.

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REVISION HISTORY

DATE	REV	DESCRIPTION OF CHANGES	PAGE	CHANGED BY
17/07/12	1.1	First Release		RR/RD
19/10/12	2.0	Pin G4 and E1 names updated		PH
07/02/13	3.0	Change to document title, aligning with datasheet Block diagram updated (CLK DIV now labeled as Chip Config Module)		PH
20/05/13	4.0	Pin Description updates (name changes only)		PH
21/08/13	4.1	Front page description updated		JMacD