Data Sheet Supplement

Subject:	MSP 34x3G
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MSP 34x3G Multistandard Sound Processor Family

The Multistandard Sound Processor family MSP 34x3G covers all sound processing functions of the MSP 34x0G family. In addition, the MSP 34x3G family offers Micronas AROUND license-free surround sound.

– The above-mentioned functions and features are implemented in the same manner as in the MSP 34x2G.

– The MSP 34x2G data sheet is also valid for the MSP 34x3G except for the differences shown below.

Differences between the MSP 34x3G and the MSP 34x2G:

Decoder Matrix in the Surround Processing Mode:

In the MSP 34x3G, only the passive matrix is available, whereas the MSP 34x2G also offers the adaptive matrix, which is necessary for Dolby Pro Logic. As a result, only Micronas AROUND can be activated in the MSP 34x3G.

The following tables of the MSP 34x2G data sheet have been changed to reflect these differences and apply only to the MSP 34x3G.

2.6.3. Examples

Table 2–3 shows some examples of how these modes can be used to configure the IC. The list is not intended to be complete; more modes are possible.

Table 2–3: Examples of Surround Configurations

Configurations	**Speaker Configuration[1)]**	**Output Configuration** Register (48_{hex})		**Surround Processing Mode** Register ($4B_{hex}$)		
		AUX/CS Switch [15]	**Channel Configuration [14:8]**	**Decoder Matrix [15:8]**	**Surround Reproduction [7:4]**	**Center Mode [3:0]**
Stereo IC is compatible to the MSP34x0G.						
Stereo	(L,R)	AUX	STEREO	–	–	–
Passive Matrix Surround Sound						
Micronas AROUND Multi-channel (4-channel configuration)	(L,C,R,S)	CS	MULTI_CHANNEL	PASSIVE	REAR_ SPEAKER	NORMAL WIDE
Micronas AROUND Multi-channel (3-channel configuration)	(L,R,S)	CS	MULTI_CHANNEL	PASSIVE	REAR_ SPEAKER	OFF
Micronas AROUND Virtual (2-channel configuration)	(L,R)	AUX	TWO_CHANNEL	PASSIVE	3D_PANORAMA	OFF
Micronas AROUND Virtual (3-channel configuration)	(L,C,R)	CS	MULTI_CHANNEL	PASSIVE	3D_PANORAMA	NORMAL WIDE
Special Effects Surround Sound						
Micronas AROUND for mono (4-channel configuration)	(L,C,R,S)	CS	MULTI_CHANNEL	EFFECT	REAR_ SPEAKER	NORMAL WIDE
Micronas AROUND Virtual for mono (2-channel configuration)	(L,R)	AUX	TWO_CHANNEL	EFFECT	3D_PANORAMA	OFF
Micronas AROUND Virtual for mono (3-channel configuration)	(L,C,R)	CS	MULTI_CHANNEL	EFFECT	3D_PANORAMA	NORMAL WIDE

[1)] Speakers not in use are muted automatically.

Table 3–11: Write Registers on I^2C Subaddress 12_{hex}

Register Address	Function	Name
SURROUND PROCESSING		
00 $4B_{hex}$	**Surround Processing Mode**	SUR_MODE
	bit[15:8] Decoder Matrix	DEC_MAT
	00_{hex} PASSIVE (for Micronas AROUND)	
	10_{hex} PASSIVE (for Micronas AROUND)	
	20_{hex} EFFECT (used for special effects and monophonic Micronas AROUND)	
	bit[7:4] Surround Reproduction	SUR_REPRO
	0_{hex} REAR_SPEAKER: The surround signal is reproduced by a rear speaker.	
	3_{hex} FRONT_SPEAKER: The surround signal is redirected to the front channels. There is no physical rear speaker connected.	
	5_{hex} PANORAMA: The surround signal is processed and redirected to the left and right front speakers in order to create the illusion of a virtual rear speaker, although no physical rear speaker is connected.	
	6_{hex} 3D-PANORAMA: The surround signal is processed and redirected to the left and right front speakers in order to create the illusion of a virtual rear speaker, although no physical rear speaker is connected.	
	bit[3:0] Center Mode	C_MODE
	0_{hex} PHANTOM mode (no Center speaker connected)	
	1_{hex} NORMAL mode (small Center speaker)	
	2_{hex} WIDE mode (large Center speaker)	
	3_{hex} OFF mode (Center output of the Surround Decoder is discarded.)	

3.3.2.7. Read Registers on I^2C Subaddress 13_{hex}

Table 3–12: Read Registers on I^2C Subaddress 13_{hex}

Register Address	Function	Name
MSP 34x3G VERSION READOUT Registers		
00 $1E_{hex}$	**MSP Hardware Version Code** bit[15:8] 01_{hex} MSP 3453G - A2 02_{hex} MSP 3453G - B3 A change in the hardware version code defines hardware optimizations that may have influence on the chip's behavior. The readout of this register is identical to the hardware version code in the chip's imprint. **MSP Major Revision Code** bit[7:0] 07_{hex} MSP 3453G - B3 The major revision code of the MSP 3453G is 7.	MSP_HARD MSP_REVISION
00 $1F_{hex}$	**MSP Product Code** bit[15:8] 03_{hex} MSP 3403G - B3 $0D_{hex}$ MSP 3413G - B3 17_{hex} MSP 3423G - B3 $2B_{hex}$ MSP 3443G - B3 35_{hex} MSP 3453G - B3 $3F_{hex}$ MSP 3463G - B3 By means of the MSP-Product Code, the control processor is able to decide which TV sound standards and audio baseband features have to be considered. **MSP ROM Version Code** bit[7:0] 42_{hex} MSP 3453G - A2 43_{hex} MSP 3453G - B3 A change in the ROM version code defines internal software optimizations, that may have influence on the chip's behavior, e.g. new features may have been included. While a software change is intended to create no compatibility problems, customers that want to use the new functions can identify new MSP 34x3G versions according to this number. To avoid compatibility problems with MSP 3410B and MSP 34x0D, an offset of 40_{hex} is added to the ROM version code of the chip's imprint.	MSP_PRODUCT MSP_ROM