

ASM3P2811A/B, ASM3P2812A/B, ASM3P2814A/B

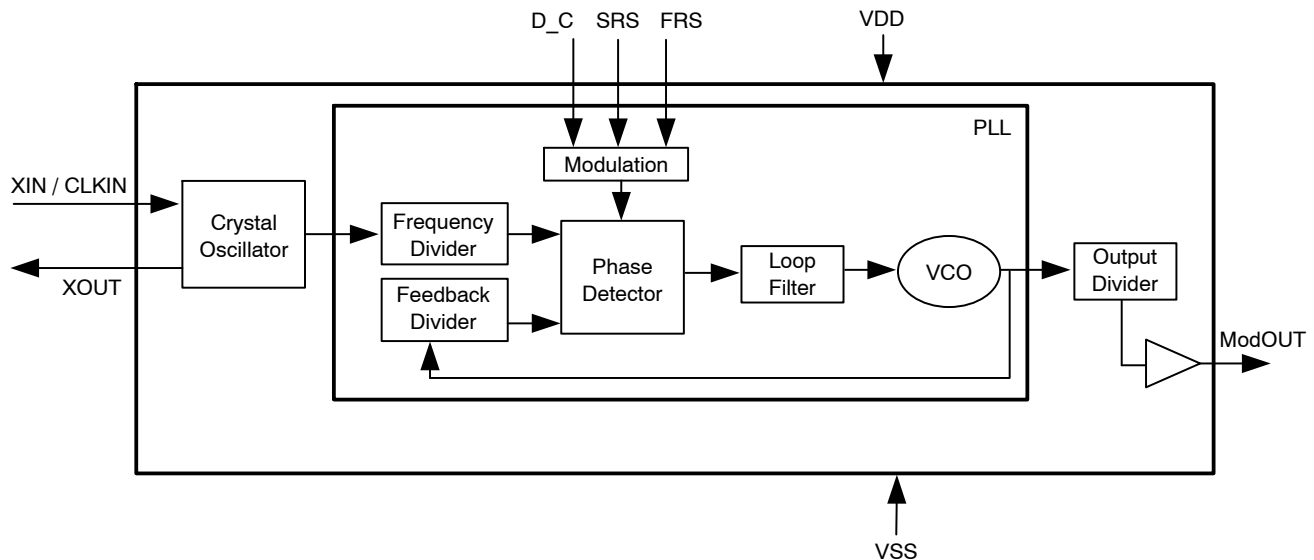


Figure 1. Block Diagram

Table 1. PIN DESCRIPTION

Pin#	Pin Name	Type	Description
1	XIN / CLKIN	I	Crystal connection or external Clock input.
2	VSS	P	Ground to entire chip.
3	D_C	I	Digital logic input used to select Down (LOW) or Center (HIGH) spread options. (Refer to <i>Frequency Deviation and Spread Selection Table</i>). This pin has an internal pull-up resistor.
4	SRS	I	Spread range select. Digital logic input used to select frequency deviation (Refer to <i>Frequency Deviation and Spread Selection Table</i>). This pin has an internal pull-up resistor.
5	ModOUT	O	Spread spectrum clock output
6	FRS	I	Frequency range select. Digital logic input used to select Input frequency range (Refer to <i>Input/Output Frequency Range Selection Table</i>). This pin has an internal pull-up resistor.
7	VDD	P	Power supply for the entire chip.
8	XOUT	O	Crystal connection. If using an external reference, this pin must be left unconnected.

Table 2. INPUT/OUTPUT FREQUENCY RANGE SELECTION

FRS (pin 6)	Part Number						Modulation Rate
	ASM3P2811 (1x)		ASM3P2812 (2x)		ASM3P2814 (4x)		
	Input (MHz)	Output (MHz)	Input (MHz)	Output (MHz)	Input (MHz)	Output (MHz)	
0	10–20	10–20	10–20	20–40	10–20	40–80	Input Frequency / 448
1	20–40	20–40	20–40	40–80	20–40	80–160	Input Frequency / 896

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Table 3. OUTPUT FREQUENCY DEVIATION AND SPREAD SELECTION

Part Number	D_C (pin 3)	SRS (pin 4)	Frequency Deviation (%) (Note 1)			
			FS = 0		FS = 1	
			10/20/40 (MHz)	20/40/80 (MHz)	20/40/80 (MHz)	40/80/160 (MHz)
ASM3P28XXA	0	0	-3	-2.5	-2.7	-2.6
	0	1	-3.7	-3.4	-3.8	-3.6
	1	0	±1.5	±1.2	±1.5	±1.3
	1	1	±1.8	±1.6	±1.9	±1.8
ASM3P28XXB	0	0	-1.7	-1.0	-1.5	-1.4
	0	1	-2.0	-1.5	-2.0	-1.9
	1	0	±0.75	±0.6	±0.8	±0.7
	1	1	±1.0	±0.75	±1.0	±0.9

1. Frequency Deviation given in the table is for the Output Frequency Range covering ASM3P2811x / 12x / 14x.

Table 4. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Rating	Unit
V _{DD} , V _{IN}	Voltage on any pin with respect to Ground	-0.5 to +4.6	V
T _{STG}	Storage temperature	-65 to +125	°C
T _s	Max. Soldering Temperature (10 sec)	260	°C
T _J	Junction Temperature	150	°C
T _{DV}	Static Discharge Voltage (As per JEDEC STD 22- A114-B)	2	KV

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Table 5. OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
VDD	Voltage on any pin with respect to GND	3.0	3.6	V
T _A	Operating temperature	-40	+85	°C
C _L	Load Capacitance		10	pF
C _{IN}	Input Capacitance		7	pF

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Table 6. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Min	Typ	Max	Unit
V_{IL}	Input low voltage	$V_{SS}-0.3$		0.8	V
V_{IH}	Input high voltage	2		$V_{DD}+0.3$	V
I_{IL}	Input low current (Inputs D_C, SRS and FRS are pulled high internally)			-50	μA
I_{IH}	Input high current			50	μA
I_{XOL}	XOUT Output low current (V_{XOL} @ 0.4 V, $V_{DD} = 3.3$ V)			3	mA
I_{XOH}	XOUT Output high current (V_{XOH} @ 2.5 V, $V_{DD} = 3.3$ V)			3	mA
V_{OL}	Output low voltage ($V_{DD} = 3.3$ V, $I_{OL} = 5$ mA)			0.4	V
V_{OH}	Output high voltage ($V_{DD} = 3.3$ V, $I_{OH} = -5$ mA)	2.5			V
I_{CC}	Dynamic supply current (Unloaded Output)	8		18	mA
I_{DD}	Static supply current, Standby mode (CLKIN pulled to GND)			4.5	mA
VDD	Operating voltage	3.0	3.3	3.6	V
t_{ON}	Power up time (first locked clock cycle after power up)			500	μS
Z_{OUT}	Clock out impedance		76		Ω

Table 7. AC ELECTRICAL CHARACTERISTICS

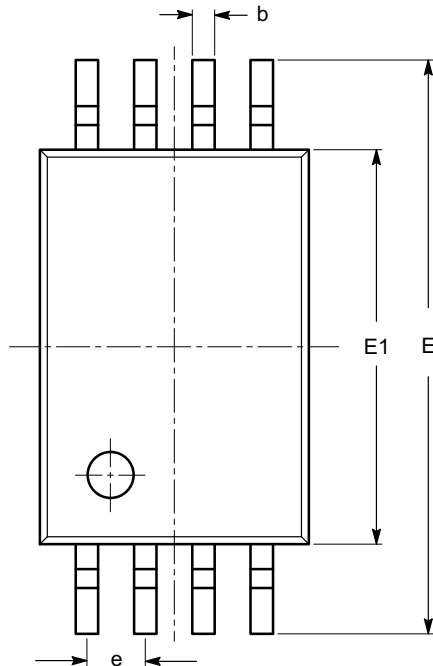
Symbol	Parameter	Min	Typ	Max	Unit
f_{IN}	Input frequency for ASM3P2811/12/13/14 A/B	10		40	MHz
f_{OUT}	Output frequency for ASM3P2811A/B	10		40	MHz
	Output frequency for ASM3P2812A/B	20		80	MHz
	Output frequency for ASM3P2814A/B	40		160	MHz
t_{LH} (Note 2)	Output rise time (measured at 0.8 V to 2.0 V)	0.5	0.9	1.2	nS
t_{HL} (Note 2)	Output fall time (measured at 2.0 V to 0.8 V)	0.8	1.0	1.3	nS
t_{JC}	Cycle-to-Cycle Jitter (Unloaded Output)		± 250		pS
t_D	Output duty cycle	45	50	55	%

2. t_{LH} and t_{HL} are measured into a capacitive load of 10 pF.

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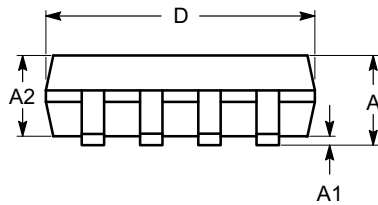
PACKAGE DIMENSIONS

TSSOP8, 4.4x3
CASE 948AL-01
ISSUE O

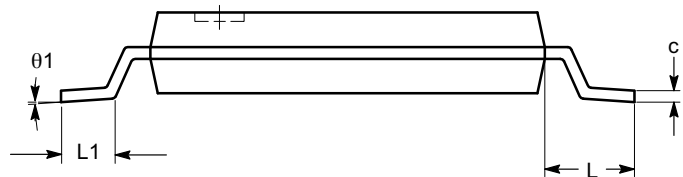


SYMBOL	MIN	NOM	MAX
A			1.20
A1	0.05		0.15
A2	0.80	0.90	1.05
b	0.19		0.30
c	0.09		0.20
D	2.90	3.00	3.10
E	6.30	6.40	6.50
E1	4.30	4.40	4.50
e	0.65 BSC		
L	1.00 REF		
L1	0.50	0.60	0.75
θ	0°		8°

TOP VIEW



SIDE VIEW



END VIEW

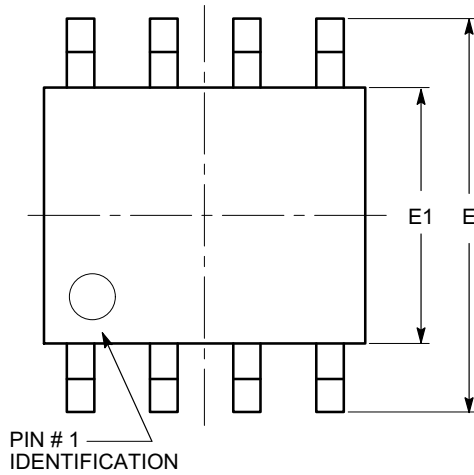
Notes:

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MO-153.

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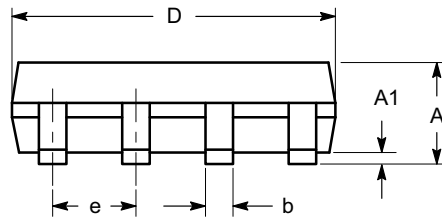
PACKAGE DIMENSIONS

SOIC 8, 150 mils
CASE 751BD-01
ISSUE O

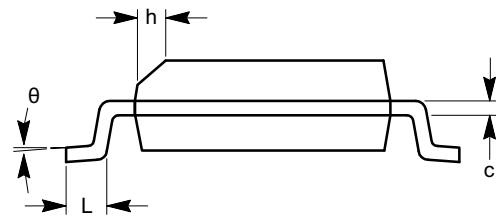


TOP VIEW

SYMBOL	MIN	NOM	MAX
A	1.35		1.75
A1	0.10		0.25
b	0.33		0.51
c	0.19		0.25
D	4.80		5.00
E	5.80		6.20
E1	3.80		4.00
e	1.27 BSC		
h	0.25		0.50
L	0.40		1.27
θ	0°		8°



SIDE VIEW



END VIEW

Notes:

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MS-012.

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Table 8. ORDERING INFORMATION

Part Number	Marking	Package Type	Temperature
ASM3P2811AF-08SR	3P2811AFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2811AF-08ST	3P2811AFS	SOIC – Tube, Pb free	Commercial
ASM3P2811AF-08TR	3P2811AFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2811AF-08TT	3P2811AFT	TSSOP – Tube, Pb free	Commercial
ASM3P2811BF-08SR	3P2811BFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2811BF-08ST	3P2811BFS	SOIC – Tube, Pb free	Commercial
ASM3P2811BF-08TR	3P2811BFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2811BF-08TT	3P2811BFT	TSSOP – Tube, Pb free	Commercial
ASM3P2812AF-08SR	3P2812AFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2812AF-08ST	3P2812AFS	SOIC – Tube, Pb free	Commercial
ASM3P2812AF-08TR	3P2812AFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2812AF-08TT	3P2812AFT	TSSOP – Tube, Pb free	Commercial
ASM3P2812BF-08SR	3P2812BFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2812BF-08ST	3P2812BFS	SOIC – Tube, Pb free	Commercial
ASM3P2812BF-08TR	3P2812BFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2812BF-08TT	3P2812BFT	TSSOP – Tube, Pb free	Commercial
ASM3P2814AF-08SR	3P2814AFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2814AF-08ST	3P2814AFS	SOIC – Tube, Pb free	Commercial
ASM3P2814AF-08TR	3P2814AFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2814AF-08TT	3P2814AFT	TSSOP – Tube, Pb free	Commercial
ASM3P2814BF-08SR	3P2814BFS	SOIC – Tape & Reel, Pb free	Commercial
ASM3P2814BF-08ST	3P2814BFS	SOIC – Tube, Pb free	Commercial
ASM3P2814BF-08TR	3P2814BFT	TSSOP – Tape & Reel, Pb free	Commercial
ASM3P2814BF-08TT	3P2814BFT	TSSOP – Tube, Pb free	Commercial
ASM3I2811AF-08SR	3I2811AFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2811AF-08ST	3I2811AFS	SOIC – Tube, Pb free	Industrial
ASM3I2811AF-08TR	3I2811AFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2811AF-08TT	3I2811AFT	TSSOP – Tube, Pb free	Industrial
ASM3I2811BF-08SR	3I2811BFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2811BF-08ST	3I2811BFS	SOIC – Tube, Pb free	Industrial
ASM3I2811BF-08TR	3I2811BFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2811BF-08TT	3I2811BFT	TSSOP – Tube, Pb free	Industrial
ASM3I2812AF-08SR	3I2812AFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2812AF-08ST	3I2812AFS	SOIC – Tube, Pb free	Industrial
ASM3I2812AF-08TR	3I2812AFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2812AF-08TT	3I2812AFT	TSSOP – Tube, Pb free	Industrial
ASM3I2812BF-08SR	3I2812BFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2812BF-08ST	3I2812BFS	SOIC – Tube, Pb free	Industrial
ASM3I2812BF-08TR	3I2812BFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2812BF-08TT	3I2812BFT	TSSOP – Tube, Pb free	Industrial
ASM3I2814AF-08SR	3I2814AFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2814AF-08ST	3I2814AFS	SOIC – Tube, Pb free	Industrial

ASM3P2811A/B, ASM3P2812A/B, ASM3P2814A/B

Table 8. ORDERING INFORMATION (continued)

Part Number	Marking	Package Type	Temperature
ASM3I2814AF-08TR	3I2814AFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2814AF-08TT	3I2814AFT	TSSOP – Tube, Pb free	Industrial
ASM3I2814BF-08SR	3I2814BFS	SOIC – Tape & Reel, Pb free	Industrial
ASM3I2814BF-08ST	3I2814BFS	SOIC – Tube, Pb free	Industrial
ASM3I2814BF-08TR	3I2814BFT	TSSOP – Tape & Reel, Pb free	Industrial
ASM3I2814BF-08TT	3I2814BFT	TSSOP – Tube, Pb free	Industrial
ASM3P2811AG-08SR	3P2811AGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2811AG-08ST	3P2811AGS	SOIC – Tube, Green	Commercial
ASM3P2811AG-08TR	3P2811AGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2811AG-08TT	3P2811AGT	TSSOP – Tube, Green	Commercial
ASM3P2811BG-08SR	3P2811BGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2811BG-08ST	3P2811BGS	SOIC – Tube, Green	Commercial
ASM3P2811BG-08TR	3P2811BGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2811BG-08TT	3P2811BGT	TSSOP – Tube, Green	Commercial
ASM3P2812AG-08SR	3P2812AGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2812AG-08ST	3P2812AGS	SOIC – Tube, Green	Commercial
ASM3P2812AG-08TR	3P2812AGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2812AG-08TT	3P2812AGT	TSSOP – Tube, Green	Commercial
ASM3P2812BG-08SR	3P2812BGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2812BG-08ST	3P2812BGS	SOIC – Tube, Green	Commercial
ASM3P2812BG-08TR	3P2812BGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2812BG-08TT	3P2812BGT	TSSOP – Tube, Green	Commercial
ASM3P2814AG-08SR	3P2814AGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2814AG-08ST	3P2814AGS	SOIC – Tube, Green	Commercial
ASM3P2814AG-08TR	3P2814AGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2814AG-08TT	3P2814AGT	TSSOP – Tube, Green	Commercial
ASM3P2814BG-08SR	3P2814BGS	SOIC – Tape & Reel, Green	Commercial
ASM3P2814BG-08ST	3P2814BGS	SOIC – Tube, Green	Commercial
ASM3P2814BG-08TR	3P2814BGT	TSSOP – Tape & Reel, Green	Commercial
ASM3P2814BG-08TT	3P2814BGT	TSSOP – Tube, Green	Commercial
ASM3I2811AG-08SR	3I2811AGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2811AG-08ST	3I2811AGS	SOIC – Tube, Green	Industrial
ASM3I2811AG-08TR	3I2811AGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2811AG-08TT	3I2811AGT	TSSOP – Tube, Green	Industrial
ASM3I2811BG-08SR	3I2811BGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2811BG-08ST	3I2811BGS	SOIC – Tube, Green	Industrial
ASM3I2811BG-08TR	3I2811BGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2811BG-08TT	3I2811BGT	TSSOP – Tube, Green	Industrial
ASM3I2812AG-08SR	3I2812AGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2812AG-08ST	3I2812AGS	SOIC – Tube, Green	Industrial
ASM3I2812AG-08TR	3I2812AGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2812AG-08TT	3I2812AGT	TSSOP – Tube, Green	Industrial

ASM3P2811A/B, ASM3P2812A/B, ASM3P2814A/B

Table 8. ORDERING INFORMATION (continued)

Part Number	Marking	Package Type	Temperature
ASM3I2812BG-08SR	3I2812BGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2812BG-08ST	3I2812BGS	SOIC – Tube, Green	Industrial
ASM3I2812BG-08TR	3I2812BGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2812BG-08TT	3I2812BGT	TSSOP – Tube, Green	Industrial
ASM3I2814AG-08SR	3I2814AGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2814AG-08ST	3I2814AGS	SOIC – Tube, Green	Industrial
ASM3I2814AG-08TR	3I2814AGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2814AG-08TT	3I2814AGT	TSSOP – Tube, Green	Industrial
ASM3I2814BG-08SR	3I2814BGS	SOIC – Tape & Reel, Green	Industrial
ASM3I2814BG-08ST	3I2814BGS	SOIC – Tube, Green	Industrial
ASM3I2814BG-08TR	3I2814BGT	TSSOP – Tape & Reel, Green	Industrial
ASM3I2814BG-08TT	3I2814BGT	TSSOP – Tube, Green	Industrial

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