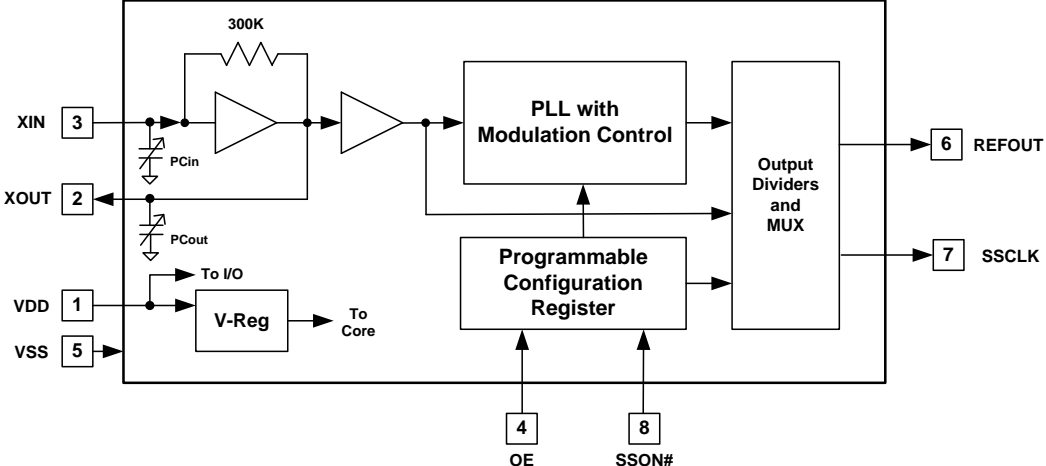
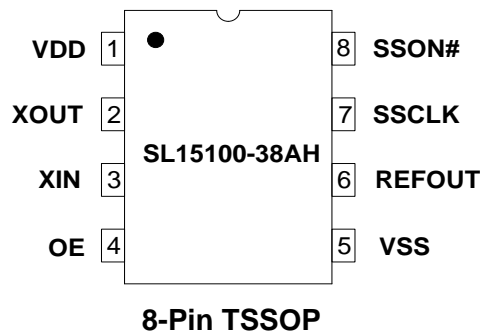


Low Jitter and Power Dissipation SSCG

Key Features	Description
<ul style="list-style-type: none"> • Low power dissipation <ul style="list-style-type: none"> - 6.5mA-typ at VDD=3.3V and CL=0pF • 3.3V +/-10% power supply range • 25.000MHz crystal input • REFOUT=25.000MHz (No Spread) • SSCLK=25.000MHz with +/-1.0% center spread • SSON# function <ul style="list-style-type: none"> - SSON#=0, Spread-on - SSON#=1, Spread-off • OE(Output Enable) function <ul style="list-style-type: none"> - OE=0, Outputs are disabled (Hi-Z) - OE=1, Outputs are enabled (Operational) • Internal Voltage Regulators • 45% to 55% Output Duty Cycle • Low CCJ Jitter • 8-pin 173 mil TSSOP package <p>Applications</p> <ul style="list-style-type: none"> • IP Phones • Video Graphic Cards • NBPCs and DTPCs • Printers and Copiers • HDTV • DSC and Digital Camcorders • Digital Embedded Systems 	<p>The SL15100ZC-38AH is a high performance Spread Spectrum Clock Generator for applications such as IP phones, video cards, notebook and desk top PCs, printers, copiers, HDTVs and other digital embedded applications.</p> <p>The SL15100ZC-38AH provides REFOUT and SSCLK outputs of 25.000MHz based on also 25.000MHz reference input crystal. Spread percent (%) at SSCLK output is set at +/-1.0% center spread and can be programmed to other values from 0 to +/-2.5%. SSON# pin controls the spread function and if SSON#=0, spread is on. If SSON#=1, spread is off (no spread). Refer to Table 1 for spread and frequency options.</p> <p>The product is offered with commercial temperature range of from 0 to +70°C and power supply operation range of 3.3V +/-10%.</p> <p>Benefits</p> <ul style="list-style-type: none"> • Fast Time-to-market • EMI Reduction • Cost Reduction • Improved Jitter • Low Power Dissipation
<p>Block Diagram</p> 	

Pin Configuration



Pin Description

Pin Number	Pin Name	Pin Type	Pin Description
1	VDD	Power	Positive power supply. 3.3 +/-10%.
2	XOUT	Output	Crystal output pin. 25.000MHz crystal. Cxout is programmed as 35pF at this pin to match crystal load of 18pF.
3	XIN	Input	Crystal input pin. 25.000MHz crystal. Cxin is programmed as 35pF at this pin to match crystal load of 18pF.
4	OE	Input	Output Enable pin. If OE=1 device is operational. If OE=0, REFOUT and SSCLK outputs are High-Z. This pin is weakly pulled high to VDD (200kΩ-typ).
5	VSS	Power	Power supply ground.
6	REFOUT	Output	Reference clock output. REFOUT is buffered output of external crystal frequency which is 25.000MHz.
7	SSCLK	Output	Spread Spectrum Clock output. 25.000MHz external crystal frequency is synthesized by internal PLL as 25.000MHz nominal frequency with +/-1.0% spread (center spread). Refer to Table 1 for available spread and frequencies.
8	SSON#	Input	Spread on or off selection pin. Refer to Table 1. Weakly pulled low to VSS (200kΩ-typ).

Xtal (Pins 2 and 3)	SSON# (Pin 8)	OE (Pin 4)	REFOUT (Pin 6)	SSCLK (Pin 7)
25.000MHz	0	1	25.000MHz	25.000MHz (+/-1.0% center spread)
25.000MHz	1	1	25.000MHz	25.000MHz (no spread)
25.000MHz	0	0	Hi-Z	Hi-Z
25.000MHz	1	0	Hi-Z	Hi-Z

Table 1. Frequency and Spread Selection Table

Absolute Maximum Ratings

Description	Condition	Min	Max	Unit
Supply voltage, VDD		-0.5	4.2	V
All Inputs and Outputs		-0.5	VDD+0.5	V
Ambient Operating Temperature	In operation, C-Grade	0	70	°C
Storage Temperature	No power is applied	-65	150	°C
Junction Temperature	In operation, power is applied	-	125	°C
Soldering Temperature		-	260	°C
ESD Rating (Human Body Model)	JEDEC22-A114D	-4,000	4,000	V
ESD Rating (Charge Device Model)	JEDEC22-C101C	-1,500	1,500	V
ESD Rating (Machine Model)	JEDEC22-A115D	-200	200	V

DC Electrical Characteristics (C-Grade)

Unless otherwise stated VDD= 3.3V+/- 10%, CL=15pF and Ambient Temperature range 0 to +70 Deg C

Description	Symbol	Condition	Min	Typ	Max	Unit
Operating Voltage	VDD		2.97	3.3	3.63	V
Input Low Voltage	VIL	CMOS Level, Pins 4 and 8	0	-	0.3VDD	V
Input High Voltage	VIH	CMOS Level, Pins 4 and 8	0.7VDD	-	VDD	V
Output High Voltage	VOH	IOH=-8mA, Pins 6 and 7	VDD-0.5	-	-	V
Output Low Voltage	VOL	IOL=8mA, Pins 6 and 7	-	-	0.3	V
Input High Current	IIH1	VIN=VDD, Pins 4 and 8	-50	-	50	μA
Input Low Current	IIL1	VIN=GND, Pins 4 and 8	-50	-	50	μA
Operating Supply Current	IDD	REFOUT=SSCLK=25.000MHz, SSON#=0 or 1, OE=1, CL=0pF	-	6.5	8.5	mA
Input Capacitance	CIN1	OE and SSON#, Pins 4 and 8	-	4	6	pF
Input Capacitance (For Xtal CL)	CIN2	CXIN and CXOUT, Pins 3 and 2	-	35	-	pF
Load Capacitance	CL	SSCLK/REFOUT, Pins 7 and 6	-	-	15	pF
Pull Up-Down Resistors	RPUD	OE and SSON#, Pins 4 and 8	100	200	300	kΩ

Note: Capacitance at Pin-3 (XIN) and Pin-2 (XOUT) are programmed as 35pF at each pin. These capacitors with 1 pF parasitic PCB capacitance matches crystal load requirement of CL=18pF. **Use crystal with CL=18pF and do not use any external crystal load capacitor on PCB for +/- 0 ppm nominal crystal frequency accuracy.**

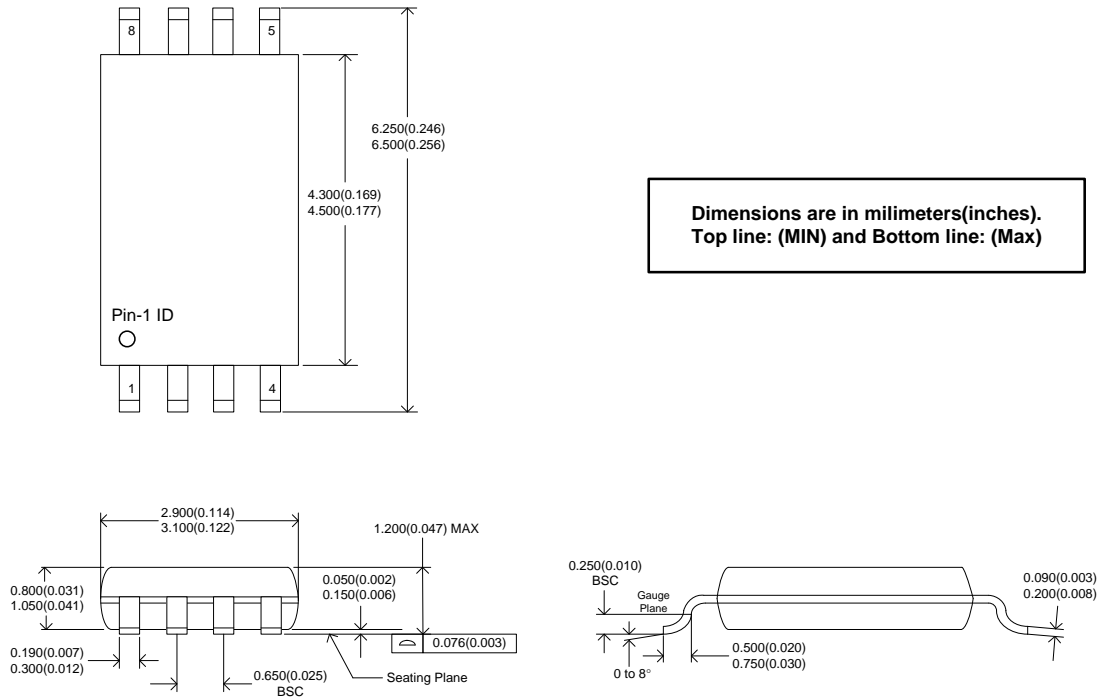
AC Electrical Characteristics (C-Grade)

Unless otherwise stated VDD= 3.3V+/- 10%, CL=15pF and Ambient Temperature range 0 to +70 Deg C

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Frequency Range	FRange1	Input Crystal, Pins 2 and 3	-	25.000	-	MHz
Frequency Range	FRange2	REFOUT and SSCLK(Nominal), Pins 6 and 7, SSON#=1 and OE=1	-	25.000	-	MHz
Frequency Range	FRange2	SSCLK, Pin 7, SSON#=1, OE=1, +/-1.0% spread if SSON#=0	-	25.000	-	MHz
Spread Percent	SS%	SSCLK, Pin 7, SSON#=0, OE=1, +/-1.0% spread if SSON#=0 Lexmark™ Profile	-	+/-1.0	-	%
Spread Modulation	SSMOD	SSCLK, Pin 7, SSEL=1 or 0, SSON#=0, Lexmark™ Profile (If SSON#=1 no modulation)	-	40	-	kHz
Output Duty Cycle	DC1	REFOUT and SSCLK, Pins 6 and 7 Measured at VDD/2	45	50	55	%
Output Rise/Fall Time	tr/f	Measured from 20% to 80% of VDD, SSON#=0 or 1, OE=1, REFOUT and SSCLK, Pins 6 and 7, CL=10pF	-	3.0	4.0	ns
Cycle-to-Cycle Jitter	CCJ1	Measured at Pin 6 (REFOUT) OE=1, SSON#=0 or 1, CL=10pF	-	150	-	ps
Cycle-to-Cycle Jitter	CCJ2	Measured at Pin 7 (SSCLK) OE=1, SSON#=0 or 1, CL=10pF	-	170	-	ps
Power-up Time	tPU	Time from 0.9VDD to valid frequency at output, Pins 6 and 7	-	7.5	10.0	ms
Power Supply Ramp		Monolithic power supply ramp	0	-	12.0	ms

Package Outline and Package Dimensions

8-Pin TSSOP Package (173 Mil)



Thermal Characteristics

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Thermal Resistance Junction to Ambient	θ_{JA1}	Still air	-	110	-	°C/W
	θ_{JA2}	1m/s air flow	-	100	-	°C/W
	θ_{JA3}	3m/s air flow	-	80	-	°C/W
Thermal Resistance Junction to Case	θ_{JC}	Independent of air flow	-	35	-	°C/W

Ordering Information

Ordering Number	Marking	Shipping Package	Package	Temperature
SL15100ZC-38AH	SL15100ZC-38AH	Tube	8-pin TSSOP	0 to 70°C
SL15100ZC-38AHT	SL15100ZC-38AH	Tape and Reel	8-pin TSSOP	0 to 70°C

Notes:

1. The SL15100ZC-38AH is RoHS compliant.
2. "38AH" is hardcoded version of -38A and all electrical specifications and functions are the same. The products can be used interchangeably as a direct replacement.

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