

CURIE BASED WEARABLE

General Description

Silego SLG7NT41502 is a low power and small form device. The SoC is housed in a 1.6 x 2.0 mm STQFN package which is optimal for using with small devices.

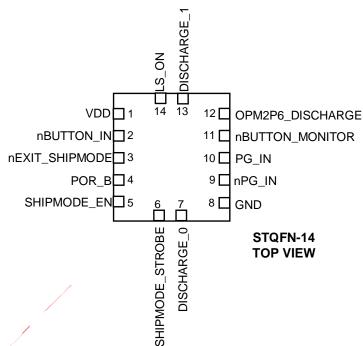
Features

- Low Power Consumption
- Pb-Free / RoHS Compliant
- Halogen-Free
- STQFN-14 Package

Output Summary

- 1 Output Push Pull 2X
- 1 Output Open Drain NMOS 1X
- 3 Outputs Open Drain NMOS 2X

Pin Configuration





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Pin Configuration

Pin#	Pin Name	Type	Pin Description
1	VDD	PWR	Supply Voltage
2	nBUTTON_IN	Digital Input	Digital Input with Schmitt trigger
3	nEXIT_SHIPMODE	Digital Input	Digital Input with Schmitt trigger
4	POR_B	Digital Input	Low Voltage Digital input
5	SHIPMODE_EN	Digital Input	Low Voltage Digital input
6	SHIPMODE_STROBE	Digital Input	Low Voltage Digital input
7	DISCHARGE_0	Digital Output	Open Drain NMOS 2X
8	GND	GND	Ground
9	nPG_IN	Digital Input	Digital Input with Schmitt trigger
10	PG_IN	Digital Input	Digital Input with Schmitt trigger
11	nBUTTON_MONITOR	Digital Output	Open Drain NMOS 1X
12	OPM2P6_DISCHARGE	Digital Output	Open Drain NMOS 2X
13	DISCHARGE_1	Digital Output	Open Drain NMOS 2X
14	LS_ON	Digital Output	Push Pull 2X

Ordering Information

<u> </u>	
Part Number	Package Type
SLG7NT41502V	V=STQFN-14
SLG7NT41502VTR	STQFN-14 – Tape and Reel (3k units)



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Absolute Maximum Conditions

Parameter	Min.	Max.	Unit
V _{HIGH} to GND	-0.3	7	V
Voltage at input pins	-0.3	7	V
Current at input pin	-1.0	1.0	mA
Storage temperature range	-65	125	°C
Junction temperature		150	°C
ESD Protection (Human Body Model)	2000		V
ESD Protection (Charged Device Model)	1000		V
Moisture Sensitivity Level	1		

Electrical Characteristics

(@ 25°C, unless otherwise stated)

Symbol	Parameter	Condition/Note	Min.	Тур.	Max.	Unit
V_{DD}	Supply Voltage	/	1.71	3.6	5.5	V
T _A	Operating Temperature		-40	25	85	°C
		Static inputs and floating outputs PIN4 = 1; PIN14 = 1; DFF4 = 0 @VDD = 3.3V		1		
		Static inputs and outputs PIN4 = 0; PIN14 = 0; DFF4 = 1 @VDD = 3.3V		1		
lα	Quiescent Current	Static inputs and outputs PIN4 = 1; PIN14 = 1; DFF4 = 0 @VDD = 5.5V		1		μA
		Static inputs and outputs PIN4 = 0; PIN14 = 0; DFF4 = 1 @VDD = 5.5V		1		
		Static outputs PIN4 = 0; PIN14 = 1; DFF4 = 0 @VDD = 3.7V		50		
I _A	Active Current	Static outputs PIN4 = 0; PIN14 = 0; DFF4 = 0 @VDD = 3.3V		1.8		μA
	/	Static outputs PIN4 = 0; PIN14 = 1; DFF4 = 0 @VDD = 5.5V		50		
Vo	Maximal Voltage Applied to any PIN in High-Impedance State				VDD	V
Io	Maximal Average or DC Current (note 1)	Per Each Chip Side			90	mA
	HIGH-Level Input	Logic Input with Schmitt Trigger, at VDD=1.8V At temperature -45°C +85°C (note 1)	1.27		VDD	
V _{IH}	Voltage (Note 2)	Low-Level Logic Input, at VDD=1.8V At temperature -45°C +85°C (note 1)	0.98		VDD	V
		Logic Input with Schmitt Trigger, at VDD=3.3V At temperature -45°C +85°C (note 1)	2.13		VDD	



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		Low-Level Logic Input, at VDD=3.3V At temperature -45°C +85°C (note 1)	1.13		VDD	
		Logic Input with Schmitt Trigger, at VDD=5.0V	3.16		VDD	
		At temperature -45°C +85°C (note 1) Low-Level Logic Input, at VDD=5.0V				
		At temperature -45°C +85°C (note 1)	1.23		VDD	
		Logic Input with Schmitt Trigger, at VDD=1.8V			0.44	
		Low-Level Logic Input, at VDD=1.8V At temperature -45°C +85°C (note 1)		/	0.52	
	LOW-Level Input Voltage	Logic Input with Schmitt Trigger, at VDD=3.3V At temperature -45°C +85°C (note 1)		/	0.95	
V _{IL}	(Note 2)	Low-Level Logic Input, at VDD=3.3V At temperature -45°C +85°C (note 1)	/		0.69	V
		Logic Input with Schmitt Trigger, at VDD=5.0V			1.51	
		At temperature -45°C +85°C (note 1) Low-Level Logic Input, at VDD=5.0V At temperature -45°C +85°C (note 1)			0.78	
V _{HYS}	Schmitt Trigger Hysteresis Voltage	Logic Input with Schmitt Trigger	0.273		0.792	V
I _{IH}	HIGH-Level Input Current	Logic Input PINs; V _{IN} = VDD	-1.0		1.0	μA
I _{IL}	LOW-Level Input Current	Logic Input PINs; V _{IN} = 0V	-1.0		1.0	μA
		Push Pull, I _{OH} = 100uA, 2X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)	1.679	1.792		
V _{OH}	HIGH-Level Output Voltage (note 1)	Push Pull, I _{OH} = 3mA, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	2.861	3.201		V
		Push Pull, I _{OH} = 5mA, 2X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)	4.330	4.878		
		Open Drain, I _{OL} = 100uA, 1X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)		0.007	0.010	
		Push Pull, I _{OL} = 100uA, 2X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1) Open Drain, I _{OL} = 100uA, 2X Driver, at VDD=1.8 V		0.007	0.010	
V _{OL}	LOW-Level Output Voltage (note 1)			0.002	0.010	V
	,	Open Drain, I _{OL} = 3mA, 1X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)		0.070	0.130	
		Push Pull, I _{OL} = 3mA, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)		0.079	0.130	



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	Open Drain, I _{OL} = 3mA, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)		0.040	0.070	
	Open Drain, I _{OL} = 5mA, 1X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)		0.090	0.160	
	Push Pull, I _{OL} = 5mA, 2X Driver, at VDD=5.0 V		0.101	0.160	
	Open Drain, I _{OL} = 5mA, 2X Driver, at VDD=5.0 V		0.050	0.080	
	Push Pull & PMOS OD, V _{OH} = V _{DD} -0.2, 2X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)	2.069	3.390		
HIGH-Level Output Current (note 1)	Push Pull & PMOS OD, V _{OH} = 2.4 V, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	11.278	21.634		mA
	Push Pull & PMOS OD, V _{OH} = 2.4 V, 2X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)	40.059	59.691	I	
	Push Pull, V _{OL} =0.15V, 2X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)	1.52	2.840		
	Open Drain, V _{OL} =0.15V, 1X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)	1.530	2.840		
	V _{OL} =0.15V, 2X Driver, at VDD=1.8 V At temperature -45°C +85°C (note 1)	3.060	5.680		
	Push Pull, V _{OL} =0.4V, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	8.130	13.840	1	
LOW-Level Output	Open Drain, Vok =0.4V, 1X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	8.130	13.850		mA
(note 1)	Open Drain, V _{OL} =0.4V, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	16.260	23.700		ША
	Push Pull, V _{OL} =0.4V, 2X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)	12.020	19.460		
	Open Drain, V _{OL} =0.4V, 1X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)	12.030	19.460		
	Open Drain, V _{OL} =0.4V, 2X Driver, at VDD=5.0 V At temperature -45°C +85°C (note 1)	24.060	38.920		
	Current (note 1) LOW-Level Output Current	IoL = 3mA, 2X Driver, at VDD=3.3 V	I _{OL} = 3mA, 2X Driver, at VDD=3.3 V	Io_i = 3MA, 2X Driver, at VDD=3.3 V At temperature -45°C +85°C (note 1)	Io_ = 3MA, 2X Driver, at VDD=3.3 V



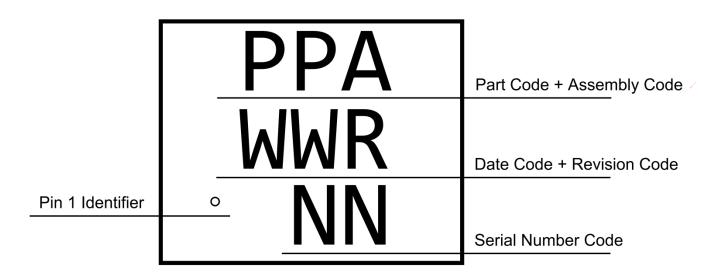
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		Low to High transition, at temperature 25°C.	3532.7	3582.9	3633.1	
V _{ACMP0}	Analog Comparator	Low to High transition, at temperature -40 +85°C (note 1)	3519.7	3579.8	3644.2	mV
ACMPO	Threshold Voltage	High to Low transition, at temperature 25°C	2948.8	2991.5	3034.2	/
		High to Low transition, at temperature -40 +85°C (note 1)	2937.1	2988.1	3040.9	
G асмР0	Analog Comparator0 IN+ gain	ACMP 0		0.33	/	
V _{HYST}	Analog Comparator Hysteresis Voltage (note 1)	ACMP 0		200		mV
R _{PULL_UP}	Internal Pull Up Resistance	Pull up on PIN 2, 3	70	100	130	kΩ
R _{PULL_DOWN}	Internal Pull Down Resistance	Pull down on PINs 5, 6	70	100	130	kΩ
RDIS	Discharge Resistance	External resistor on PIN7, PIN12 and PIN13	270			Ω
_	Counter0 Period	At temperature 25°C	153.14	176.87	207.44	
T _{CNT0}	(WS Ctrl)	At temperature -40°C +85°C (note 1)	153.14	178.87	217.81	ms
_	,	At temperature 25°C	195.04	200.45	206.90	
T _{DLY1}	Delay1 Time	At temperature -40°C +85°C (note 1)	184.59	200.45	216.47	ms
_	Dalay O Time	At temperature 25°C	486.52	500.02	516.10	
T _{DLY2}	Delay2 Time	At temperature -40°C +85°C (note 1)	460.44	500.02	539.10	ms
т	Dolov2 Time	At temperature 25°C	195.04	200.45	206.90	mo
T _{DLY3}	Delay3 Time	At temperature -40°C +85°C (note 1)	184.59	200.45	216.47	ms
T _{SU}	Start up Time	From VDD rising past PON _{THR}	0.462	1.4	4.999	ms
PON _{THR}	Power On Threshold	VDD Level Required to Start Up the Chip	0.961	1.312	1.659	V
POFF _{THR}	Power Off Threshold	VDD Level Required to Switch Off the Chip	0.875	1.109	1.288	V

Guaranteed by Design.
 No hysteresis for Low Voltage Digital Input/



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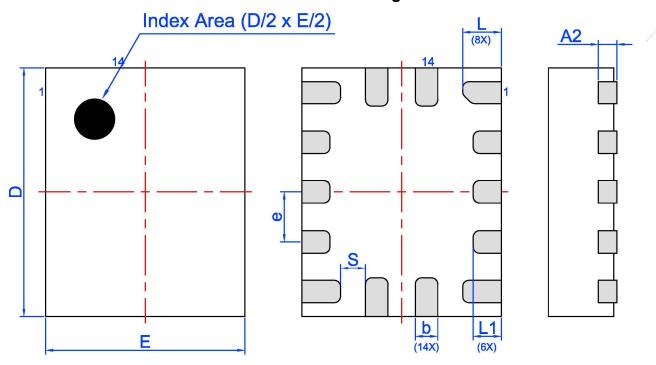
Datasheet Revision	Programming Code Number	Locked Status	Part Code	Revision	Date
1.04	002	L	V6	В	01/23/2017

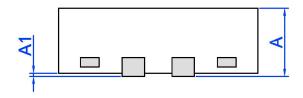
The IC security bit is locked/set for code security for production unless otherwise specified. Revision number is not changed for bit locking.

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Package Drawing and Dimensions

14 Lead STQFN Package





Unit: mm

Symbol	Min	Nom.	Max	Symbol	Min	Nom.	Max
Α	0.50	0.55	0.60	D	1.95	2.00	2.05
A1	0.005	-	0.060	Е	1.55	1.60	1.65
A2	0.10	0.15	0.20	L	0.26	0.31	0.36
b	0.13	0.18	0.23	L1	0.175	0.225	0.275
е	(0.40 BSC	,	S		0.2 REF	

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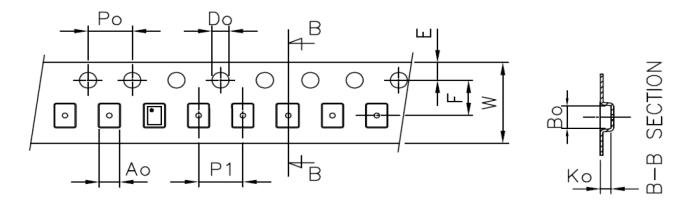
Tape and Reel Specification

Package Type	# of	Packade	Max Units		Reel &	Trailer A		Leader B		Pocket (mm)	
	Pins		per reel	per box	Hub Size (mm)	Pockets	Length (mm)	Pockets	Length (mm)	Width	Pitch
STQFN 14L FC 0.4P Green	14	1.6x2.0x0.55	3000	3000	178/60	100	400	100	400	8 /	4

Carrier Tape Drawing and Dimensions

Package Type	Pocket BTM Length (mm)	Pocket BTM Width (mm)	Pocket Depth (mm)	Index Hole Pitch (mm)	Pocket Pitch (mm)	Index Hole Diameter (mm)	Index Hole to Tape Edge (mm)	Index Hole to Pocket Center (mm)	Tape Width (mm)
	Α0	В0	K0	P0	P1	D0	E	F	w
STQFN 14L FC 0.4P Green	1.9	2.3	0.8	4	4	1.5	1.75	3.5	8

Refer to EIA-481 Specifications



Recommended Reflow Soldering Profile

Please see IPC/JEDEC J-STD-020: latest revision for reflow profile based on package volume of 1.76 mm³ (nominal). More information can be found at www.jedec.org.



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Silego Website & Support

Silego Technology Website

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