SLG7RN45766

GreenPAK ™

RZ/G2L SMARC POWER_RESET

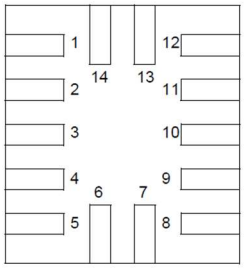
General Description

Renesas SLG7RN45766 is a low power and small form device. The SoC is housed in a 2mm x 2.2mm STQFN package which is optimal for using with small devices.

Features

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

Pin Configuration



14-pin STQFN
(Top View)

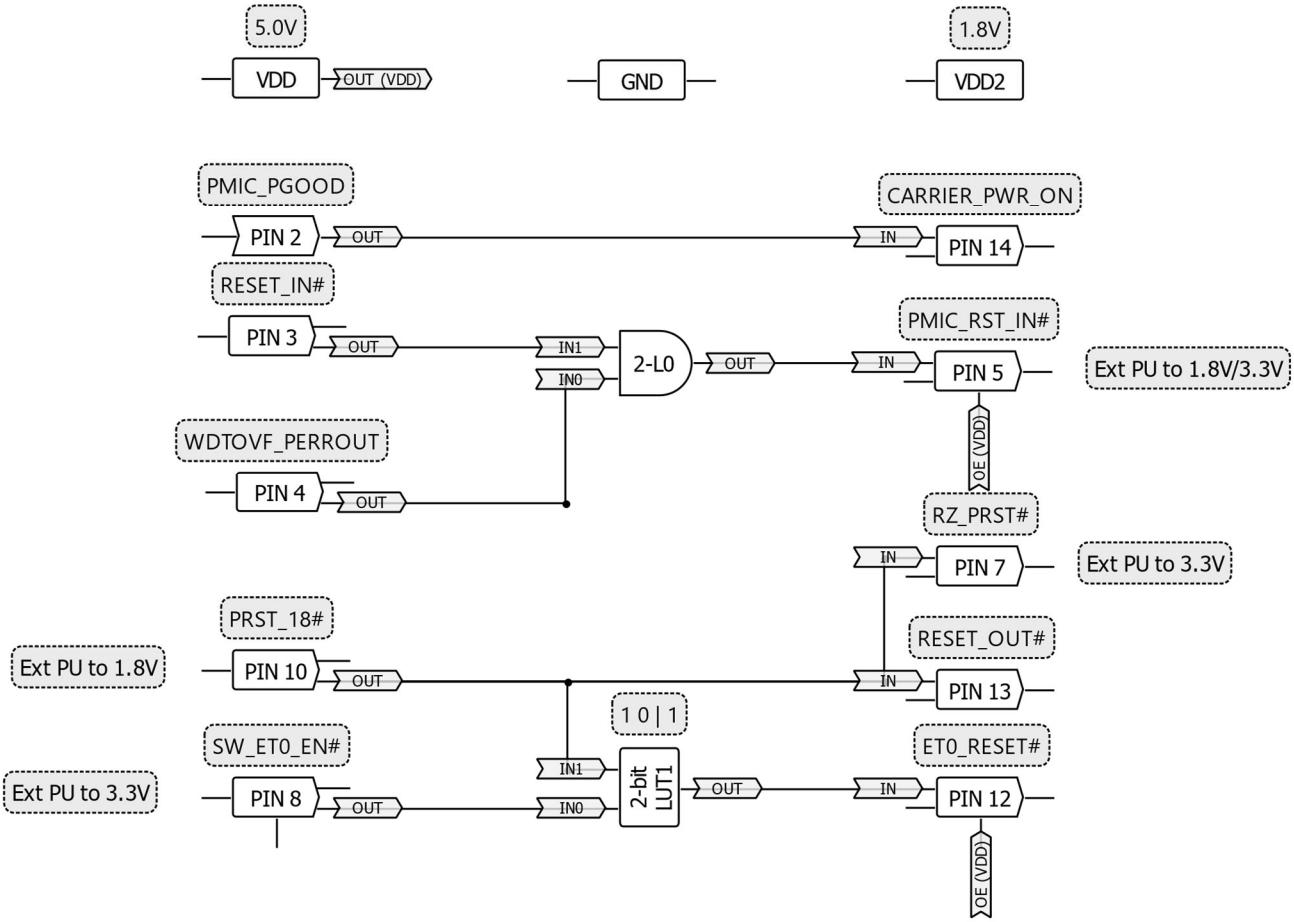
Output Summary

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

Pin name

Pin #	Pin name	Pin #	Pin name
1	VDD	8	SW_ET0_EN#
2	PMIC_PGOOD	9	GND
3	RESET_IN#	10	PRST_18#
4	WDTOVF_PERROUT	11	VDD2
5	PMIC_RST_IN#	12	ET0_RESET#
6	NC	13	RESET_OUT#
7	RZ_PRST#	14	CARRIER_PWR_ON

Block Diagram



Pin Configuration

Pin #	Pin Name	Type	Pin Description	Internal Resistor
1	VDD	PWR	Supply Voltage	--
2	PMIC_PGOOD	Digital Input	Low Voltage Digital Input	floating
3	RESET_IN#	Digital Input	Low Voltage Digital Input	floating
4	WDTOVF_PERROUT	Digital Input	Low Voltage Digital Input	floating
5	PMIC_RST_IN#	Digital Output	Open Drain NMOS 1X	floating
6	NC	--	Keep Floating or Connect to GND	--
7	RZ_PRST#	Digital Output	Open Drain NMOS 1X	floating
8	SW_ET0_EN#	Digital Input	Digital Input with Schmitt trigger	floating
9	GND	GND	Ground	--
10	PRST_18#	Digital Input	Digital Input with Schmitt trigger	floating
11	VDD2	PWR	Supply Voltage	--
12	ET0_RESET#	Digital Output	Push Pull 1X	floating
13	RESET_OUT#	Digital Output	Push Pull 1X	floating
14	CARRIER_PWR_ON	Digital Output	Push Pull 1X	floating

Ordering Information

Part Number	Package Type
SLG7RN45766V	14-pin STQFN - Tape and Reel (3k units)

Absolute Maximum Conditions

Parameter		Min.	Max.	Unit
Supply Voltage on VDD relative to GND		-0.5	7	V
Supply voltage on VDD2 relative to GND		-0.5	VDD + 0.5	V
DC Input voltage	Pins 2, 3, 4, 5, 6, 7, 8	GND - 0.5	VDD + 0.5	V
	Pins 10, 12, 13, 14		VDD2 + 0.5	
Maximum Average or DC Current (Through pin)	Push-Pull 1x	--	11	mA
	OD 1x	--	11	
Current at Input Pin		-1.0	1.0	mA
Input leakage (Absolute Value)		--	1000	nA
Storage Temperature Range		-65	150	°C
Junction Temperature		--	150	°C
ESD Protection (Human Body Model)		2000	--	V
ESD Protection (Charged Device Model)		500	--	V
Moisture Sensitivity Level		1		

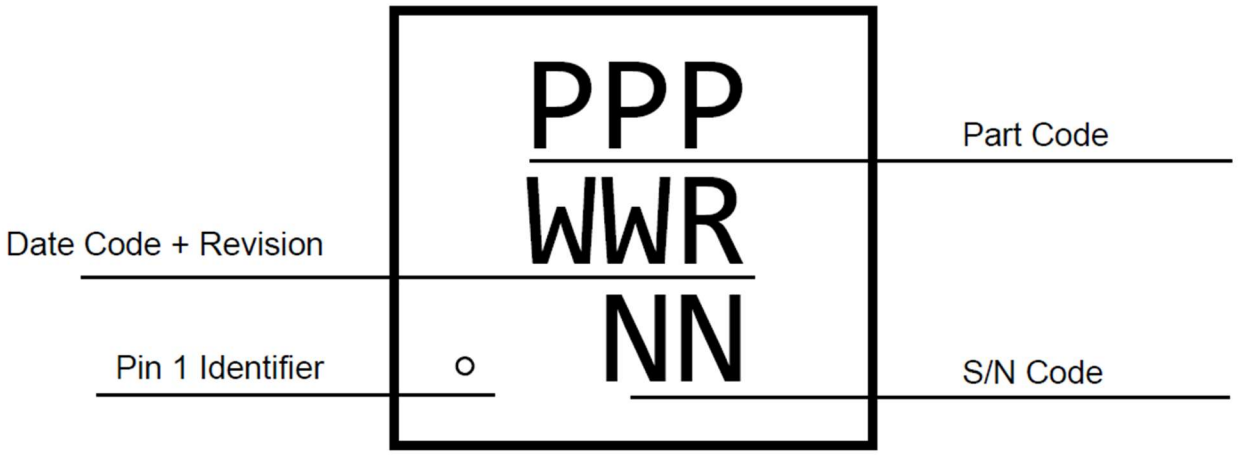
Electrical Characteristics

Symbol	Parameter	Condition/Note	Min.	Typ.	Max.	Unit
V_{DD}	Supply Voltage		4.7	5	5.5	V
V_{DD2}	Supply Voltage		1.71	1.8	2	V
T_A	Operating Temperature		-40	25	85	°C
C_{VDD}	Capacitor Value at VDD		--	0.1	--	µF
C_{IN}	Input Capacitance		--	4	--	pF
I_Q	Quiescent Current	Static inputs and floating outputs. All input PINs are LOW	--	1	--	µA
V_O	Maximal Voltage Applied to any PIN in High-Impedance State		--	--	VDD	V
I_{VDD}	Maximum Average or DC Current Through VDD Pin (Per chip side, see Note 2)	T_J = 85°C	--	--	45	mA
		T_J = 110°C	--	--	22	mA
I_{GND}	Maximum Average or DC Current Through GND Pin (Per chip side, see Note 2)	T_J = 85°C	--	--	86	mA
		T_J = 110°C	--	--	41	mA
V_{IH}	HIGH-Level Input Voltage PIN 2, 3, 4, 5, 6, 7, 8	Logic Input with Schmitt Trigger at VDD=5.0V	3.34	--	VDD	V
		Low-Level Logic Input at VDD=5.0V	1.15	--	VDD	V
V_{IL}	LOW-Level Input Voltage PIN 2, 3, 4, 5, 6, 7, 8	Logic Input with Schmitt Trigger at VDD=5.0V	0	--	1.41	V
		Low-Level Logic Input at VDD=5.0V	0	--	0.77	V
V_{OH2}	HIGH-Level Output Voltage PIN 10, 12, 13, 14	Push-Pull 1X, I_{OH}=100µA at VDD2=1.8V	1.69	1.79	--	V
		Push-Pull 1X, I_{OH}=3mA at VDD2=3.3V	2.74	3.12	--	V
V_{OL}	LOW-Level Output Voltage PIN 2, 3, 4, 5, 6, 7, 8	Open Drain NMOS 1X, I_{OL}=5mA at VDD=5.0V	--	0.12	0.16	V
V_{OL2}	LOW-Level Output Voltage PIN 10, 12, 13, 14	Push-Pull 1X, I_{OL}=100µA at VDD2=1.8V	--	0.01	0.03	V
		Push-Pull 1X, I_{OL}=3mA at VDD2=3.3V	--	0.13	0.23	V
I_{OH2}	HIGH-Level Output Current (see Note 1) PIN 10, 12, 13, 14	Push-Pull 1X, V_{OH}=VDD-0.2V at VDD2=1.8V	1.07	1.70	--	mA
		Push-Pull 1X, V_{OH}=2.4V at VDD2=3.3V	6.05	12.08	--	mA

I_{OL}	LOW-Level Output Current (see Note 1) PIN 2, 3, 4, 5, 6, 7, 8	Open Drain NMOS 1X, V_{OL}=0.4V at VDD=5.0V	10.82	17.38	--	mA
I_{OL2}	LOW-Level Output Current (see Note 1) PIN 10, 12, 13, 14	Push-Pull 1X, V_{OL}=0.15V at VDD2=1.8V	0.92	1.69	--	mA
		Push-Pull 1X, V_{OL}=0.4V at VDD2=3.3V	4.88	8.24	--	mA
T_{SU}	Startup Time	From VDD rising past PON_{THR}	0.61	1.24	1.65	ms
PON_{THR}	Power On Threshold	V_{DD} Level Required to Start Up the Chip	1.41	1.54	1.66	V
$POFF_{THR}$	Power Off Threshold	V_{DD} Level Required to Switch Off the Chip	1.00	1.15	1.31	V

Note:
1. DC or average current through any pin should not exceed value given in Absolute Maximum Conditions.
2. The GreenPAK's power rails are divided in two sides. Pins 2, 3, 4, 5, 6, 7 and 8 are connected to one side, pins 10, 12, 13 and 14 to another.
3. Guaranteed by Design.

Package Top Marking



Datasheet Revision	Programming Code Number	Lock Status	Checksum	Part Code	Revision	Date
0.11	001	U	0x732F918C			07/12/2023

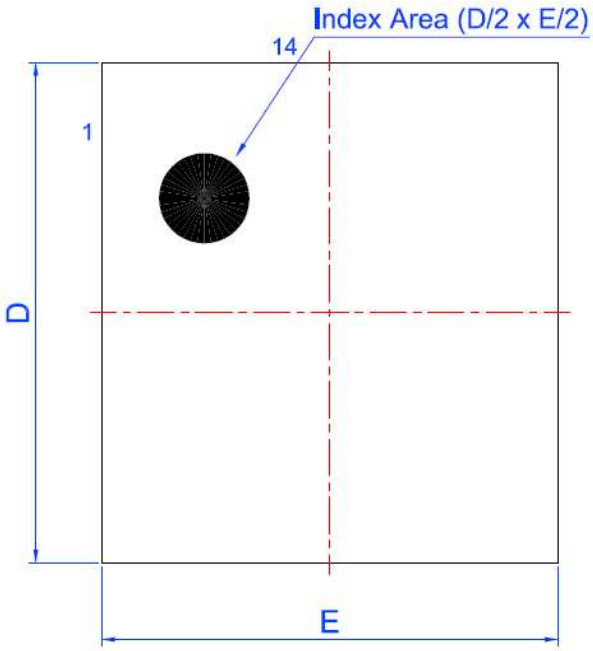
Lock coverage for this part is indicated by √, from one of the following options:

√	Unlocked
	Locked for read, bits <1535:0>
	Locked for write, bits <1535:0>
	Locked for write all bits
	Locked for read and write bits <1535:0>
	Locked for read bits <1535:0> and write of all bits

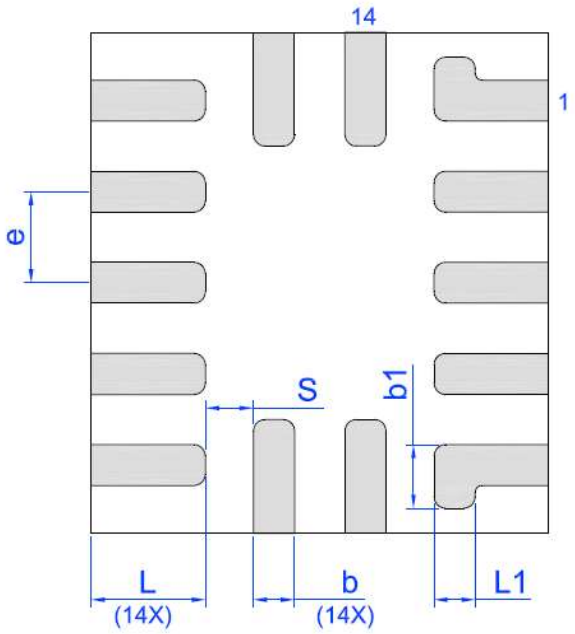
The IC security bit is locked/set for code security for production unless otherwise specified. The Programming Code Number is not changed based on the choice of locked vs. unlocked status.

Package Drawing and Dimensions

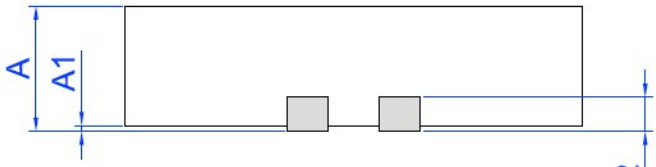
STQFN 14L 2 x 2.2mm 0.4P COL Package
JEDEC MO-220, Variation WECE



Top View (PKG face down)



BTM View



SIDE View

Unit: mm

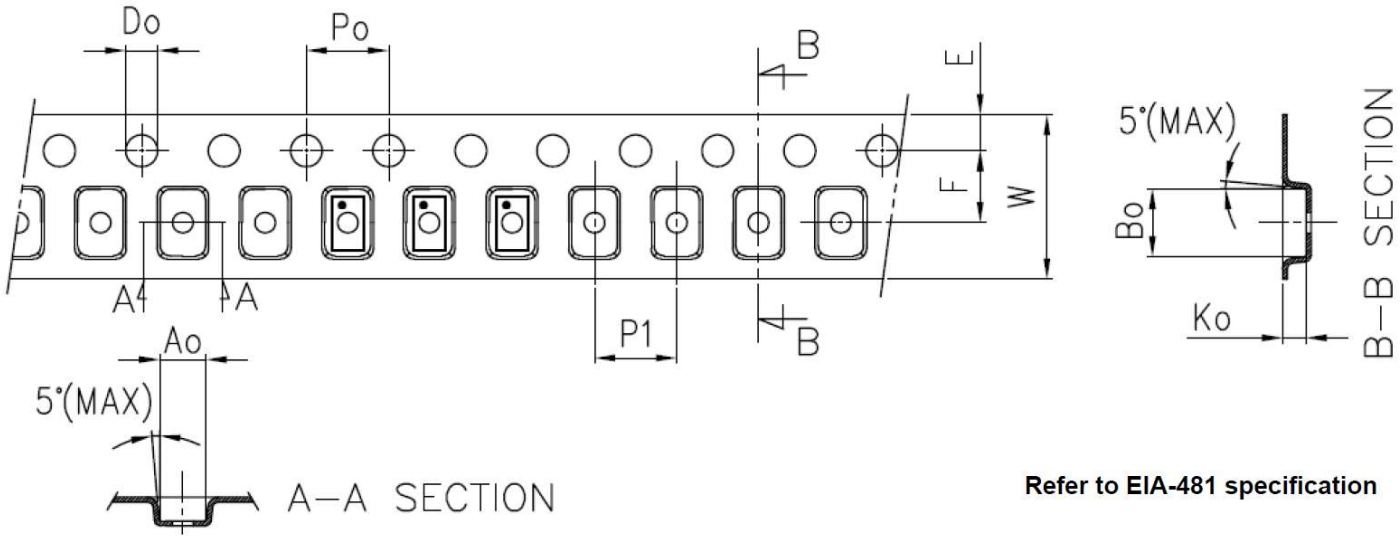
Symbol	Min	Nom.	Max	Symbol	Min	Nom.	Max
A	0.50	0.55	0.60	D	2.15	2.20	2.25
A1	0.005	-	0.050	E	1.95	2.00	2.05
A2	0.10	0.15	0.20	L	0.45	0.50	0.55
b	0.13	0.18	0.23	S	0.21 TYP		
e	0.40 BSC			b1	0.28 TYP		
				L1	0.18 TYP		

Tape and Reel Specification

Package Type	# of Pins	Nominal Package Size [mm]	Max Units		Reel & Hub Size [mm]	Leader (min)		Trailer (min)		Tape Width [mm]	Part Pitch [mm]
			per Reel	per Box		Pockets	Length [mm]	Pockets	Length [mm]		
STQFN 14L 2x2.2mm 0.4P COL	14	2 x 2.2x 0.55	3000	3000	178/60	100	400	100	400	8	4

Carrier Tape Drawing and Dimensions

Package Type	Pocket BTM Length	Pocket BTM Width	Pocket Depth	Index Hole Pitch	Pocket Pitch	Index Hole Diameter	Index Hole to Tape Edge	Index Hole to Pocket Center	Tape Width
	A0	B0	K0	P0	P1	D0	E	F	W
STQFN 14L 2x2.2 mm 0.4P COL	2.2	2.35	0.8	4	4	1.5	1.75	3.5	8

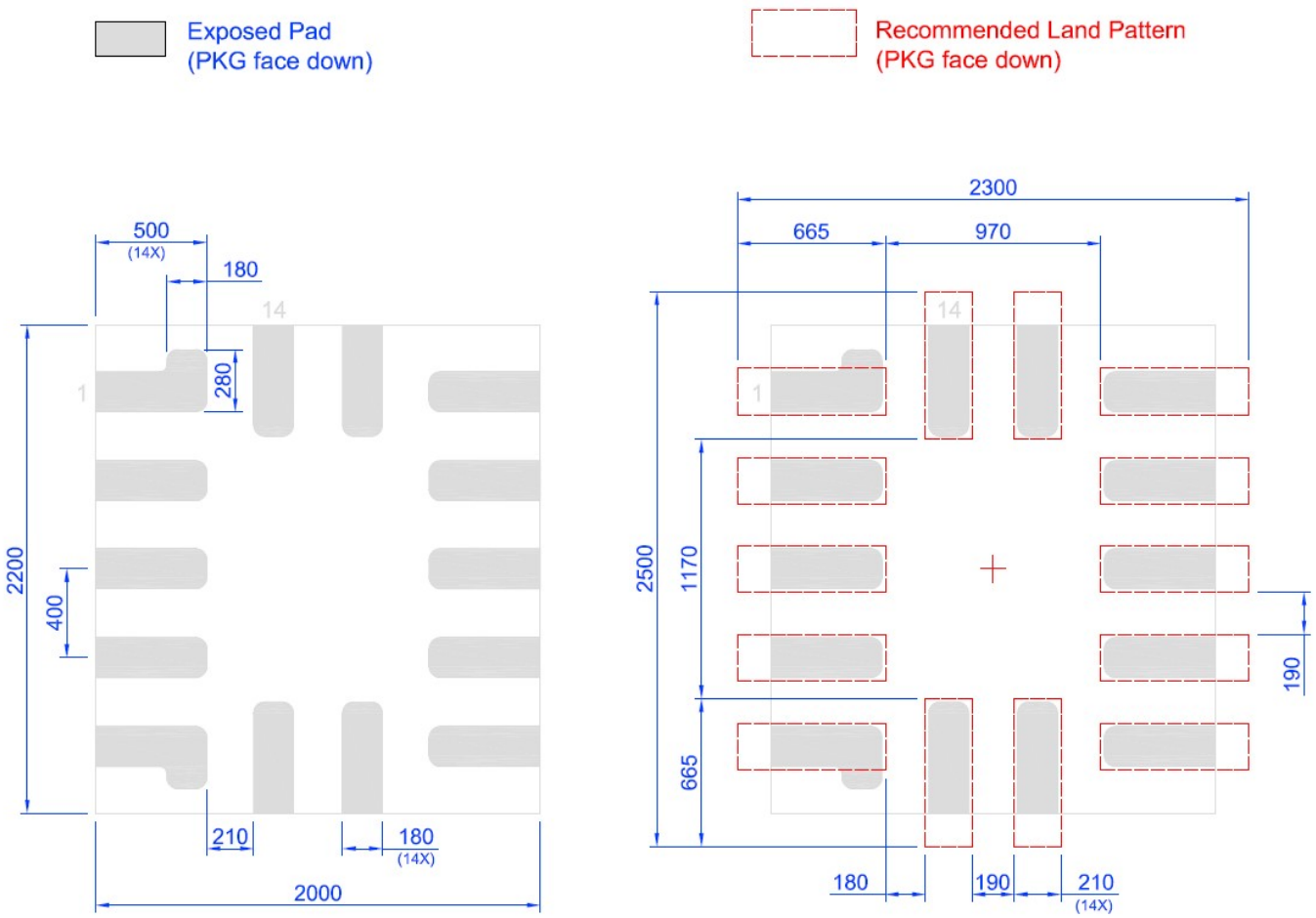


Refer to EIA-481 specification

Recommended Reflow Soldering Profile

Please see IPC/JEDEC J-STD-020: latest revision for reflow profile based on package volume of 2.42 mm^3 (nominal). More information can be found at www.jedec.org.

Recommended Land Pattern



Unit:um

Datasheet Revision History

Date	Version	Change
10/12/2021	0.10	New design for SLG46535 chip
07/12/2023	0.11	Moved to Renesas template

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