



Electronics for the Future

# High speed, High Power Laser Drive with EcoGaN™ and Gate Driver for LiDAR Reference Design Brief

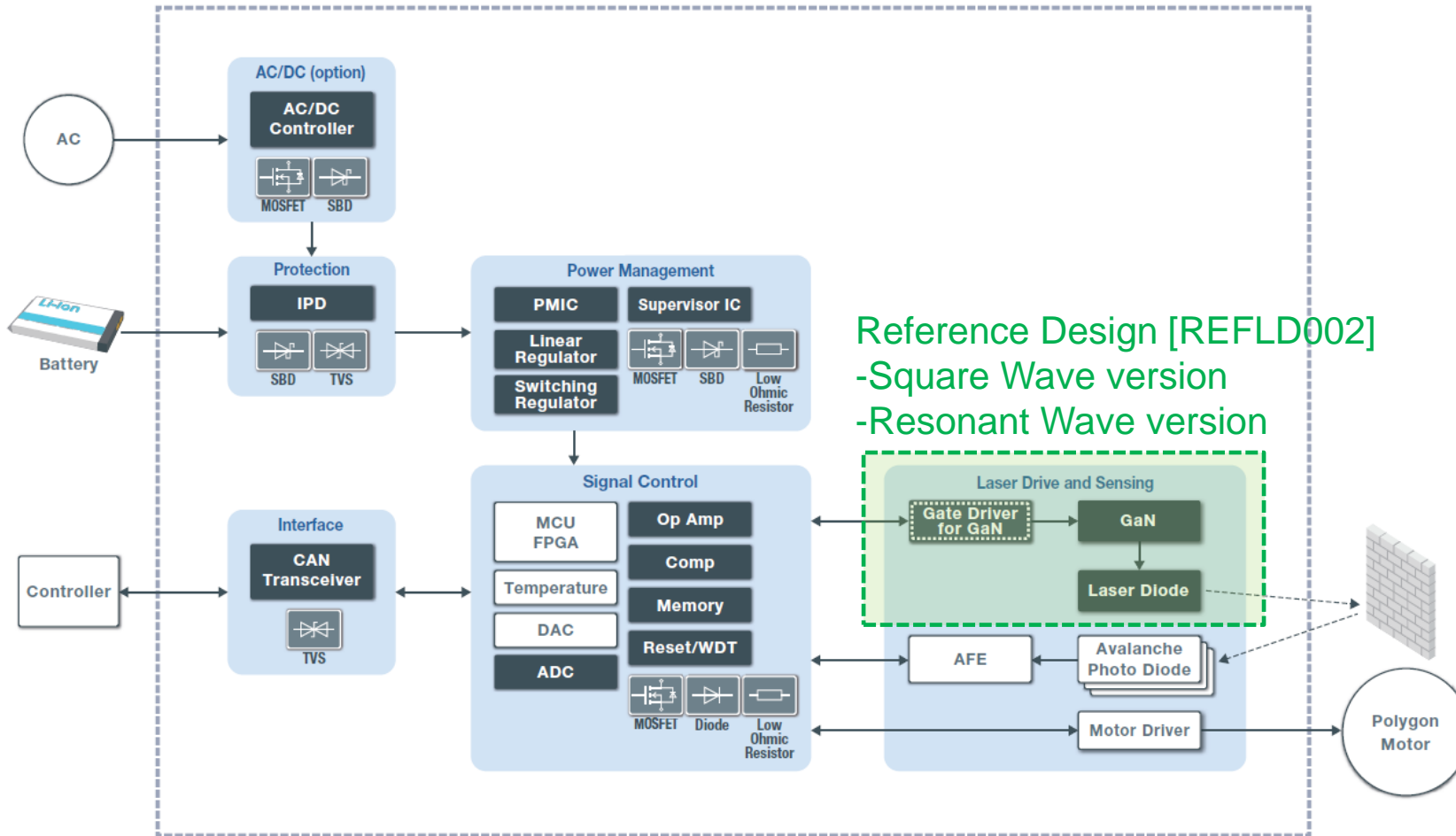
Reference Design No. REFLD002



\*EcoGaN™ is a trademark or registered trademark of ROHM Co., Ltd.

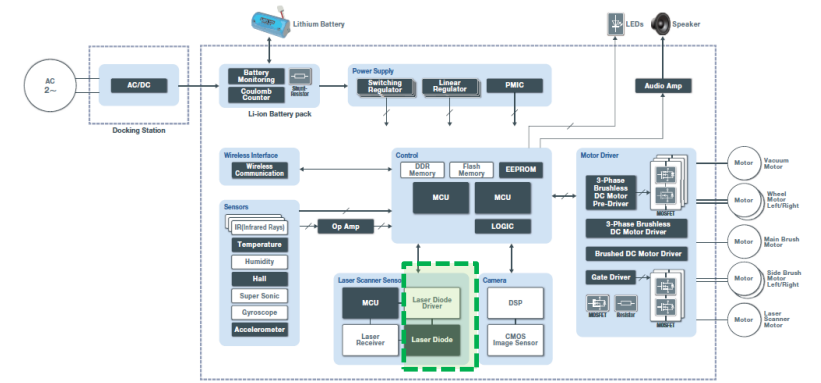
# LiDAR function in Applications

## Industrial LiDAR [\[JP\]](#) [\[EN\]](#) [\[CN\]](#)

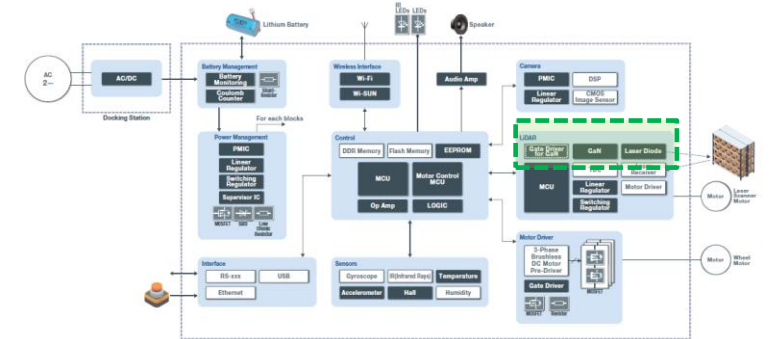


Reference Design [REFLD002]  
 -Square Wave version  
 -Resonant Wave version

## Robot Cleaner [\[JP\]](#) [\[EN\]](#) [\[CN\]](#)



## AGV [\[JP\]](#) [\[EN\]](#) [\[CN\]](#)



Legend for the diagrams:

- : Target application
- : Sub system
- : ROHM product category
- : ROHM product category (Discrete device)
- : ROHM product category (Under Development) Please contact to ROHM's sales department for further details.
- : Non ROHM product

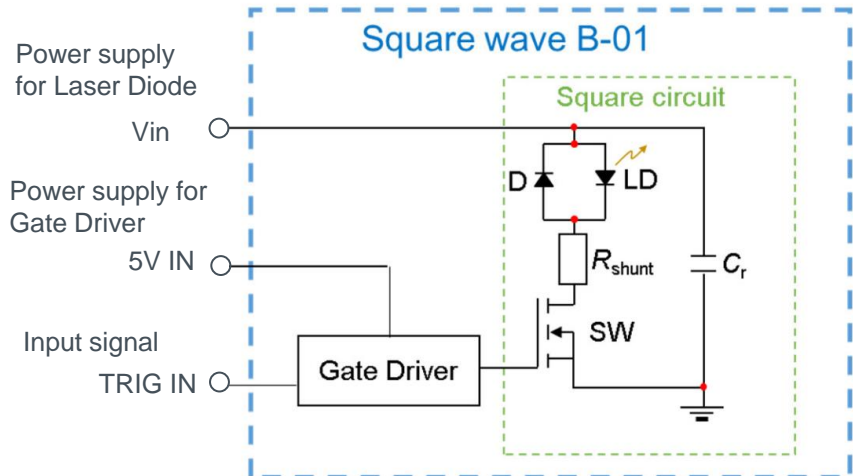
Reference Design No.		REFLD002-1	REFLD002-2
Board Name		S Wave B-01	R Wave B-01
Driving circuit method		Square wave	Resonant Wave
Products	Laser Diode	RLD90QZW8 905nm 120W High Power	RLD90QZW3 905nm 75W High Power
	GaN HEMT	GNE1040TB EcoGaN™ Rds(on) = 40mΩ	
	Gate Driver	BD2311NVX-LB / -C 1Ch	

# S Wave B-01 (Square Wave) information

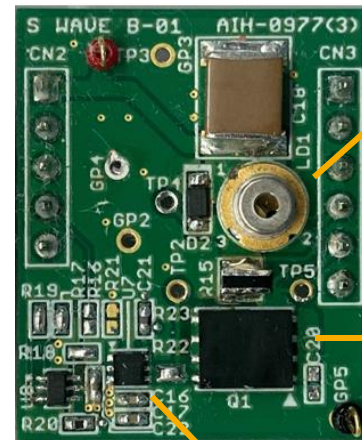
## Evaluation Condition

Parameter	Value	Unit
Power Supply for Laser Diode : $V_{in}$	~ 60	V
Power Supply for Gate Driver : 5V IN	5	V
Input Signal (Low level / High level) : TRIG IN	0 / 5	V
Switching Frequency : $f_{sw}$	0.1 to 0.5	kHz
Operating Temperature : $T_a$	25	°C

## Block Diagram



## Top View



Laser Diode : RLD90QZW8

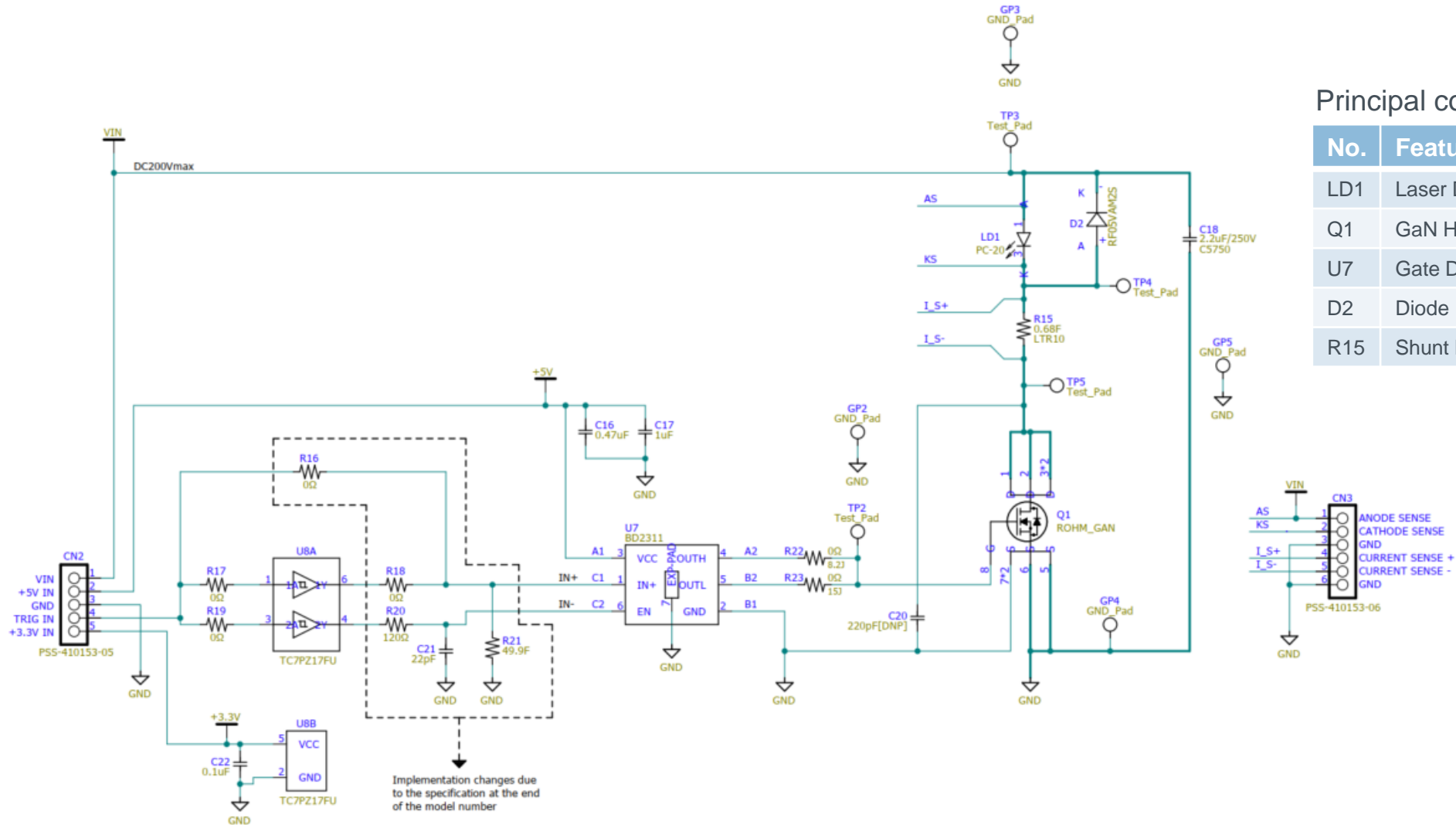
GaN HEMT : GNE1040TB

Gate Driver : BD2311NVX-LB



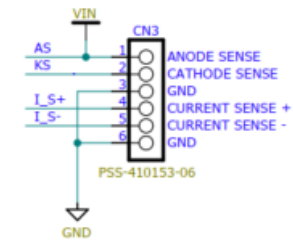
# S Wave B-01 (Square Wave) information

## Schematic



### Principal components

No.	Feature	Product No.
LD1	Laser Diode	RLD90QZW8 <a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
Q1	GaN HEMT	GNE1040TB <a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
U7	Gate Driver	BD2311NVX-LB <a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
D2	Diode	RF05VAM2S <a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
R15	Shunt Resistor	LTR10 <a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>

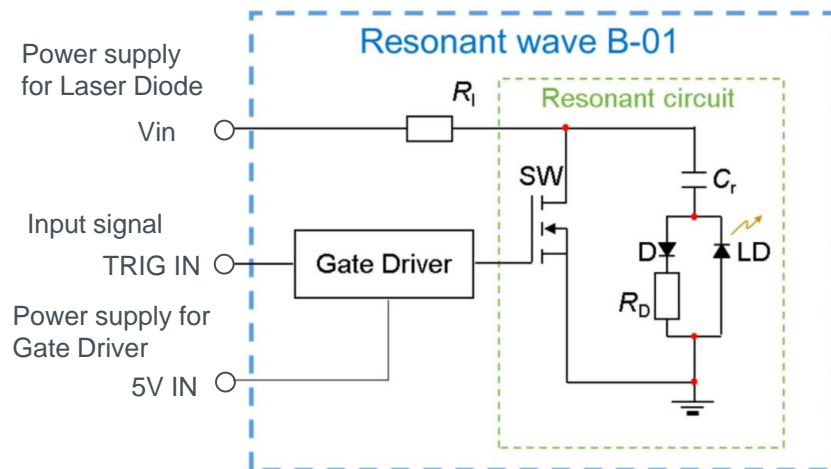


# R Wave B-01 (Resonant Wave) information

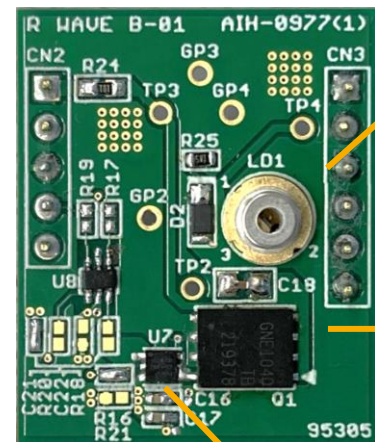
## Evaluation Condition

Parameter	Value	Unit
Power Supply for Laser Diode : $V_{in}$	~ 120	V
Power Supply for Gate Driver : 5V IN	5	V
Input Signal (Low level / High level) : TRIG IN	0 / 5	V
Switching Frequency : fsw	0.1 to 100	kHz
Operating Temperature : $T_a$	25	°C

## Block Diagram



## Top View



Laser Diode : RLD90QZW3

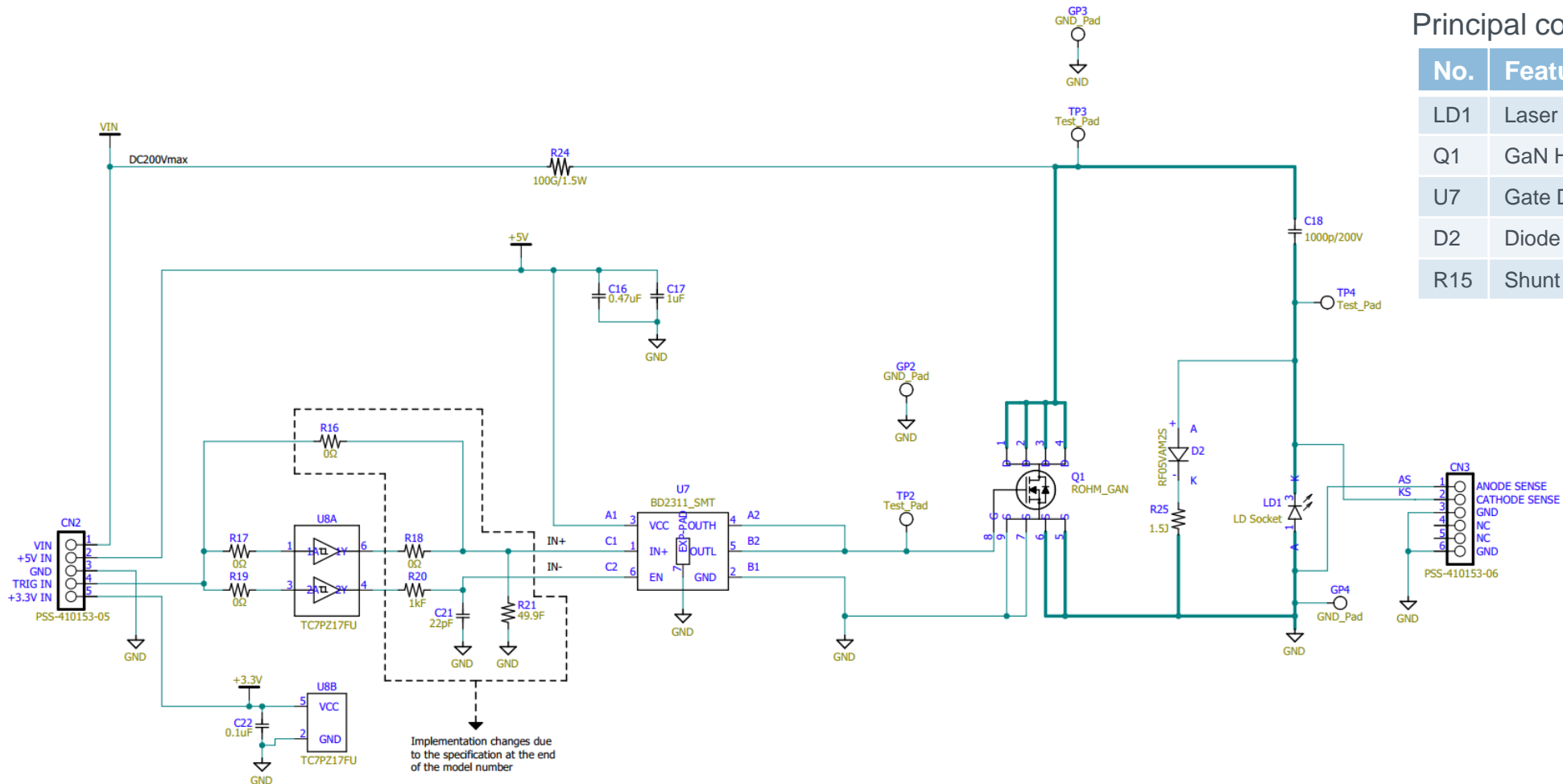
GaN HEMT : GNE1040TB

Gate Driver : BD2311NVX-LB



# R Wave B-01 (Resonant Wave) information

## Schematic



## Principal components

No.	Feature	Product No.	
LD1	Laser Diode	RLD90QZW3	<a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
Q1	GaN HEMT	GNE1040TB	<a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
U7	Gate Driver	BD2311NVX-LB	<a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
D2	Diode	RF05VAM2S	<a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>
R15	Shunt Resistor	LTR10	<a href="#">[JP]</a> <a href="#">[EN]</a> <a href="#">[CN]</a>



Electronics for the Future

**Other Reference Designs**

[Japanese] [リファレンスデザイン | ローム株式会社 \(rohm.co.jp\)](http://rohm.co.jp)

[English] [Reference Design | ROHM Co., Ltd.](http://rohm.com)

[Chinese] [参考设计 | 罗姆半导体集团 \(rohm.com.cn\)](http://rohm.com.cn)



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