



Electronics for the Future

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

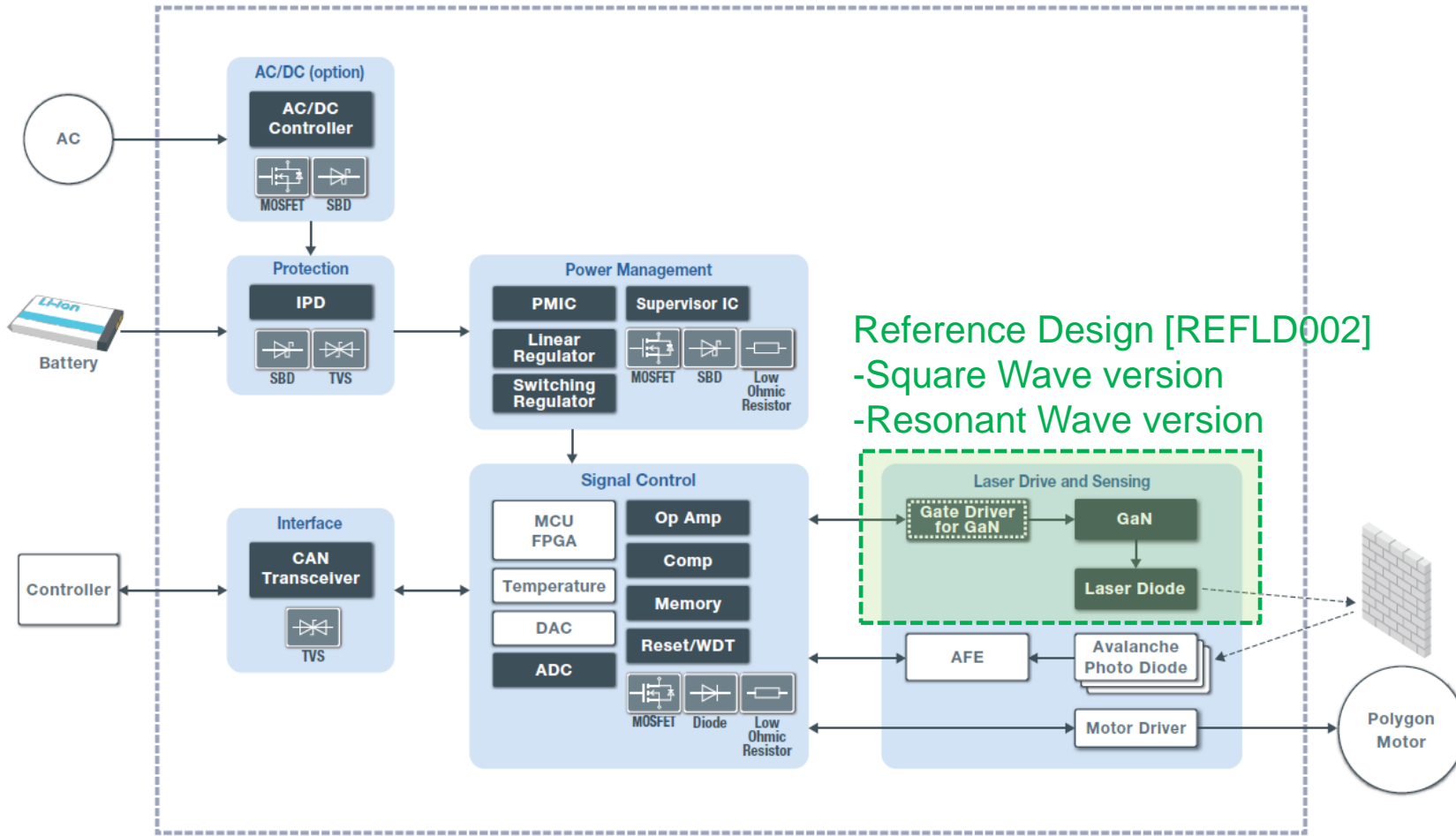
Reference Design No. REFLD002



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

LiDAR function in Applications

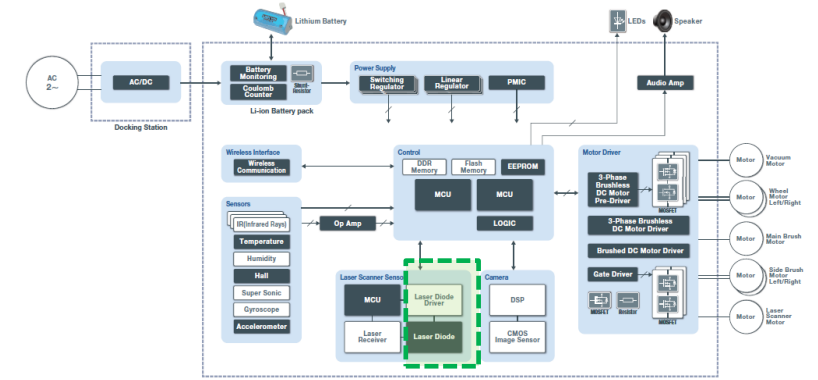
Industrial LiDAR [\[JP\]](#) [\[EN\]](#) [\[CN\]](#)



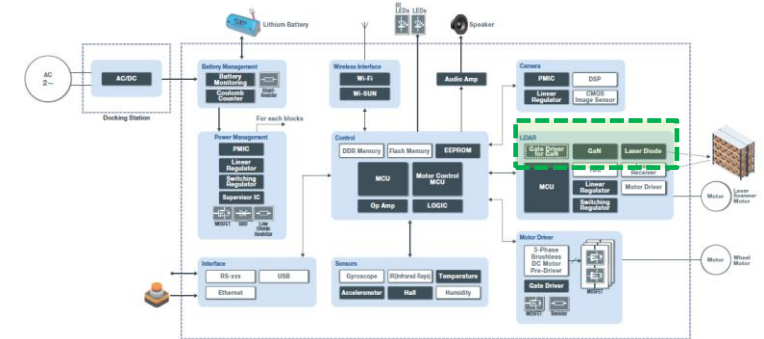
Reference Design [REFLD002]
-Square Wave version
-Resonant Wave version

: 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

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



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



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-C (*1) 1Ch	

(*1) Under development

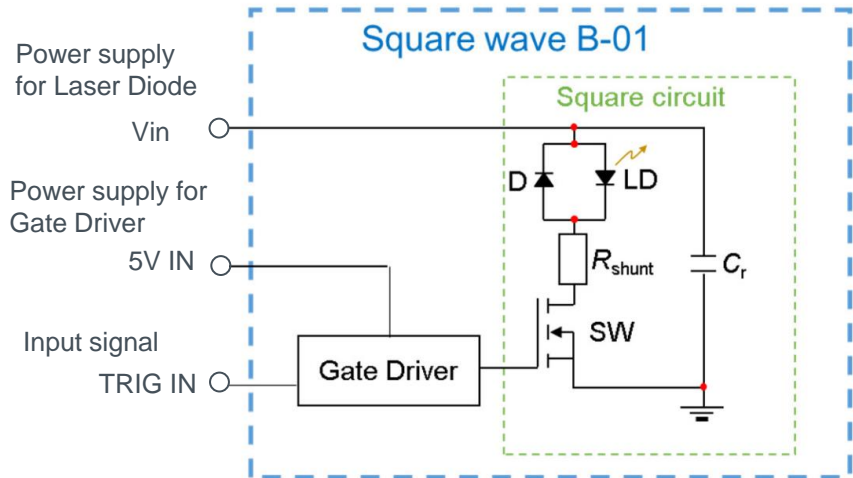
S Wave B-01 (Square Wave) information

No. 65QS006E REV.001
OCT/2022

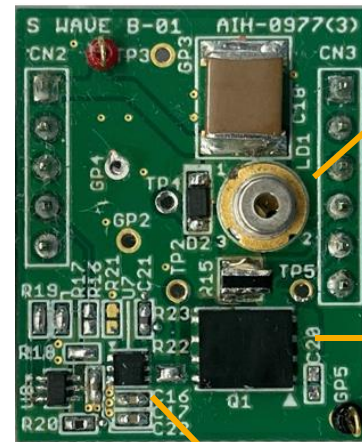
Evaluation Condition

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



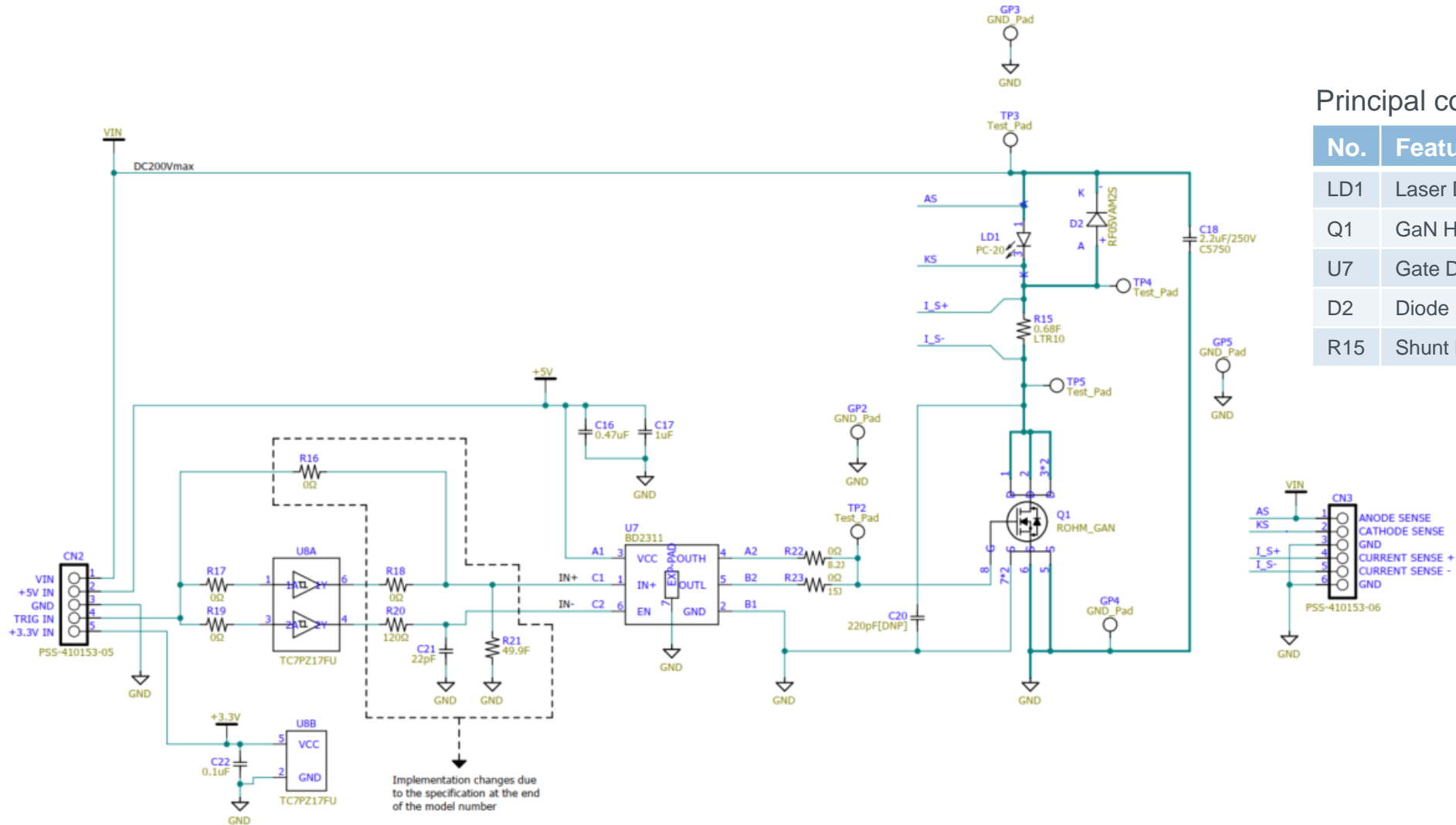
GaN HEMT : GNE1040TB

Gate Driver : BD2311NVX-C (Under Development)

S Wave B-01 (Square Wave) information

Schematic

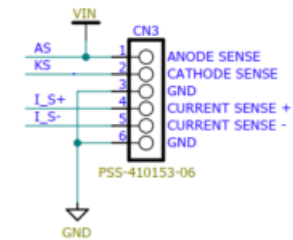
No. 65QS006E REV.001
OCT/2022



Principal components

No.	Feature	Product No.
LD1	Laser Diode	RLD90QZW8 [JP] [EN] [CN]
Q1	GaN HEMT	GNE1040TB [JP] [EN] [CN]
U7	Gate Driver	BD2311NVX-C(*1)
D2	Diode	RF05VAM2S [JP] [EN] [CN]
R15	Shunt Resistor	LTR10 [JP] [EN] [CN]

(*1) Under development



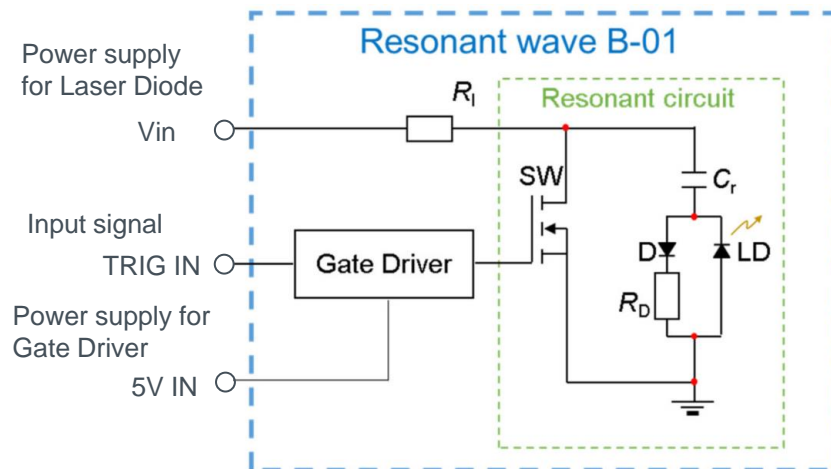
R Wave B-01 (Resonant Wave) information

No. 65QS006E REV.001
OCT/2022

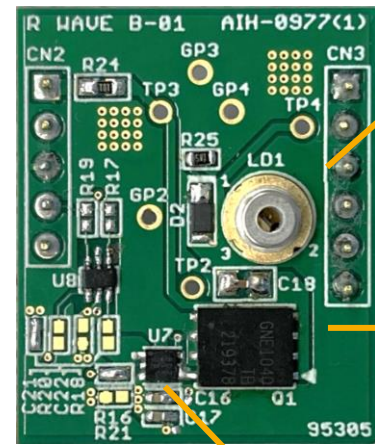
Evaluation Condition

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

EcoGaN

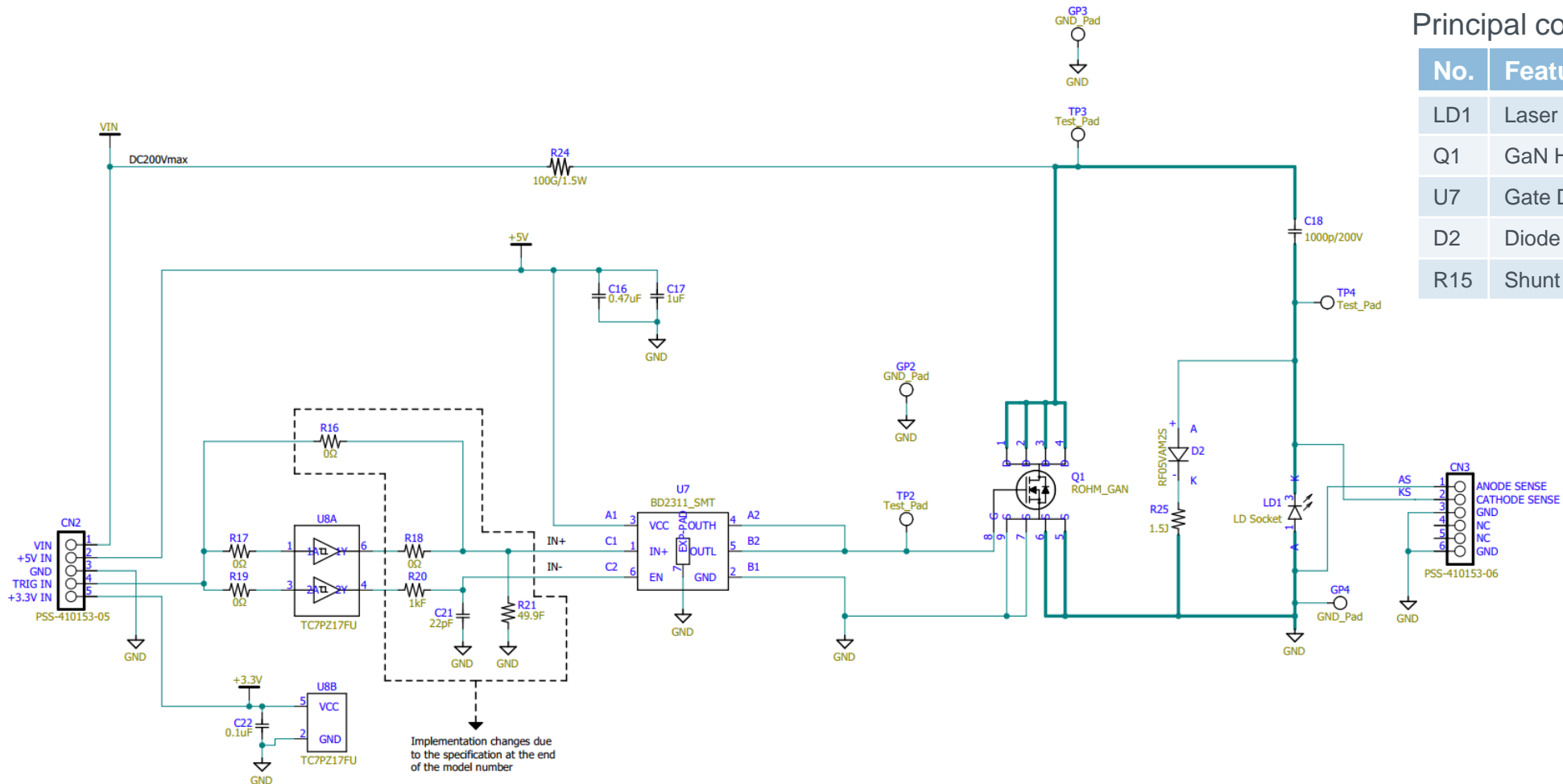
GaN HEMT : GNE1040TB

Gate Driver : BD2311NVX-C (Under Development)

R Wave B-01 (Resonant Wave) information

Schematic

No. 65QS006E REV.001
OCT/2022



Principal components

No.	Feature	Product No.
LD1	Laser Diode	RLD90QZW3 [JP] [EN] [CN]
Q1	GaN HEMT	GNE1040TB [JP] [EN] [CN]
U7	Gate Driver	BD2311NVX-C(*1)
D2	Diode	RF05VAM2S [JP] [EN] [CN]
R15	Shunt Resistor	LTR10 [JP] [EN] [CN]

(*1) Under development



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Other Reference Designs

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