

#### Electronics for the Future



## Industry 48V, 400W Isolated DC/DC Converter with <u>EcoGaN™</u> **Reference Design Brief**

Reference Design Number : REFPDT006

## 48V, 400W Isolated DC/DC Converter with EcoGaN™



No. 65QS002E Rev.003 NOV./2022

## Feature

- •Full-Bridge Isolated Step Down DC/DC Converter
- High speed switching EcoGaN<sup>™</sup>
- •High speed Gate Driver for GaN HEMT
- Isolated DC/DC Controller
- Smaller component area vs Si-MOSFET solution

## **Board Image**



## Specification

Parameter		Specification
Reference Design No.		REFPDT006
Input Voltage		48V (40V to 60V)
Output Voltage		24V
Output Current		15A
Products	EcoGaN™	GNE1007TB [JP][EN][CN]
	Gate Driver	BD2121xxx(*)
	Controller	BD13000xxx(*)
Size		150 mm x 90 mm
Brief		REFPDT006_Breif
		(*) Under Development

#### REFPDT006 EcoGaN<sup>™</sup> discrete solution

## 48V, 400W Isolated DC/DC Converter with EcoGaN™



Rohm can offer solutions not only for GaN HEMTs but also for GDICs and controllers

**Schematic** 



#### REFPDT006 EcoGaN<sup>™</sup> discrete solution

## 48V, 400W Isolated DC/DC Converter with EcoGaN™



## Board Image

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BACK

TOP

#### REFPDT006 EcoGaN<sup>™</sup> discrete solution

#### Compare with Si MOSFET and EcoGaN™

# Can be operated at 2.5 times the frequency with the same efficiency as Si-MOSFET It realized smaller components area



**Inductor** 10μΗ to 4.7μΗ -540mm<sup>2</sup>

**Capacitor** 1060µH to 420µH -100mm<sup>2</sup>



#### EcoGaN<sup>™</sup> Discrete

Fsw=500KHz





Saving 25 x 25mm Area

No. 65QS002E Rev.003 NOV./2022

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### EcoGaN<sup>™</sup> Product Lineup



#### No. 65QS002E Rev.003 NOV./2022 **Product Lineup** I<sub>DS</sub> [A] Tc=25℃ Q<sub>g</sub> [nC] **Product Number** $V_{DS}[V]$ $V_{GS}$ [V] $R_{DS(on)}$ [m $\Omega$ ] Package [mm] DFN5060 GNE1040TB [JP][EN][CN] 10 40 2.0 $[5.0 \times 6.0 \times 1.0]$ ☆ GNE1015TB [<u>JP</u>][<u>EN</u>][<u>CN</u>] 150 8 15 4.9 15 7 **☆GNE1007TB** [<u>JP</u>][<u>EN</u>][<u>CN</u>] 20 10.2

 $\sum_{i=1}^{n}$ : Under Development

#### **Applications**

- Data center server
- Base station (5G)
- LIDAR [JP] [EN] [CN]
- D-class audio amplifier





**Base station** 

Data center





#### **Schematics**





**High Optical Output Laser Diode** RLD90Q Series [JP][EN][CN]

No. 65QS002E Rev.003 NOV./2022



## **Electronics for the Future**

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