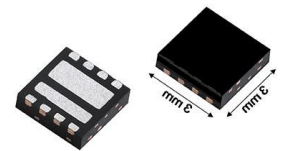




# New Space-Saving SiZ240DT Integrated 40 V MOSFET Half-Bridge Power Stage Offers Best in Class $R_{DS(ON)}$ and FOM in Compact PowerPAIR® 3x3S Package to Increase Power Density and Efficiency

## Product Benefits:

- High side and low side TrenchFET® MOSFETs integrated in one compact PowerPAIR® 3.3 mm by 3.3 mm package
  - Internally connected in a half-bridge configuration
  - Saves space over using discrete solutions, reducing component counts and simplifying designs
- On-resistance down to 8.05 m $\Omega$  at 10 V for the Channel 1 MOSFET and 8.41 m $\Omega$  at 10 V for the Channel 2 MOSFET
- Low gate charge of 6.9 nC (Channel 1) and 6.5 nC (Channel 2)
- Wire-free internal construction minimizes parasitic inductance
  - Enables high frequency switching and thus reduces the size of magnetics and final designs
- Optimized  $Q_{gd} / Q_{gs}$  ratio reduces noise to further enhance the device's switching characteristics
- 100 % Rg- and UIS-tested, RoHS-compliant, and halogen-free



## Market Applications:

- Motor control in vacuum cleaners, drones, power tools, motorized furniture, factory automation, and non-implantable medical devices
- Half-bridge power stages for synchronous buck, DC/DC conversions, wireless chargers, and switch-mode power supplies in telecom equipment and servers

## The News:

Vishay Intertechnology introduces a new 40 V n-channel MOSFET half bridge power stage that delivers increased power density and efficiency for white goods and industrial, medical, and telecom applications. Integrating high side and low side MOSFETs in one compact PowerPAIR 3.3 mm by 3.3 mm package, the Vishay Siliconix SiZ240DT provides best in class on-resistance and on-resistance times gate charge — a key figure of merit (FOM) for MOSFETs used in power conversion applications.

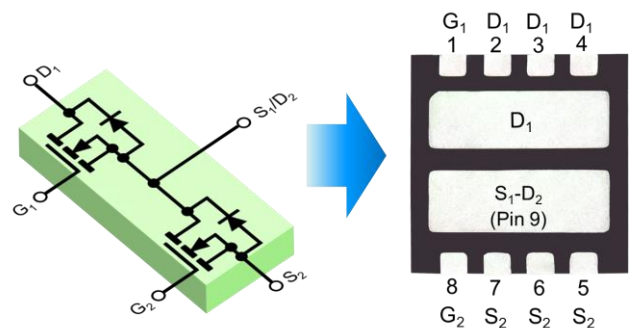


Figure 1. The two MOSFET devices are internally connected in a half bridge configuration in the PowerPAIR 3.3 mm by 3.3 mm package

- The Channel 1 MOSFET, with a  $R_{DS-Q_g}$  FOM of 65 m $\Omega$ -nC, is typically used as the control switch in a synchronous buck converter, while the Channel 2 MOSFET, with  $R_{DS-Q_g}$  FOM of 65.5 m $\Omega$ -nC, is typically a synchronous switch
- On-resistance times gate charge FOM is 14 % lower than the next best device, enabling higher efficiency for fast switching applications
- On-resistance values are up to 16 % lower than the closest competing products
- 65 % smaller than dual devices in 6 mm by 5 mm packages, the dual MOSFET is one of the most compact integrated products on the market
  - Conventional solutions using two discrete devices take up a total package footprint area of 63.34 mm<sup>2</sup> per MOSFET half-bridge
  - The SiZ240DT offers a MOSFET half bridge in a footprint area of 10.89 mm<sup>2</sup>

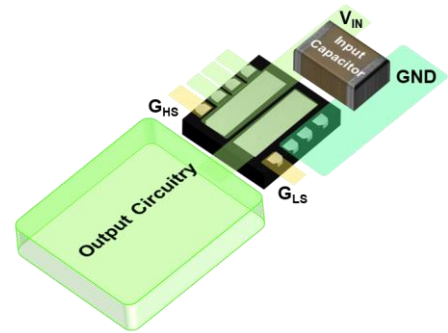


Figure 2. Illustrating a typical application for the SiZ240DT

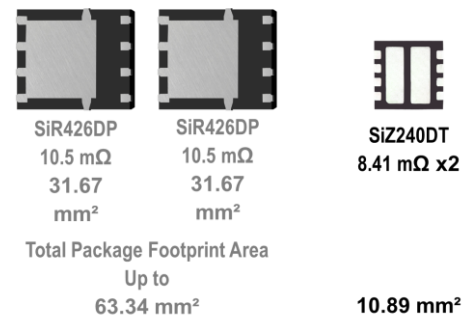


Figure 3. Comparing two 40 V discrete devices in the PowerPAK™ SO-8 and the SiZ240DT

## The Key Specifications:

Channel		1	2
$V_{DS}$ (V)		40	40
$R_{DS(ON)}$ max. (m $\Omega$ ) @	10 V	8.05	8.41
	4.5 V	12.25	13.30
$Q_g$ typ. (nC)		6.9	6.5
$I_D$ (A)		48	47

### Availability:

Samples and production quantities of the new dual MOSFET are available now, with lead times of 12 weeks for large orders.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?77182> (SiZ240DT)

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