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## *USB-C Adapter Design Demonstrates Feasibility Of 240 W From A Single 1C Port*

Pulsiv describes its new USB-C design as the industry's first to deliver 240 W from a single USB-C port, combining its OSMIUM ac-dc front-end technology with an industry-standard flyback which passes strict EMC and line current harmonic requirements. While this design is currently considered a proof of concept, the company plans to offer this design commercially in three forms—as a reference design, as a standard assembled module and as a custom assembled module. The reference design containing a datasheet, schematic, and bill of materials will be published on the company's website in the coming weeks.

According to Pulsiv, existing 240-W USB-C chargers distribute the power across multiple ports with a maximum of 140 W being delivered from a single 1C port. This leaves many higher power applications such as monitors, gaming laptops, and small domestic appliances unable to benefit from the common USB-C interface and fast-charging protocol.

Traditional boost PFC+LLC-based designs are notoriously noisy, so EMC compliance can be a challenge, says the vendor. It adds that they are also expensive and do not respond well to variable output voltages or rapidly changing load requirements. Pulsiv OSMIUM technology enables a flyback topology to be used at higher power levels, which solves all of these problems, says the vendor.

Delivering 240 W of power promises to reduce the charge time of battery-powered products. Chief product officer at Pulsiv, Tim Moore, who was also former chief technology officer at consumer brands, SharkNinja and GHD, comments, "The small domestic appliance market has been anxiously waiting for USB-C technology to achieve higher power levels. Cordless power/garden tools, vacuums and portable kitchen appliances are just a small selection of products that can benefit from super-fast efficient USB-C charging. With battery technology already well advanced, 240 W enables charge times to be reduced by up to 80%, smashing charge anxiety and driving a new paradigm for small domestic appliances."

Pulsiv's director of global sales, Nick Theodoris, says "240-W USB-C is causing huge excitement in the industry. Manufacturers of in-wall sockets, in-desk solutions, and after-market chargers can now bring new levels of charging within existing products, but this further enables them to develop entirely new solutions too. However, the interest doesn't stop there. Applications such as televisions, monitors, projectors, and games consoles which don't require charging, can benefit from 240-W USB-C power supplies. It enables the entire power electronics to be removed from the product which significantly reduces the overall size, weight, and cost."

The company's strategy for deploying this exciting technology adds further flexibility for customers.

The standard, fully assembled module will come with 1 x USB-C connector. The specification and design of this standard module has already started and pre-orders for samples can be placed now for delivery in late March 2025, with mass production quantities being delivered from July 2025 onwards. A number of Pulsiv's distributors, including Digikey, will also stock the standard modules for fast delivery to customers globally.

For those with more-specific requirements, custom assembled modules will also be offered. This will enable customers to determine their own specification, which can include the number and location of USB connectors, input voltage range, and any specific mechanical form factor requirements. This flexible option will come with an NRE of just $10,000 and an MOQ of 500 pcs. providing a very reasonable entry point for everyone.

For more information on this 240-W design, please contact the Pulsiv team or the company's website.