

General Description

The 65W 2C+1A PD 3.0 PPS Adaptor EVB is designed to support two main objectives. First, meet Energy Regulation for efficiency and standby power with acceptable thermal performance and Second, support smart dynamic power sharing scheme among three charging Ports-2 Type C PD ports and 1 Type A port.

The design is a two-stage flyback+DC/DC Buck power topology to support three independent charging ports - arranged as Stage 1, AC to-CV (Constant Voltage) input stage and Stage 2, CV-to-Charging DC output stage. The system configuration is organized as two main paths - dual Type C PD Paths for charging two PD capable devices and one Type A Path for charging Type A device. The AC-to-CV power stage is composed of three main PREMA parts -1) Primary side CCM/QR Flyback controller--PP5200, offers the DCM/CCM PWM switching, 2) 650V/200mohm GaN Transistor--PP6262 and 3)Secondary side SR controller--PP6008, supports Synchronous Rectification under DCM or CCM operation mode.

Key Features

The 65W 2C+1A PD GaN-based adapter reference design provides a cased turn-key solution with the following key features:

- Compact 70 x 31 x 32mm PCBA dimension size;
- High power density up to 15.4W/in³ and high system efficiency up to 91%;
- Dual Type-C ports and one Type-A port output with smart power distribution;
- USB Type-C1 Port support maximum output of 65W(20V/3.25A) with PD3 Function and PPS;
- USB Type-C2 Port support maximum output of 30W(20V/1.5A) with PD3 Function and PPS;
- USB Type-A Port support maximum output of 30W(20V/1.5A);
- Cost effective topologies with QR Flyback+DC/DC Buck;
- Pass EN55032 Class B standard for conduction and radiation EMI;
- Support most PD protocols including PD2.0/PD3.0, PPS, QC4.0+/QC4.0/QC3.0/QC2.0,AFC, FCP, SCP, SFCP;
- Comprehensive system protections such as OVP, OCP, SCP, OLP and OTP;
- Average efficiency meet CoC Ver5 requirement.

